

## IMPROVING EARTHQUAKE DISASTER MANAGEMENT IN CHAIN SUPERMARKETS

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With regard to earthquakes and their sudden occurrence, special programs should be designed and implemented for people to encounter this disaster and show appropriate reaction against it. In other words, preparedness includes all provisions that governments, organizations, communities and people need to consider in order to encounter and response in a disastrous situation. Experience has shown that lack of people awareness, preparedness and knowledge can normally turn the event into a disaster. In the meantime, one of the factors that can be considered in an earthquake is to pay attention to the place, environment and situations of people, for example, preplanning for a residential complex or a shop can be different to a school.

Among public places, shopping centers are one of the most populated places which cause lots of problems for people during an earthquake. Classifying these centers can be done in two ways: Those places with high population commuting in and out and places which the population stays in for a while. In this paper, chain supermarkets can be considered as one of the sections included in many shopping centers. Therefore, besides improving the level of people preparedness and knowledge, it is also necessary to build disaster management systems for encountering emergency situations or to upgrade and improve the existing arrangements. In planning for these centers, we encounter two target groups: One those personnel working in these centers and second those people who use it.

During recent decades, several studies have been conducted to estimate the safety level of shopping centers for understanding evacuation processes and making emergency plan when a disaster such as earthquake or fire happens. For instance, Haeri (2016) evaluated the safety level of Tehran's commercial centers and provided control measures to prevent possible accidents. Moreover, human behavioral characteristics in crowds and their behaviors' impact on evacuation time have been analyzed by Xie and Li in 2014. Accordingly, Samochine et al. presented an analysis of staff behavior, and consequential impact on customers in five unannounced evacuations of retail stores. However, only few studies have been carried out to improve earthquake emergency management in chain supermarkets as well as to aware people for acquiring sufficient preparedness in order to response immediately in an appropriate way. In fact, these few studies support the need for public education about emergency evacuation procedures in high-rise buildings (Zmud, 2008).

In general, risk reduction strategies in complex shopping centers due to their huge volume of population and their economic value should be one of the most significant priorities of disaster management authorities and city decision-makers to present short to long-term mitigation plans and improve response capacity in such populated and noteworthy places.

In this paper, questionnaires and interviews were undertaken with the managers of few shopping centers as well as customers in Tehran. Based on the findings, few strategies for risk mitigation in chain supermarkets are presented in Table 1.

The chain supermarkets as quite busy places throughout the day which provide the necessary needs of people are considered in this paper and the earthquake risk reduction issues have been discussed and suggested briefly. It is hoped that in future earthquakes, the proposed interventions can improve the safety of chain supermarkets as well as the preparedness and awareness of their personnel and customers in order to reduce the number of casualties and loss of properties.



Table 1. Risk reduction strategies in chain supermarkets.

<b>Long-Term Measures</b>
<ul style="list-style-type: none"> <li>- Strengthening and retrofitting the structure of chain supermarkets;</li> <li>- Initiating long-term disaster plans in building future chain supermarkets.</li> </ul>
<b>Short-Term Measures</b>
<b>Improving Public Preparedness</b>
<ul style="list-style-type: none"> <li>- Developing voluntary activities and establishment of Community-Based Disaster Management Groups (CBDMGs);</li> <li>- Organizing community disaster preparedness courses;</li> <li>- Holding routine evacuation drills.</li> </ul>
<b>Interventions for Improving Disaster Management</b>
<ul style="list-style-type: none"> <li>- Installing reliable and effective alarm systems and smoke control systems in the buildings;</li> <li>- Providing escape routes in chain supermarkets and indicating them by signs for exist;</li> <li>- Routine checks of escape routes which should not be blocked by storing materials;</li> <li>- Equipping sufficient artificial and emergency lighting;</li> <li>- Routine checks of firefighting equipment;</li> <li>- Preparing evacuation maps for chain supermarkets and installing them in corridors;</li> <li>- Estimating the number of occupants and their behaviors during a disaster.</li> </ul>

## REFERENCES

- Haeri, A. (2016). Comprehensive plan for assessing and improving safety level of commercial centers towards the prevention of social and economical consequences of accidents. *Safety Science*, 89, 263-273.
- Samochine, D.A., Shields, T.J., and Boyce, K.E. (2004). Development of a fire safety training tool for staff in retail stores. *Proceedings of the Third International Symposium on Human Behavior in Fire*, 355-366.
- Xie, R. and Li, L. (2014). Simulation of optimized evacuation processes in complex buildings using cellular automata model. *Journal of Software*, 9(6), 1428-1435.
- Zmud, M. (2008). Public perceptions of high-rise building emergency evacuation preparedness. *Fire Technology*, 44(4), 329-336.

