

Discussion on Fire Safety Management of Old Building Property

Rui Feng

Vanyu Securepro Co., LTD., Shenzhen 518000, China.

Abstract: With the increasing number of high-rise residential and various types of buildings, fires have become a major risk people are facing. How to effectively manage fire safety and maintain equipment and facilities in property management, and reduce fire risks, has become an important issue faced by the industry. This article based on the author's research on the fire safety of old high-rise buildings, combined with the fire safety issues of a residential project under management of a certain property. It analyzes and evaluates the fire safety control measures, summarizes the major fire safety risks currently faced, and provides suggestions for future fire safety control in the property management industry.

Keywords: Fire Safety; Property Management; High-Rise Building

Introduction

With of urbanization,the early construction of high-rise building aging, part of the building has more than 20 years, due to early age, low design standards, building facilities planning and design construction of injuries, fire maintenance is not standard, difficult to ensure the safety of the building. the public maintenance funds are difficult to invest in the fire maintenance and transformation, and the risk of fire is increasing.

According to statistics, in 2022, there will be more than 114,000 property service enterprises in China, with a management scale of 35.3 billion square meters, among which the residential property management area is nearly 30 billion square meters. According to more than 2000 residential projects, there are nearly 400 major dangers in fire safety, accounting for 20%.

1. Fire safety responsibility of property units

1.1 Relevant regulatory requirements

In recent years, the centralized management of buildings by property companies has become the main form of building fire safety management. Ensuring the life and property safety of the owners and users in the management area is an important work of property management, and fire safety is the top priority. The Fire Protection Law clearly stipulates that the property service enterprises in residential areas shall maintain and manage the common fire control facilities within the management area and provide fire control safety and prevention services. According to the Regulations on Fire Control Safety Management of High-rise Civil Buildings, property service enterprises shall perform their fire control safety duties according to law, and regularly test and maintain the common fire control facilities, equipment and fire control signs within the management area to ensure their good condition and effective. The owners, users or realty service enterprises of high-rise civil buildings that do not have the ability of independent maintenance and testing shall employ fire control technical service institutions or construction and installation enterprises of fire control facilities to maintain and test building fire control facilities; for faults or defects, they shall immediately organize repair and replacement to ensure good and effective construction.

1.2 Standardize requirements

The building fire control facilities maintenance management regulation (GB25201-2010), building property units or entrusted by its management of building fire control facilities,should be clear maintenance management of building fire control facilities, management department and their responsibilities,establish building fire control facilities on duty, patrol, inspection, repair, maintenance, document system, to ensure the normal operation of building fire control facilities.

2. Fire safety problems of old buildings

2.1 Research Scope

The old high-rise buildings in Shenzhen, analysis of the data of 372 old high-rise buildings before 2000 shows that 72 old buildings have more than 30 years; 56.2% of old buildings are between 50 and 100m; 29 buildings are more than 100m; office buildings/ hotels / commercial / apartments, residential buildings, and a few hotels, businesses, hotels, apartments, schools and hospitals.

2.2 Design problems

Due to the early design age of the old buildings, it is difficult to meet the current use needs. There are problems in safety evacuation:

- (1) The evacuation stairs of some old buildings do not meet the current standards.
- (2) There are other opening on the front interior walls of some building staircases and smoke-proof staircases, which pose potential safety risks.

- (3) The evacuation stairs of some commercial and residential buildings are not set up independently.

- (4) Some buildings over 100m are not equipped with refuge floors.

- (5) The safety of evacuation corridor, evacuation door and fire separation is insufficient.

Problems exist in the fire-fighting facilities:

- (1) The fire water supply and fire hydrant system is insufficient, the system does not take over-pressure measures, and the volume of high fire water tank is insufficient;

- (2) There is no automatic fire alarm system and automatic fire extinguishing system in some places, and no smoke exhaust, automatic fire extinguishing and automatic alarm facilities in the building atrium;

- (3) The gas fire extinguishing system has the halogenated fire extinguisher eliminated by the state;

- (4) Some old buildings are not designed with fire emergency broadcasting system;

- (5) The fire prevention, plane layout and function of the fire control room do not conform to the current specifications;

- (6) There is no combustible gas alarm device.

Problems in fire fighting and rescue:

- (1) No fire elevator is set up;

- (2) The safety of fire elevator is insufficient;

- (3) Insufficient width of the fire lane and insufficient return space;

- (4) No fire truck climbing operation site and fire rescue window;

- (5) No helipad.

2.3 Field investigation

Through on-site inspection, there are problems in fire resistance grade and general plane layout, fire partition , plane layout:

- (1) Insufficient fire prevention spacing.

- (2) Fire separation and fire sealing of cable well and pipeline well are not in place.

- (3) The equipment room floor layout is unreasonable, or the fire separation is not in place.

- (4) The electrical line laying does not meet the requirements.

- (5) The plane layout of important places is unreasonable.

There are problems in fire water supply and hydrant & automatic sprinkler system:

- (1) The number of outdoor fire hydrant and pump connector is insufficient.

- (2) The fire water supply pipe is old, with serious leakage.

- (3) The fire hydrant pump control system fails.
- (4) Some units of fire hydrant and sprinkler share one set of water pump.
- (5) Automatic sprinkler system is not installed in some places as required.
- (6) The function of the automatic sprinkler system is not kept intact and effective.
- (7) Operation and management is not in place.

Problems exist in the automatic fire alarm system:

- (1) Some places do not set up fire detectors as required.
- (2) Loss or failure of fire-fighting communication equipment.
- (3) The fire alarm system has poor function.
- (4) Difficulties in the maintenance and use of some old systems.
- (5) Disorderly control and management of the fire control room.

Problems in the gas fire extinguishing system:

- (1) Use the gas fire extinguishing system eliminated and forcibly scrapped by the state.
- (2) There are defects in the system installation.
- (3) System aging, such as serious corrosion of the drive bottle and insufficient pressure.
- (4) Failure of the control system.

Problems in the smoke prevention and exhaust system:

- (1) No smoke exhaust system is set up in the atrium and other places.
- (2) The fan control cabinet is not designed with dual power supply or cannot be switched normally.
- (3) The fan control cabinet has no mark mark or is imperfect.
- (4) No special wind room or debris stacked in the wind room.

There are problems with the fire extinguisher configuration:

- (1) Some portable fire extinguishers have expired.
- (2) Insufficient equipment of building fire extinguishers, and improper maintenance and management.

3. Property management problems and cause analysis

3.1 Property fire safety management problems

(1) Insufficient attention is paid to fire safety. Some property service enterprises do not pay enough attention to the daily maintenance of public fire facilities and fire safety inspection, the fire safety management system is not perfect, the responsibilities are not clear, the fire duty, inspection and maintenance are missing, there are great safety risks^[1].

(2) The main body's sense of responsibility is not strong. The property unit cannot take the initiative to implement management and assume responsibility.

(3) Low management level. Most of the property units engaged in fire management are fire control room on duty, security and water and electricity maintenance personnel part-time. Some even do not with certificates and have not received special training in fire control.

(4) Lack of maintenance funds. The costs of the implementation of fire management by property units mainly come from the property fee, and the mismatch between service quality and charges is difficult to meet the safety needs of owners. Due to the lack of funds, property service enterprises are unable to make the rectification of fire hazard problems.

3.2 Cause analysis

(1) The professional level of property management is not high. Some property service enterprises have a low management level, fail to fulfill the provisions of the property service contract, and turn a blind eye to the fire safety, resulting in the damage to the personal and prop-

erty safety of the owners.

(2) The fire control responsibilities of the property service enterprises are not clear. The property units only pay attention to the daily personnel management and security and cleaning services, do not understand the main responsibility of fire safety, and blur their own fire control management responsibilities.

(3) Limited government control efforts. Due to the large number of residential property, the government fire control agency staffing power is limited, the property is difficult to implement comprehensive supervision and management of the village.

(4) The use of special maintenance funds is not smooth. The use conditions of funds are complicated and complicated procedures, leading to many building fire facilities completely paralyzed, and long-term decoration can not be solved in time.

4. Measures to suggest

In view of above problems, the following measures and suggestions are put forward:

(1) Strengthen publicity and clarify the responsibilities and standards of fire safety management of property service enterprises. And formulated industry guiding standards and specific requirements for fire management.

(2) Clarify the source of funds for the maintenance and renovation of fire fighting equipment. Clarify the collection, itemization and management measures of property fire control management fees, List the fire maintenance and management expenses in the property service fee, To clarify the cost sources and expenditure standards of third-party fire protection technology testing, maintenance and other services, Define in detail the aging maintenance, replacement, transformation of fire fighting equipment and facilities need special maintenance funds, The paralysis or serious failure of fire control facilities shall be regarded as an emergency endangering the safety of the house, Owners, property service enterprises and relevant functional departments should attach great importance to it, Simplify the expenditure procedures and links of special maintenance funds, Ensure the timely restoration of building fire fighting facilities and public safety.

(3) Clarifying the maintenance requirements through laws and regulations. Will fire control facilities maintenance clearly listed in the national fire regulations, building fire control facilities maintenance management shall be borne by the professional fire technical service agencies.

(4) Strengthen the fire control supervision and inspection of property service enterprises^[2]. The property service enterprises will be regarded as the object of inspection and the subject of responsibility, and included in the scope of supervision and spot check. Take building fire control facilities, evacuation channels, safety exits, fire truck passageways as the key content, and strictly investigate and punish illegal fire control activities.

(5) Application of new fire-fighting technology. Using the Internet of things, big data, artificial intelligence, such as new technology, the conditional property important fire control equipment equipped with digital monitoring system, such as fire alarm system access to the Internet of things platform, remote monitoring fire hydrant, spray system, the water tank, water level monitoring, the important power distribution equipment installation electrical fire monitoring system, real-time tracking building fire safety status, if produce abnormal timely alarm and disposal.

5. Conclusion

This paper for the old high-rise building fire safety and property fire safety management problems, analyzes the improvement, the old property fire safety management is a complex project, from capital, system, management, technology, using the government and property and all the power of the owners, finally form an effective fire management system, to make the building fire safety in a good state, ensure the safety of people's life and property.

References

- [1] Liu L. Problems and improvement measures existing in property fire safety management, modern communication, 2013,1:58.
- [2] Dong P. Study the problems and measures existing in the fire safety management of residential property, the fire protection industry (electronic version) 2020,8 (20): 73-75.

About the author:

Feng Rui, male, Master of safety engineering, fire expert of Vanyu Securepro Co., LTD., mainly engaged in building fire safety and maintenance and fire technical services.