

World Radon Solutions

Prepared by :
ERRICCA 2 *European Radon Research and Industry Collaboration Concerted Action*
European Commission Contract N°: FIRI-CT-2001-20142

Existing Buildings

Case Study

Sheet N°

FR/CS/02

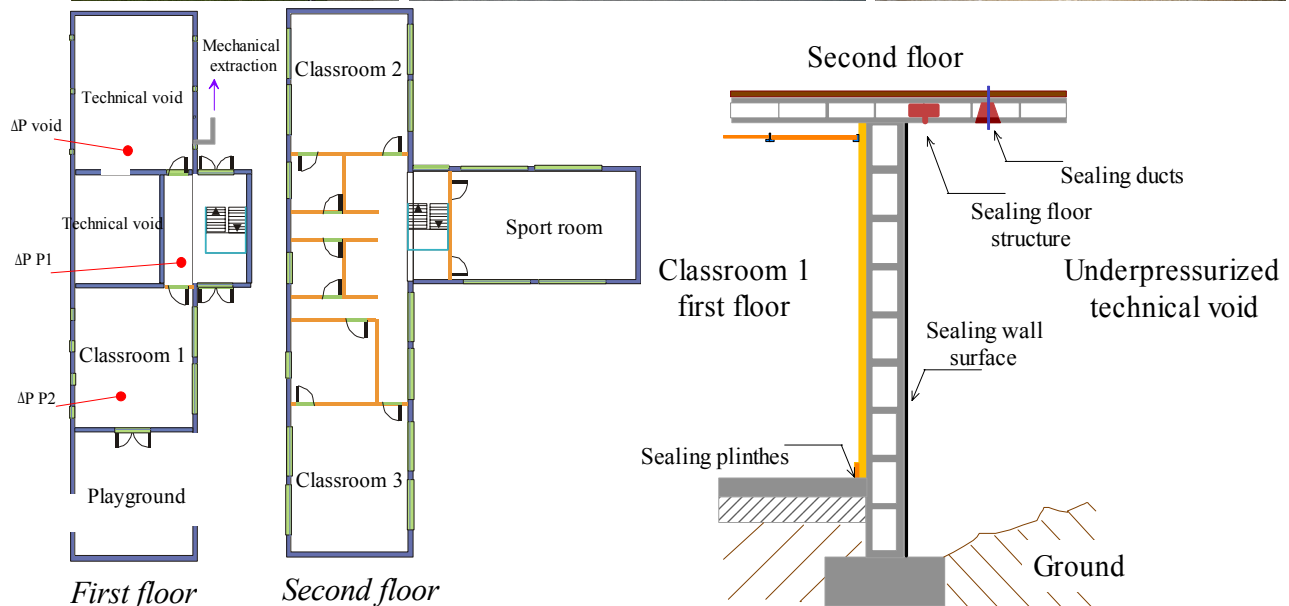
Type

Soil Depressurisation System from a void

Country

FRANCE

Illustration



Description

Two levels recent school dated 1996. First floor consists in general building entrance, one classroom and accessible technical void partly buried. Building walls are made with breeze block, first floor in concrete and second floor with hollow blocks.

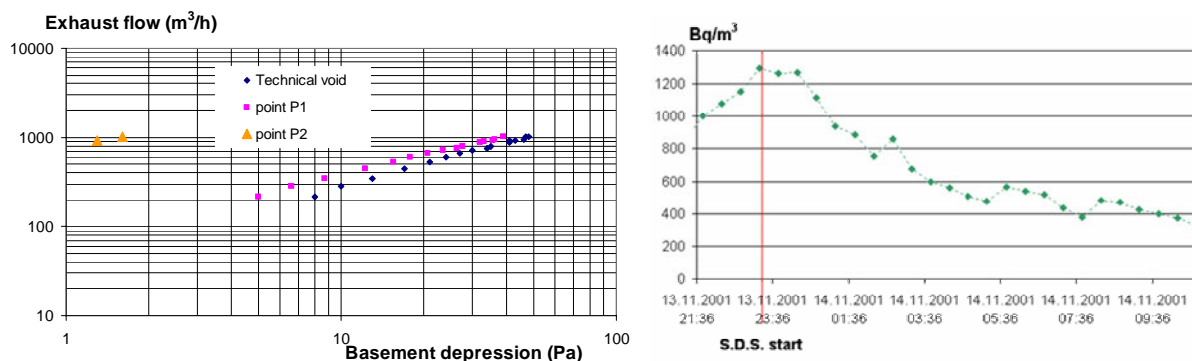
- Sealing works were conducted on wall surface between classroom 1 and technical void, on second floor structure, around pipes and around first floor.
- A Soil Depressurisation System has been installed. The extract point to create depressure field under basement has been connected to technical void. Natural air entrances were sealed.
- Ventilation system is planned to install with the built of a new classroom instead of playground

Selection

The very large technical void with a ground floor was suspected to be the main cause of radon entrance. Due to the general structure of building, it seemed to be appropriate to depressurise the void.

Pre-installation Diagnosis

Mechanical extraction from the void has been undertaken with a variable velocity fan in order to test the basement ability to be depressurised and to dimension the necessary extraction rate. Pressure difference measurements have been done into the void, at P1, and P2. Under pressure was considered satisfactory with a 560 m³/h extract flow (2 m³/h/m²). Once this rate has been known, radon concentration has been measured once the system began to run.



Depression was easy to obtain under concrete floor in building entrance. Depression under concrete floor of classroom 1 was hard to generate. In fact, wall between classroom 1 and technical void was very air leakage. Radon decrease observed during running test should have been mainly due to air flow rate through this wall. The other walls of the void are mainly buried. A decrease of radon concentration had also been measured at second floor. That is why it has been decided to air tight this wall in order to better generate depression under classroom 1.

Radon reduction achieved

- Measurements before remediation (two months measurements – heating season): 2400 Bq/m³ in classroom 1
- Measurements after remediation (two months measurements– heating season): 41 Bq/m³ in classroom 1.
- Approximate remediation cost: 10 000 €.

Further Information

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