



# European Radon Solutions Database

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: *ERRICCA 2 European Radon Research and Industry Collaboration Concerted Action*  
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## Existing Buildings

### Case Study

Sheet N°

**Type** Air cushion method

**Country** Sweden

### Illustration



## Description

This semi-basement house was built in 1972 on a hillside on top of an esker, therefore on a high-risk area. Slab on ground construction with hollow-block walls in basement walls, the other walls are wooden.

This house is a demonstration house on the SSI training course about remedial measures. The house was also part of a project carried out in Sweden during 15 years about long-term performance of different radon remedial methods. Therefore follow-up measurements have been made every third year.

## Selection

The first reduction system that was installed in 1983 was a sub-slab suction system. The system had one suction point that was located in a storage room in one corner of the house. It didn't reduce the radon level, on the opposite, the radon level enhanced. In 1986 the system was replaced with a new one, which literally turned the airflow in the opposite direction. To reduce the amount of radon entering the building, sub-slab soil was pressurized with air from inside the house. This pushes away some of the radon containing air beneath the slab and decreases the air pressure to the slab from the soil. At one point in the middle of the slab a 100 W fan exhausts air from the house to the sub-slab soil. This method is called the air cushion method and has only been used in a few cases. The fan is insulated and equipped with dust filter. The dust filter prevents the sump from becoming covered with dust. This selection proved successful and effective. An advantage with the system is that the basement floor gets warmer.

## Pre-installation Diagnosis

Radon measurement indoor.

## Radon reduction achieved

The original level of radon was 2900 Bq/m<sup>3</sup>. The installation of a radon sump system resulted in levels on 3100 Bq/m<sup>3</sup>. Six follow-up measurements have been made after the new installation. All but one gives results between 40 and 110 Bq/m<sup>3</sup>. One exception was 920 Bq/m<sup>3</sup>. The explanation was that the walls in the room where the fan is were repainted and the painter had disconnected the electricity to the fan.

**Problems**

The dust filter must be cleaned regularly in order to maintain the effect. This type of installations has in some cases caused moisture problems.

**System enhancements****Further Information**

Further information can be found at SSI.

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