

UNIVERSITI TEKNOLOGI MARA

**DEVELOPING A RESILIENCE
DESIGN FRAMEWORK FOR
DISASTER EVACUATION CENTRES**

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ABSTRACT

Due to the challenges of disasters in Malaysia, local residents and relief teams are given early warning and time to mitigate and prepare for evacuation in advance. Disaster victims will be carefully assisted to the designated public buildings for shelter, safety, and protection. However, the existing spaces and facilities of these buildings are mainly designed for their specific purposes. The inefficiency of spaces and facilities was recognised as a major issue. Therefore, the buildings' resilience is questionable. Thus, the Multidisciplinary Centre for Earthquake Engineering Research's 4R resilience framework study is considered practical for the centre's resilience investigation. It combines robustness, redundancy, resourcefulness, and rapidity to build a more disaster-resilient centre. The research employs a multistage investigation that combines qualitative and quantitative methods. Firstly, document analyses of official shelter guidelines; secondly, a case study of selected disaster evacuation centres; thirdly, semi-structured interviews; and finally, a questionnaire survey for field testing. The main findings of the research are the minimum design standards, the space provisions of the centre and the integration of resilience properties into the design and space. Resilience is very important in disaster evacuation centres, where the design and layout should be planned in advance to be able to withstand future disasters and recover from the damage they cause. A triangulation process is used during the development of the operational framework, which takes place in the final stage of the research. The utility of the framework has been tested in previous case studies and verified through the peer debriefing method. The final building evaluation form is also being tested on an operating evacuation centre. This process indicates the reliable outcomes from the framework testing. As a whole, the resilience design framework achieves multiple goals: improving robustness during disaster preparedness, encouraging rapid response and recovery, and utilising redundant resources and resourceful solutions in the centre.

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