



World Radon Solutions Database

Mitigation of existing buildings

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Case Study N° | F-03

Type | Cellar sealing and airing

Country | FRANCE

Illustration



Multi-storey school



Cellar floor: concrete



Basement: opened window



Opened window: outside view

Description

The three-storey school was built in 1903. In the basement; the cellar area is measuring about 600 m². The cellar is partially occupied with an archives room and is equipped with a specific mechanical extraction for ventilation and concrete floor.

The rest of the cellar was directly on ground. The building has no ventilation system, but has new airtight double glazing windows. It is situated in a little town in a low mountains area.

The ground of the cellar has been covered with a concrete floor and with a membrane underneath (soil gas retarder). The natural airing of the cellar has been improved, by maintaining, permanently, partly opened, existing windows.

Solutions have been installed in a two step procedure, with control measurements between them.

1st step: cellar ground has only been partly covered, because the owner wished to maintain a part of the cellar on the ground.

2nd step: the rest of ground has been covered and a natural airing of the cellar has been set.

Selection

This solution has been chosen, because the cellar was directly in contact with the ground.

Radon reduction achieved

Measurements of radon in the classroom (ground floor):

Measurements before remediation (two months measurements – heating season):

893 Bq/m³

Measurements after 1st step remediation (two months measurements – heating season):

1 746 Bq/m³

Measurements after 2nd step remediation (two months measurements – heating season):

297 Bq/m³

Approximate remediation cost: 10 000 €

Problems

After the 1st step remediation, the indoor radon concentration was higher after remediation than before. This was due probably to the fact, that the radon entrance into the cellar and into the occupied zone, above, was accentuated in the cellar zone without concrete floor. So, a 2nd step remediation has been undertaken.

System enhancements

Radon reduction could be ameliorated, by improving the building's ventilation.

Further Information

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