CASE STUDY
FAMILY HOUSE, TŘEBÍČ

Effectiveness of VENTBOX controlled ventilation for radon mitigation in a family house – Třebíč, Czech Republic

Introduction

Radon poses a significant health risk in residential spaces, especially in cellared or older family homes. This case study describes the implementation of the VENTBOX controlled ventilation system in a family house in Třebíč, which had long exhibited high levels of radon activity concentration (RAC).

Objective

To demonstrate the effectiveness of the VENTBOX 400 controlled ventilation system in reducing radon concentration in a family house while maintaining stable indoor conditions and minimizing energy loss.

Exterior of the family house in Třebíč

Methodology

Initial state

- From 2020 to 2022, the house showed long-term excessive radon concentrations, at times exceeding 9,000 Bq/m³, fluctuating based on temperature conditions and the season.

System installation

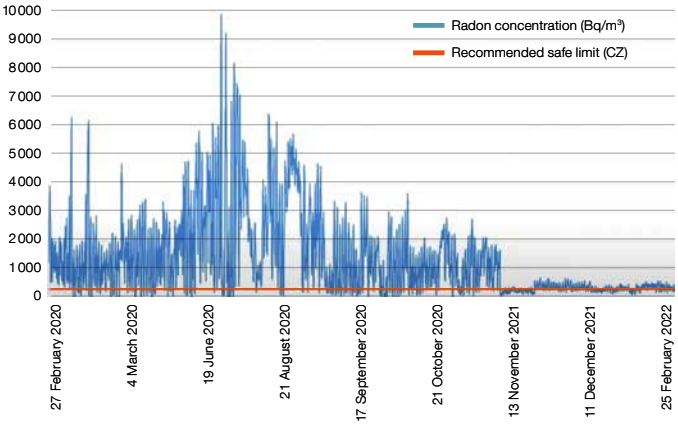
- In November 2021, the VENTBOX 400 controlled ventilation system with heat recovery and positive pressure control was installed in the house's utility room.

Installed VENTBOX 400 unit in the utility room

Results

- **Radon reduction:** After the system was activated, a significant drop in RAC below the recommended hygiene limit of 300 Bq/m³ occurred within 24 hours. Long-term monitoring confirms consistently low levels even during variable weather conditions.

- **Energy efficiency:** Thanks to heat recovery and controlled overpressure, indoor temperatures remained stable without any noticeable increase in heating costs.



Radon concentration trend before and after system installation

Conclusion

The installation of the VENTBOX 400 system in the family house in Třebíč confirmed its high effectiveness in reducing radon RAC, without negative impacts on occupant comfort or energy consumption. The system also allows for automatic control based on real-time radon concentrations, ensuring continued prevention of radon-related risks in the future.