미세먼지 농도 분포 분석 및 제어 위해도의 신뢰성 평가

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The reliability of ventilation systems represents a common problem in buildings and underground public facilities as it poses a potential health risk to general public, especially in subway stations. Here, the indoor air quality (IAQ) dynamics is greatly affected by outdoor air quality variation, inherent variability and availability of ventilation equipment. The objective of this study is to provide holistic approach to investigate the reliability of subway IAQ ventilation systems by conducting a fault tree analysis. The comparative analysis is done in terms of system reliability and the generated IAQ level between various ventilation control configurations. The results show that in comparison to conventional control, our configuration can provide up to 47.84% improvement in overall system reliability and increases the mean time between failures by 270 days.

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