安養機構類型建築物排煙設備設置之研究

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摘要

When fire breaks out, the speed for the proliferation of smoke is sooner than the flame. Based on former experiences, casualties occurred mainly due to the dense smoke hazard. Therefore, dense smoke is the main lethal factor for a fire accident. The residential care home is the place to let people who are elder or handicapped live and refuge, and the time that is needed for people to evacuate from the residential care home is longer. The standards of smoke management equipments for residential care home buildings is according to the Building Design and Construction Part of Taiwan Building Technical Code No.100. It shows ”On each floor area of the buildings for the residential care home and children welfare facilities is more than 500㎡ and without enough walls to separate the area that need to be installed smoke management equipments.” When fire breaks out at a residential care home, it’s in a situation which is according to the regulation without smoke management equipments. We need to probe into that if there is enough time for people to evacuate and escape safely or not.

In this study, the ABRI Manual for Fire Risk assessment has been applied to compute the fire escaping time. We also use FDS (Fire Dynamic Simulator) software to simulate affected time for danger and then compares with escaping time and discusses with codes. The smoke management equipments installed or not will be analyzed with the difficulty for people to escape. The result of this research is: When fire breaks out in a space which is smaller than 100㎡, people are conscious and fire information deliver clear, people can evacuate before the effect from the danger. Therefore, there is no effect on smoke management equipments. But if when fire breaks out, people are sleeping. People don’t have enough time to evacuate, and then the smoke management equipments need to be installed to delay the time to be affected.

關鍵字：The rest home，smoke management equipment，Fire simulation，FDS，fire prevention and evacuation