

Air Dose Rate Higher Inside than Outside!?

Establishing an Under floor Decontamination Method

The culprit was hiding in an “unexpected” place

In February 2012, one municipality reported a strange case where the air dose rate inside a house was higher than outside, and submitted a request for investigation to JAEA via the Ministry of the Environment.

JAEA inspected the house carefully. However, there was no indication of any specific reason behind the reported issue. The investigation seemed to have come up against a brick wall.

Then, JAEA got information that the house in question was newly built. Based on the new information, JAEA commenced investigation on possible contamination during each building procedure,

from material procurement through to the actual construction of the house. Thorough investigation, finally the culprit was revealed: **the concrete foundation of the house was under construction when the incident at the Fukushima Daiichi Nuclear Power Station occurred, and the house was built on the foundation without its builders realizing that the surface was contaminated.**

A young couple and their children were living in the house. Establishing a method to decontaminate the foundation has become an urgent task for them to live in peace.

The most major and important challenge of this task was to prevent expansion of the contamination by minimizing the amount of dust produced during the grinding procedure while working in a small space under the floor.

Numerous tests have been repeatedly conducted, such as 1) single tests using various decontamination tools, and 2) mock-up tests to reduce dust concentration. After such trial and error, by combining a grinding system and a dust-suction system, a method to minimize the amount of dust, thereby preventing expansion of the contamination, was established. This method was adopted by the Ministry of the Environment as a standard operating procedure.

The underfloor decontamination method was standardized

Decontamination using the above method resulted in an approximately 90% reduction of



**Mock-up Testing Site
(simulation of an underfloor space
set up on the roof of a building)**

the surface contamination. The inside air dose rate became the same as or lower than the outside dose rate, which was the target of the work. The owner of the house said, **“We can now live in peace. Thank you very much for undertaking such a demanding task, in such a small space under the floor. Your job is worth 30 years of work.”** The lives of the family restored back to peace and it was great to see the children running around on the floor by the parents.

Based on the experiences gained in this case, JAEA compiled the “Underfloor Concrete Foundation Decontamination Operation Manual”. This method is currently employed as a standard underfloor decontamination method in relevant municipalities.