



Fabrication of Fire Fighting System for High Rise Building

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ABSTRACT

There are a few issues in the fire wellbeing plan of a high rise private structure: the flight of stairs for departure can't run from the top to the ground and the tenants can't straightforwardly clear to the beyond the structure; fire lift can't straightforwardly arrive at the primary floor and the scissor-molded flight of stairs imparts its hall to the fire lift. In light of these issues, fire wellbeing goals have been characterized and proposed arrangements have been given. Ideally, the recommended arrangements can give references to the fire wellbeing plan of comparative tall building structures.

Keywords: Fire, Lift, Building

1.Introduction

High-rise buildings have garnered significant attention in the fire safety world over the years. The multiple floors of a high-rise building create the cumulative effect of requiring great numbers of persons to travel great vertical distances on stairs in order to evacuate the building. The public, code bodies, local, regional and federal governments, as well as the design, build, and ownership communities are all affected by high-rise building safety.



2. Apartment buildings

People living in an apartment building need to think ahead and be prepared in the event of a fire. It is important to know the fire safety features in your building and work together with neighbors to help keep the building as fire-safe as possible.

Know the plan

Make sure that you're familiar with your building's evacuation plan, which should illustrate what residents are supposed to do in the event of an emergency. The evacuation plan should be posted in places where all residents can see and review it, and the building management should hold a fire drill with occupants at least once a year. Most states also require that buildings periodically test their fire safety systems as well. Be sure to participate when your building drills take place. When looking for an apartment or high-rise home, look for one with an automatic sprinkler system. Sprinklers can extinguish a home fire in less time that it takes for the fire department to arrive.

Practice is key

Whether your building has one floor or 50, it's essential that you and your family are prepared to respond to a fire alarm. Identify all of the exits in your building and if you are using an escape planning grid, mark them on your escape plan. Make sure to mark the various stairways too, in case one is blocked by fire.

Never use the elevator

In case of fire, always use the stairs to get out, never the elevator. Make sure to practice using the stairs as part of your escape plan. If someone in your family has difficulty climbing down steps, make sure to incorporate a contingency for this into your plan.

Stay low

Smoke from a fire is toxic and deadly no matter what kind of structure you live in. When you hold your fire drill, everyone in the family should practice getting low and going under the smoke to the exit. In the event of a fire, if both stairwells are filled with smoke, stay in your apartment and wait for the firefighters.

Seal yourself in for safety

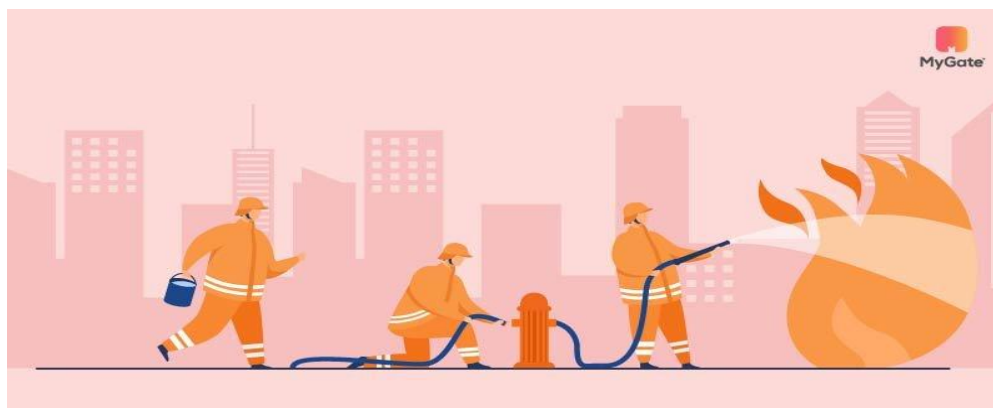
If you can't exit an apartment building due to smoke or fire in the hallway, call the fire department to report your exact location and gather in a room with a window to await their arrival. Close all doors between you and the fire. Use duct tape or towels to create a seal around the door and over air vents in order to keep smoke from coming in.

Stay by the window

If possible, you should open your windows at the top and the bottom so fresh air can get in. Don't break the window - if smoke enters the room from outside the building, you won't be able to protect yourself.

Signal to firefighters

Wave a flashlight or light colored cloth at the window to let the fire department know where you are located.



3.Risk of fire for tall buildings

Fire risks of the high-rise residential building usually include the followings. (i) Rapid fire and smoke spread. Because of the “chimney effect” of the high-rise building, fire and smoke can spread to the upper floors very rapidly through staircases, elevator shafts and ducts in a very short time if the fire and smoke control measures are not adequate. (ii) Difficult fire fighting and rescue. Factors like the height of the building, the inadequate fire fighting equipment and fire fighting at an elevated height certainly increase the difficulties of the fire fighting in a high-rise building. Moreover, the current cladding systems of most high-rise buildings in China are combustible, which contribute a lot to the vertical spread of fire. In this case, fire covers the building from outside and it increases the difficulties for fire fighters to do fire fighting and rescue. (iii) Difficult safe evacuation of the occupants. Generally speaking, there will be more occupants in a high-rise residential building than those of a low building. In addition, the vertical travel distance for a high-rise building is quite long, which makes the evacuation more difficult. Furthermore, the fire safety sense of the public in China needs to be improved. The lack of common sense of fire safety and ability of escaping safely from the building in case of fire increases the safe evacuation time. (iv) Fire usually lasts for a quite long time. Fire lasts longer in a high-rise building because high-rise buildings are usually large in area and heavy in fire load. Therefore, high-rise building fire often lasts longer and sometimes it may spread to the adjacent buildings.

4.Fire safety problems for tall buildings

In the north piece of China, most tall structures for private inhabitation are unitized on the grounds that it is very cold in winter and the inhabitants frequently pick rooms with sufficient daylight. Here, I might want to take a unitized skyscraper private working as an illustration to show the issues in the fire wellbeing plan of this structure. The structure is 99.8m in level with a very original design.

- i) Staircase for evacuation can't run from the top to the ground and the occupants can not directly evacuate to the outside of the building
 - ii) Fire lift can't directly reach the first floor
 - iii) Scissor-shaped staircase shares its lobby with the fire lift
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5.Objectives of fire safety system

By and large, the fire security goals might incorporate life wellbeing, insurance of property and construction, progression of business activity, legacy and ecological assurance. Nonetheless, the fire security targets of a structure might differ with the inhabitation, construction and level of the structure. Subsequently, in view of the inhabitation, formats as well as the issues in fire security plan of this skyscraper private structure and its remarkable fire perils, the accompanying fire wellbeing goals have been characterized:

- (1) All the inhabitants will clear to the outside securely inside the necessary time;
 - (2) Fire will be controlled inside one family;
 - (3) The circumstances inside the structure will be great enough for firemen to securely putting out fires and salvage;
 - (4) The fire anticipation configuration can lessen fire perils successfully and control the property misfortune inside OK reach.
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6.Feasibility analysis

Possibility and adequacy of the above arrangements has been investigated through the accompanying 3 angles: to get the safe departure of inhabitants, to control the beginning phase fire and to control smoke from spreading.

(1) To get the protected departure of inhabitants and putting out fires practice. In the event of fire, smoke with high temperature and poisonousness carries extraordinary risk to individuals' life. Hence, the fire assurance plan of structures will consider how to keep fire and smoke from fanning out of the fire beginning. For this situation, dependable fire detachment will be required. For instance, establishment of fire entryway for every family can really forestall fire and smoke from spreading to the anteroom. Two way departure move way will be planned on the exchange floor. The exchange floor can't be viewed as the subsequent exit, in any case, it gives an elective departure course, so that assuming something is off about one flight of stairs, inhabitants on the upper floors can clear through the other flight of stairs. Along these lines, clearing of the inhabitants also, putting out fires practice can be ensured.

(2) Early stage fire control.

This is a private structure and the region for every family is very restricted. The principal fire heap of the family is furniture. But indoor fire hydrant framework, fire quenchers are likewise useful and viable in extinguishing beginning phase furniture fires. Consequently, it is proposed that fire quenchers will be introduced both in the entryway and the lofts.

(3) Smoke control.

In the event of fire, smoke safeguarded flight of stairs is the main way for tenants to clear to a protected area while fire lift is very supportive in shipping putting out fires devices and gear. Hence, sensible and successful smoke control measures will be taken to keep smoke and intensity from spreading to flights of stairs and deep openings to guarantee the protected clearing of the individuals and the fine circumstances for putting out fires and salvage. At the point when the inhabitants escape from the fire condo, smoke will surely stream out. The compression offices in the anteroom can assist with keeping smoke from spreading to the hall. As per the above examination, it tends to be demonstrated that the fire security plan of this tall structure is protected enough for inhabitant departure and putting out fires assuming it is planned by the above recommended arrangements.

7. Conclusion

The issues in fire security plan of a skyscraper private structure have been broke down. The fire wellbeing targets have been characterized by the plan highlights and inhabitation of the structure. In light of these, possible fire security plan countermeasures have been proposed and their possibility has been investigated and examined. Ideally, the superior plan techniques for the structure can give significant reference to the fire security plan of the comparative structures.

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