

A Study on the Vulnerability and Improvement of Fire in Traditional Markets

Kim Eunbi, Park Junha, Ryu Sangil

1. Research Necessity and Purpose

Traditional markets are considered important places to revitalize the local economy. Considering that the average floating population per day in Seomun Market in Daegu is about 60,000, it can be seen that many people are still visiting traditional markets. However, traditional markets are very vulnerable to fires due to the aging of facilities and insufficient safety management. In addition, if a fire breaks out due to an illegal drunk vehicle, etc., it will be difficult to enter a fire vehicle, resulting in initial extinguishment. Therefore, we intend to establish fire risk measures suitable for traditional markets and consider their characteristics to establish fire prevention measures.

2. A theoretical discussion

Traditional markets have many residential or small-scale commercial buildings and old buildings more than 20 to 30 years old, and there is a concern that they may spread to large-scale fires. In addition, there are high-inflammable materials, disturbance of wires and neglect of old wires, arbitrary installation changes of electrical facilities, and difficulties in rapid fire suppression activities due to unsecured evacuation routes, complex maze-type passage structures, and narrow fire passages. Looking at the factors of property and human damage at the fire site of the traditional market, it was analyzed that valuable lives and property were lost due to delays in initial fire detection, lack of initial response, loss of self-sufficiency, and failure to escape from the emergency due to unsecured evacuation routes.

3. Research design

Based on literature research on traditional markets and due diligence on traditional markets, the vulnerability of fires in traditional markets, road conditions around traditional markets, road conditions in traditional markets, and fire engine access problems during fire field activities are analyzed to present problems of traditional markets and improvement measures. In particular, it intends to conduct an AHP relative importance analysis targeting more than 20 fire fighting experts.

As a result of reviewing previous studies on the causes of fire in traditional markets, the analysis design was divided

into architectural and structural factors (improving narrow access roads, improving aging electrical facilities, maintaining regular intervals between stores), legal and institutional factors (strengthening fire prevention regulations, strengthening inspection of fire facilities, strengthening crackdown on illegal parking and stopping on access roads), and market operational factors (improving merchants' awareness of safety, improving the realization of fire training for merchants, and inducing small merchants to subscribe to fire insurance).

4. Expected research results

Traditional markets are a big problem in the event of a fire. In the event of a fire, it is difficult to enter the fire site first due to narrow roads, shading, street stalls, and illegal parking, and it is difficult to use special cars such as oyster procedures due to the disturbance of electric wires, making it difficult to save lives. Fire passages must be secured according to the characteristics of fire vulnerable factors such as the structural characteristics of traditional markets.

References

- Sangsik Seo, 2018, "A Study on the Securing of Fire-Fighting Pathways in Traditional Markets", University of Seoul
Graduate School of Urban Science
- Kim Jun-hwan, 2019, "IoT Fire Notification System for Initial Response to Fire in Traditional Markets", Graduate School of
Daejeon University
- Soyoon Beom, 2021, "A Study on the Development of Integrated Fire Detection System in the Outer Space of Traditional
Market", Gachon University Graduate School