

**IRISH  
AGRÉMENT  
BOARD**



BUILDING PRODUCT CERTIFICATION

**CERTIFICATE No. 01/0086**

Radon Supplies Ltd.,  
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## **Radoncare Sump and Cavity Gas Vent System**

**The Irish Agrément Board** is designated by Government to issue European Technical Approvals.

Irish Agrément Board Certificates establish proof that the certified products are **'proper materials'** suitable for their intended use under Irish site conditions, and in accordance with the **Building Regulations 1997**.

**The Irish Agrément Board** operates in association with the **National Standards Authority of Ireland (NSAI)** as the National Member of UEAtc.



### **PRODUCT DESCRIPTION**

This Certificate relates to the Radoncare Sump and Cavity Gas Vent System designed to provide a potential means of extracting radon and dangerous gases from the substructure of a building. The Radoncare Sump is also designed to facilitate the rapid construction of a radon sump and to protect buildings against gas ingress from the ground. It is used in conjunction with an IAB Approved Radon Barrier in a radon classified area.

### **MANUFACTURE AND MARKETING**

The product is marketed by:

**Radon Supplies Ltd., The Business Park, Dublin Road, Carrick-on-Shannon, Co. Leitrim.**

The product is manufactured by:

**Rotary Mouldings (R.O.M. Plastics), Glenamaddy, Co. Galway.**

### **USE**

The system is designed to offer two main functions:

1. The system acts as a radon sump designed to reduce the pressure of radon or other soil gas laden air under the substructure of a building.
2. The system offers a facility for the installation of an extraction system if required on the basis of subsequent Radon level testing or the introduction of safer concentration levels in the future. This potential means of extracting radon and dangerous gases is done through the use of the Radoncare cavity gas vent.

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**1.1 ASSESSMENT**

In the opinion of the Irish Agrément Board (IAB), the Radoncare Sump and Cavity Gas Vent System is satisfactory for the purpose defined above and meets the requirements of the Building Regulations 1997 as indicated in Section 1.2 of this Certificate.

**1.2 BUILDING REGULATIONS 1997****D1 & D3 MATERIALS & WORKMANSHIP (1997) revised 2000**

**D3** – The Radoncare Sump and Cavity Gas Vent System as certified in this Irish Agrément Board Certificate are comprised of proper materials fit for their intended use. (See Part 4 of this Certificate).

**D1** - The Radoncare Sump and Cavity Gas Vent System as certified in this Irish Agrément Board Certificate meet the requirements of the Building Regulations for workmanship.

**A1 - Loading**

The Radoncare Sump and Cavity Gas Vent System when installed and used as indicated in this certificate have adequate strength and stiffness to accept floor loads. (See Part 3 of this Certificate).

**B3 - (1) (3) Internal Fire Spread (Structure**

The Radoncare Sump and Cavity Gas Vent System meet the requirements when used in accordance with Part 4 of the Irish Agrément Certificate in ground floor constructions.

**C2 - Subsoil**

The Radoncare Sump and Cavity Gas Vent System is designed to be located above the water table in permeable soil.

**C3 - Dangerous substances**

Every ground floor must include a Radon Sump and provide the facility for extracting "dangerous substances" e.g. radon, methane. Where it is shown that protection from dangerous substances e.g. radon, methane, is required, an IAB approved gas resistant membrane and gas handling system must be provided under the ground floor of a building.

The Radoncare Sump and Cavity Gas Vent System offers the potential facility of extracting "dangerous substances" i.e. radon and methane, from the substructure of a building. When used in accordance with Part 3 of this Certificate it will provide a potential means of extracting radon from a building.

**C4 - Resistance to weather and ground moisture**

The Radoncare Sump and Cavity Gas Vent System when used in accordance with Part 3 of this Certificate will meet the requirements of the Building Regulations.

**J3 - Protection of building**

When used in accordance with Part 4 of this Certificate, the Radoncare Sump and Cavity Gas Vent System meet the Building Regulation requirements.

**2.1 PRODUCT DESCRIPTION**

This Certificate relates to the Radoncare Sump and Cavity Gas Vent System, manufactured from rigid polyethylene plastic. The specified sizes for both sump and vent are shown under product range. The sump is constructed with a solid roof and base and is provided with 40mm diameter holes in the walls. Spigots for 100mm pipe connections are provided at each end of the sump, but are blanked off with knock outs to allow choice of direction for extract pipe. The cavity gas vent comes with a detachable Polyethylene cap, which can be easily removed if an extraction system has to be attached.

**Product Range** (The Radoncare Sump):

The product is available in:

Size: 450mm x 450mm x 230mm deep

Weight: 3kg

Colour: Green

**Product Range** (Cavity Gas Vent):

The product is available in:

Size: 400mm x 200mm x 50mm

Weight: 2kg

Colour: Available in six unobstrusive colours

**Ancillary Items:**

uPVC pipes and distribution manifolds to BS 4660 :1989 (1998) *specification for unplasticised Polyvinyl Chloride (PVC-U) pipes and plastic fittings of nominal sizes 110mm and 160mm for below ground gravity draining and sewerage.*

PVC ventilation pipes with gastight connections.

Connections for fan extractor.

Extractor fan.

**2.2 MANUFACTURE:**

The Radoncare Sump and Cavity Gas Vent System is manufactured by a rotational moulding process from heavy duty polyethylene (check BS).

**2.2.1 PRODUCT QUALITY CONTROL:**

Quality control checks are carried out on the raw material, during production and on the final product. Quality control on the final product includes checks on density, hardness, thickness, impact strength, weight and dimensions.

### 2.3 DELIVERY, STORAGE AND MARKING

The Radoncare Sump and Cavity Gas Vent System are supplied in wrappers bearing the manufacturer's name, product description, IAB Certificate No, and essential instructions for storage and installation. In addition to this the IAB Certificate No. and identification logo is moulded onto the sump. Sumps and vents should be stored in dry conditions below 60°C and protected from UV light.

### 2.4 INSTALLATION PROCEDURE

#### 2.4.1 General

Installation of the Radoncare Sump and Cavity Gas Vent System must be in accordance with the manufacturer's instructions and this certificate. Before the sump is placed in the permeable hardcore, the ground beneath the floor should be free of topsoil and vegetable matter. Where a concrete ground supported concrete floor is used this will result in providing a sump in the permeable hardcore layer under the slab. All hardcore should be of a clean grade and compacted once the sump is placed in an area of maximum percolation, i.e. in the upper levels of hardcore.

Where a site investigation reveals the presence of radon or dangerous gases an IAB approved radon barrier must be used with the Radoncare Sump and Cavity Gas Vent System. The sump should be placed as close as possible to the centre of the floor plan of the building and positioned so it will be tight up against the IAB approved radon barrier or damp proof membrane depending on the level of radon in the area.

One sump is sufficient for approximately 250m<sup>2</sup> and for a distance not more than 15m from a sump to the nearest external wall once clean permeable hardcore is used. However, due to building practice and quality of hardcore, it is recommended that when calculating the number of sumps for a building a factor of approximately 200m<sup>2</sup> should be taken for each sump allowing for a safety factor. Figure 1 illustrates a typical ground floor layout showing the Radoncare Sump and

Cavity Gas Vent System installed.

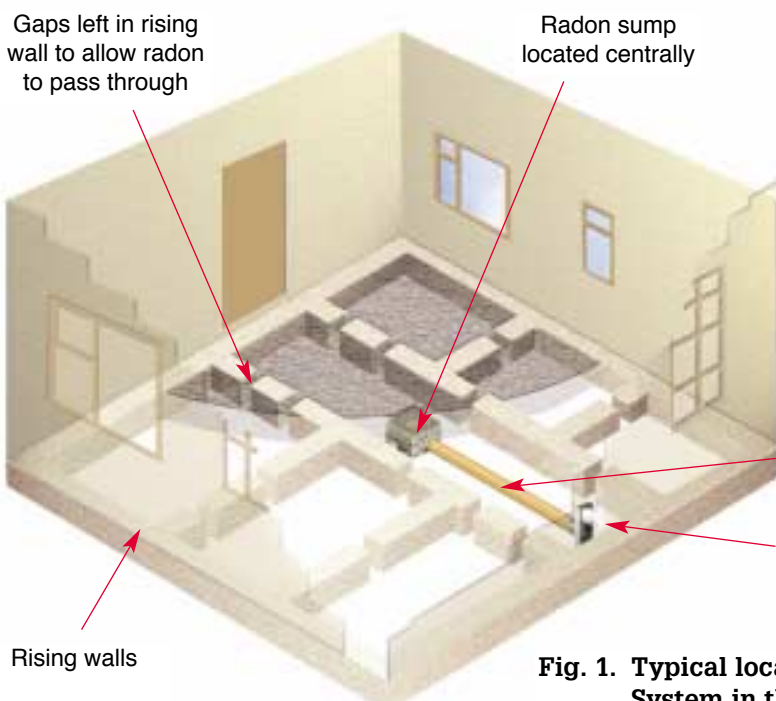
The sump has 4 no. 100mm diameter capped spigots located in the walls of the sump. If only one outlet is required remove only one cap and fit a standard straight connector, then fit a 100mm diameter pipe from this connector to terminate at the cavity gas vent placed in the cavity wall of the building. To ensure that subfloor ventilation does not enter the cavity, the Radoncare Cavity Gas Vents are sleeved through the cavity. All pipework laid in the clean compacted hardcore fill should be laid as standard drainage pipes with a fall towards the sump. Figure 1 shows the Radoncare sump located in a single dwelling connected with sealed pipework to the Radoncare Cavity Gas Vent in the cavity. Figure 1 also highlights the necessity to provide gaps in the internal rising walls of a building to allow for radon to pass through and prevent the build-up of dead spots in the permeable hardcore.

The cavity gas vent is capped with a removable cap to prevent vermin and rain penetration. The cap can be easily removed to allow the cavity gas vent to be connection to a suitable extraction system if required, due to a high presence of radon or other dangerous soil gases being detected from test readings. Figure 2 shows how a typical extraction system may be easily attached to the Radoncare Sump and Cavity Gas Vent System. To avoid drawing air in from the outside all pipework coming from the sump must have sealed joints and be sealed through the cavity. The Radoncare Cavity Gas Vent adequately seals through the cavity. The use of the Radoncare Cavity Gas Vent eliminates the possibility of drainage systems being accidentally connected to the sump. Where a pipe extends vertically into the attic space it must also be capped. The pipe can be easily extended and a fan fitted should a subsequent test reading require it.

Every dwelling should have at least one sump and an associated means of extraction. Where a change in level occurs with the ground floor of a single dwelling, an extra sump should be installed and connected as shown in Figure 3.

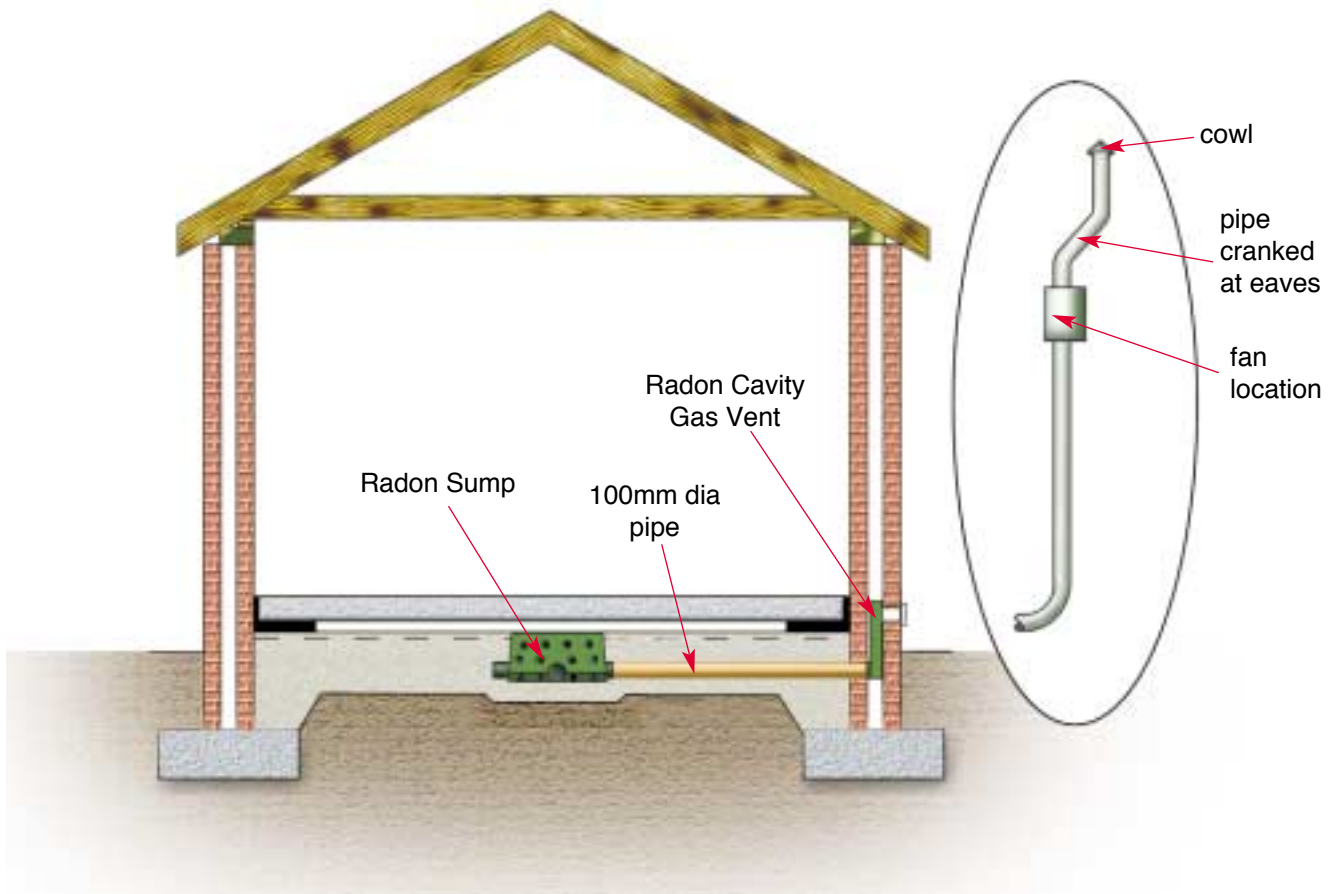
Where obstructions occur below the floor slab, this can result in a reduction of the effectiveness of the sump system and it may be necessary to provide (through vents) free airways to the rising walls or provide separate sumps in different levels.

The Radoncare sump must be surrounded by clean compacted hardcore and made firm immediately after placing and be protected from site traffic before the floor slab has been laid.



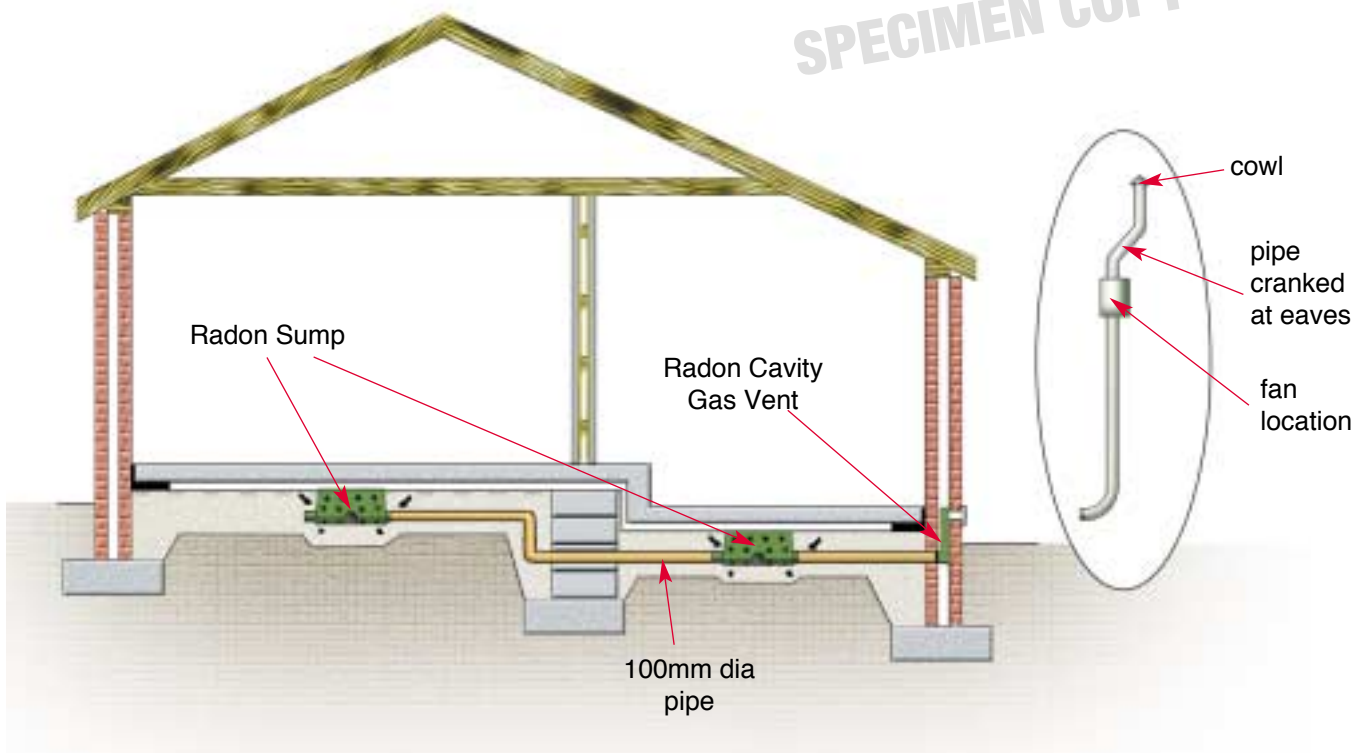
100mm dia pipe  
Vent.  
Pipe and fan can be fixed to vent on the basis of subsequent Radon level or on the introduction of safer concentration levels in the future.

**Fig. 1. Typical location of the Radoncare Cavity Gas System in the substructure of a single dwelling.**



**Fig. 2. Typical Cross section showing Radoncare Sump and Vent and pipework, optional mechanical extraction system can be fitted as required**

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**Fig. 2. Single dwelling with a change in level in the ground floor.**

**GENERAL**

Every ground floor must include a radon sump and provide the facility for extracting "dangerous substances" e.g. radon and methane. Where it is shown that protection from "dangerous substances" is required an IAB approved gas resistant membrane and gas handling system must be provided under the ground floor of a building. Sumps must be placed in an area of maximum percolation, that is, in the upper levels of hardcore.

**3.1 SITE CONDITIONS**

The Radoncare Sump and cavity vent system may be installed in all conditions normal to ground floor slab construction. Where there is a risk of the ground becoming waterlogged sub-soil drainage must be provided in accordance with I.S. 325 Part 2 and BS CP 102 : 1973 : *Code of Practice for the protection of buildings against water from the ground.*

**3.2 LOADING**

The Radoncare Sump has adequate strength and stiffness to sustain loading once installed in accordance with this certificate.

**4.1 TESTS/ASSESSMENTS**

The following is a summary of the technical investigations carried out on Radoncare Sump and Cavity Gas Vent System:

*Typical results are shown in Table 1 below.*

**4.2 MAINTENANCE**

No maintenance of the Radoncare Sump and Cavity Gas System is required.

**4.3 DURABILITY**

When installed in accordance with this Certificate and subject to normal conditions of use, the Radoncare sumps will provide an indefinite effective passive depressurisation system. (Replacement of fans will be required in active systems).

When installed in accordance with this Certificate, the membrane will be protected from ultraviolet light exposure during storage and when in use.

**4.4 BEHAVIOUR IN FIRE**

The Radoncare Sump and Cavity Gas Vent System are separated from the habitable side of the floor by the screed overlay, they will not contribute to the development stages of a fire or present a smoke or toxic hazard.

**4.5 OTHER INVESTIGATIONS**

- (i) Existing data on properties in relation to strength, and toxicity were assessed.
- (ii) The manufacturing process was examined including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.
- (iii) Site visits were conducted to assess the practicability of installation and the history of performance of the product.

**Table 1**

Physical Properties	Typical Value	Unit	Test Method
Melt Flow Rate (190 C 2.16 kg)	3.5	g/10 min	ISO 1133
Density	934	g/m <sup>3</sup>	ISO 1183
Tensile Modulus (1 mm/min)	500	Mpa	ISO 527-2
Stress at Yield (550 mm/min)	16	MPa	ISO 527-2
Strain at Yield (550 mm/min)	12	%	ISO 527-2
Flexural Modulus (2 mm/min)	550	Mpa	ISO 178
Hardness Shore D	55	—	ISO 868
Heat Deflection Temperature (0.45 N/mm <sup>2</sup> )	58	°C	ISO 75-2
Brittleness Temperature	<70	°C	ISO 974
ESCR	5	*	—

\* Grades ranged 1 to 5.5 is best

**5.1 CONDITIONS OF CERTIFICATION**

The National Standards Authority of Ireland (“NSAI”) following consultation with the Irish Agrément Board (“IAB”) has assessed the performance and method of installation of the product/process and the quality of the materials used in its manufacture and certifies the product/process to be fit for the use for which it is certified provided that it is manufactured, installed, used and maintained in accordance with the descriptions and specifications set out in this certificate and in accordance with the manufacturer’s instructions and usual trade practice. This certificate shall remain valid so long as:

- (a) the specification of the product is unchanged;
- (b) the Building Regulations, 1997 and any other regulation or standard applicable to the product/process, its use or installation remain unchanged;
- (c) the product continues to be assessed for the quality of its manufacture and marking by NSAI;
- (d) no new information becomes available, which in the opinion of the NSAI would preclude the granting of the certificate;
- (e) the product or process continues to be manufactured, installed, used and maintained in accordance with the description, specifications and safety recommendations set out in this certificate.

**5.2** The IAB mark and certification number may only be used on or in relation to products/processes in respect of which a valid certificate exists. If the certificate becomes invalid, the certificate holder must not use the IAB certification number and must remove them from products already marked.

**5.3** In granting this certificate, the NSAI makes no representation as to:

- (a) the presence or absence of patent rights subsisting in the product/process; or
- (b) the legal right of the certificate holder to market, install or maintain the product/process; or
- (c) whether individual products have been manufactured or installed by the certificate holder in accordance with the descriptions and specifications set out in this certificate.

**5.4** This certificate does not comprise all installation instructions and does not replace the manufacturer’s directions or any professional or trade advice relating to use and installation which may be appropriate.

**5.5** Any recommendations contained in this certificate relating to the safe use of the certified product or process are preconditions to the validity of the certificate. However, the NSAI does not certify that the manufacture or installation of the certified product or process in accordance with the descriptions and specifications set out in this certificate will satisfy the requirements of the Safety, Health and Welfare at Work Act, 1989 or of any other current or future statute or current or future common law duty of care owed by the manufacturer or by the certificate holder.

**5.6** The NSAI is not responsible to any person or body for loss or damage, including personal injury, arising as a direct or indirect result of the use of this product or process.

**5.7** Where reference is made in this certificate to any Act of the Oireachtas, regulation made thereunder, statutory instrument, code of practice, national standards, manufacturer’s instructions or similar publication, it shall be construed as reference to such publication in the form in which it is in force at the date of this certification.

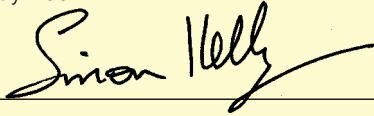
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## THE IRISH AGRÉMENT BOARD

This Certificate No. 01/0086 is accordingly granted by the NSAI to Radoncare on behalf of The Irish Agrément Board.

Date of Issue: May 2001

Signed: \_\_\_\_\_



Chief Executive, NSAI

Readers may check that the status of this Certificate has not changed by contacting the Irish Agrément Board, NSAI, Glasnevin, Dublin 9. Ireland.

Telephone: (01) 807 3800.

Telefax: (01) 807 3842.

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**Revised and Reprinted  
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