## **Building Safety Through Real-time Design Fire Protection Systems**

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**Abstract :** When the area of a structure that is threatened by a disaster affects personal safety, the effectiveness of disaster prevention, evacuation, and rescue operations can be summarized by three assessment indicators: personal safety, property preservation, and attribution of responsibility. These indicators are applicable regardless of the disaster that affects the building. People need to get out of the hazardous area and to a safe place as soon as possible because there's no other way to respond. The results of the tragedy are thus closely related to how quickly people are advised to evacuate and how quickly they are rescued. This study considers present fire prevention systems to address catastrophes and improve building safety. It proposes the methods of Prevention Level for Deployment in Advance and Spatial Transformation by Human-Machine Collaboration. We present and prototype a real-time fire protection system architecture for building disaster prevention, evacuation, and rescue operations. The design encourages the use of simulations to check the efficacy of evacuation, rescue, and disaster prevention procedures throughout the planning and design phase of the structure.

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Keywords : prevention level, building information modeling, quality management system, simulated reality

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