

CASE STUDY OF VARIOUS RADON MITIGATION SYSTEMS INSTALLATION IN SOUTH KOREA

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Background and Aims: Radon is inert gas which causes lung cancer, and it is important to mitigate indoor radon gas as people stay indoors over 80% of their daily life. There are several radon mitigation systems such as Active Soil Depressurization(ASD) and Passive Soil Depressurization(PSD) which have been applied to buildings in America. However, buildings in Korea are different from ones in America due to the different geological structure. For this reason, it was necessary to develop other radon mitigation systems which can be applied to Korean-type of building structure.

Methods: According to radon level measured by Natural Radiation Environmental Health Center, Gangwon and Chungbuk area showed higher level than other areas, thus one elementary schools(initial radon level: 10 pCi/L) and one village office(initial radon level: 5.8 pCi/L) were selected considering radon level and positiveness of the leaders. ASD was applied to the elementary school, and Active Soil Pressurization(ASP) was applied to the office.

Results: It is not seriously difficult to install soil depressurization system in America, but geological structure in Korea generally shows clay bed, hence it is hard to install pipes and suck radon gas through them. In elementary school case, because radon suction was not successful(radon level after ASD installation: 31.2 pCi/L), instead of depressurizing the underground, ASP that is, positive-pressure was slightly blown into indoors so that underground radon cannot penetrate through the building, was used. Radon level after the installation in the elementary school and the office stayed under 2.0 pCi/L(1.5 and 1.9 pCi/L, respectively).

Conclusions: Even though the problem with energy cost can be an issue, it cannot be a problem if indoor radon level can be monitored continuously and connected to the system. Therefore, delicate diagnose and assessment are essential before installing radon mitigation system. Moreover, to perform diagnose and assessment prior to building construction is preferred.

References:

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