

CASE STUDY

RESIDENTIAL BUILDING, PRAGUE

The effectiveness of LICON ventilation system in eliminating radon in apartments – in Radotín, Czech Republic, one of many areas around the world with high ambient radon concentration

Introduction

Radon is a natural radioactive gas that poses significant health risks in residential spaces. This study focuses on a project in Radotín where controlled ventilation systems were implemented to reduce radon exposure.

Objective

To demonstrate the effectiveness of controlled ventilation with a unique LICON system in reducing radon concentration in apartments.

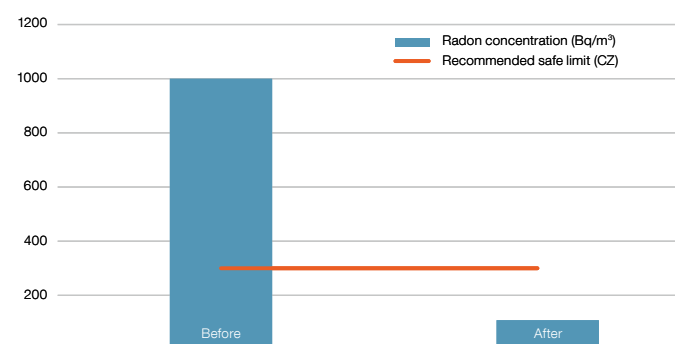
Methodology

Initial Measurements

- **Radon concentrations above the acceptable limits were recorded in fifteen apartments.**
- **Design of the ventilation system with a unique mode for radon elimination:** A controlled ventilation system with heat recovery was installed, ensuring air exchange with minimal energy loss. A special mode for detecting and eliminating radon was implemented.
- **Implementation:** The system powered by VENTBOX 400 was installed in all selected apartments with high radon concentrations, afterwards the radon levels were measured again by certified professional.

Conclusion

- **Radon Elimination:** After the installation, there was a significant drop in radon levels below the recommended safe limits.
- **Energy Efficiency:** The heat recovery component maintained a stable indoor temperature, minimizing heating costs.



Radon concentration in apartment No. 13

Conclusion

The case study from Radotín demonstrates that the LICON controlled ventilation system with a unique mode for detecting and eliminating radon is highly effective in reducing radon concentrations in residential spaces. This approach not only reduces the health risks associated with radon but also maintains energy efficiency, making it a suitable solution for radon issues in apartments and other buildings.



One of the affected residential buildings

Impacts

The method is also recommended for other residential areas with similar radon problems, with an emphasis on health protection and energy efficiency.



Two ventilation units with heat recovery (VENTBOX 400)

Apartment No	Volumetric radon activity before the implementation of HRV solution (Bq/m³)	Volumetric radon activity after the implementation of HRV solution (Bq/m³)	Air exchange rate (h-1)
1	461	69	1.45
2	316	83	1.62
3	414	74	1.51
4	714	64	1.68
5	488	51	1.21
6	540	83	2.80
7	548	107	1.53
8	959	89	1.13
9	402	59	1.48
10	430	88	1.47
11	549	57	1.70
12	993	32	1.41
13	1 001	109	1.23
14	459	37	1.08
15	741	76	0.92

Complete overview of measurements before and after.
Data measured and verified by the State agency for radiation protection.