



# Houston Fire Department Life Safety Bureau (LSB)



## LSB Standard No. 18, Rev. 05

***High-Rise Fire Safety Plan Approval***

*Supersedes: LSB Standard No. 18, Rev. 04, 05/01/2012*

**Effective Date: 11/02/21**



---

LSB Standards are established in accordance with provisions of the City of Houston *Fire Code*. They are subject to the administrative sections covering alternative materials and methods, modifications, and the Board of Appeals.

**Table of Contents**

Section 18.1 – General..... 4

    18.1.1 Scope. .... 4

    18.1.2 Purpose. .... 4

Section 18.2 – Definitions..... 4

    18.2.1 Approved Training Instructor..... 4

    18.2.2 Fire Safety Director..... 4

    18.2.3 Fire Safety Team. .... 4

    18.2.4 High-Rise Certification Classes. .... 4

    18.2.5 Supervised Fire Drill. .... 5

Section 18.3 – Qualifications to Instruct..... 5

    18.3.1 Qualifications to Instruct..... 5

Section 18.4 – Components of Fire Safety Plan Approval..... 5

    18.4.1 High-Rise Fire Safety Plan Approvals..... 5

Section 18.5 – Property Management Consultation ..... 6

    18.5.1 Consultations with Management..... 6

Section 18.6 – High-Rise Certification Class..... 7

    18.6.1 High-Rise Certification Class. .... 7

        18.6.1.1 Elements of High-Rise Fire Warden Certification Training. .... 7

Section 18.7 – Fire Drill..... 9

    18.7.1 Fire Drill as a Final Step in Plan Approval. .... 9

    18.7.2 Preparation for and Conducting of a Fire Drill..... 9

        18.7.2.1 Pre-Drill Preparations. .... 9

        18.7.2.2 Day of Drill Preparations. .... 9

        18.7.2.3 Conducting the Drill..... 10

        18.7.2.4 Post Drill..... 10

Section 18.8 – Fire Safety Plan Approval..... 10

    18.8.1 Conditions of Approval..... 10

Section 18.9 – Certificates of Approval ..... 10

    18.9.1 Code Official Approval Letters. .... 10

    18.9.2 Certificates of Completion of Fire Warden Training. .... 11

    18.9.3 Maintaining an Approved Fire Safety Plan..... 11

Section 18.10 – Procedures for Transmitting Automatic Fire Alarms ..... 11

    18.10.1 General..... 11

18.10.2 Scope. .... 11

18.10.3 Violations. .... 11

Section 18.11 – Fire Alarm System Maintenance During Construction ..... 12

18.11.1 General..... 12

18.11.2 During Construction. .... 12

18.11.3 Cups of Bags Installation. .... 12

18.11.4 Heat Detectors in Elevator Lobbies. .... 12

18.11.5 Alarm System Disabling..... 12

18.11.6 Alarm System Removal. .... 12

18.11.7 Violations. .... 13

References..... 13

# High-Rise Fire Safety Plan Approval

## Section 18.1 – General

### 18.1.1 Scope.

The provisions of this standard shall apply to all persons seeking to provide high-rise fire safety training and high-rise fire safety plan approvals within the City of Houston and in accordance with the City of Houston *Fire Code*.

### 18.1.2 Purpose.

This standard shall provide minimum guidelines for approval by the Fire Marshal of high-rise training as mandated by LSB Standard No. 07 “High-Rise Fire Safety Plans.”.

## Section 18.2 – Definitions

### 18.2.1 Approved Training Instructor.

A qualified individual approved in accordance with Section 18.3.1 to instruct high-rise safety for fire safety plan approval by the fire code official.

### 18.2.2 Fire Safety Director.

Representative of the owner of a high-rise building who is mandated by the Fire Marshal to implement and manage all aspects of the fire safety plan by providing information and properly training building staff, tenants, residents and guests, as defined herein. The Fire Safety Director is responsible for directing the fire safety plan during and after a fire emergency.

### 18.2.3 Fire Safety Team.

Building personnel selected and trained to utilize the approved fire safety plan in promoting general fire and life-safety in high-rise buildings. The Fire Safety Team shall include the Fire Safety Director, Assistant Directors, Fire Wardens, and other such personnel included in the approved fire safety plan. The members of the Fire Safety Team shall possess a current certificate signed by the Fire Marshal or an approved instructor as per Section 18.3. Certificates shall be valid for a period of five years.

### 18.2.4 Guest.

An occupant of a high-rise hotel room.

### 18.2.5 High-Rise Certification Classes.

Training provided to tenant designated Fire Wardens and all property management employees, staff, and/or contract personnel by an approved training instructor who has been approved by the Fire Marshal. Upon completion of the training program, the approved training instructor shall certify that the participants have been trained in accordance with the requirements of the City of Houston *Fire Code* and this standard.

### **18.2.6 Occupant.**

Management, staff, tenants, residents, guests, or visitors.

### **18.2.7 Property Management.**

The owner of a building or the authorized agent of the owner.

### **18.2.8 Resident.**

An occupant of a high-rise condominium/apartment/dormitory building.

### **18.2.9 Supervised Fire Drill.**

A planned fire drill performed under supervision of an approved training instructor.

### **18.2.10 Tenant.**

Lessee or occupant in a high-rise office/mercantile building.

## **Section 18.3 – Qualifications to Instruct**

### **18.3.1 Qualifications to Instruct.**

Qualifications of individuals to instruct high-rise safety in accordance with requirements of the City of Houston *Fire Code* shall meet all of the following requirements as set forth below, and be acceptable to the fire code official:

1. Background in the fire service or related fire safety field:
  - a. Certified firefighter, fire protection engineer, or combination thereof, for a minimum of 10 years; or,
  - b. Fire/Life safety director with a minimum of 10 years' experience in high-rise occupancies; or,
  - c. Building manager or engineer with a minimum of 15 years' experience in high-rise occupancies.
2. Possess at minimum a Level 1 (Basic) Instructor or Teaching Certification issued by:
  - a. Accredited educational institution, or;
  - b. Certified Fire Training Academy, or;
  - c. The State of Texas (Instructor Certificate or equivalent credential).
3. Demonstrate working knowledge of applicable City of Houston codes and ordinances.

## **Section 18.4 – Components of Fire Safety Plan Approval**

### **18.4.1 High-Rise Fire Safety Plan Approvals.**

High-rise fire safety plan approval by the fire code official is dependent upon successful fulfillment of all of the following three essential training elements:

1. Consultation with property management.
2. Fire Warden high-rise certification class.
3. Completion of a supervised fire drill.

## **Section 18.5 – Property Management Consultation**

### **18.5.1 Consultations with Management.**

The following elements shall be covered during consultations with property management personnel:

1. Explain that all high-rise buildings within the City of Houston must have a fire code official-approved high-rise fire safety plan.
2. Explain what is required to receive and maintain a fire code official-approved fire safety plan.
3. Provide copies of and explain LSB Standard No. 07, “High-Rise Fire Safety Plan”.
4. Provide a sample copy of the Houston Fire Department standard fire safety plan specific to applicable occupancy. (Example: High-Rise Office Plan, High-Rise Condominium and Apartment Plan, or High-Rise Hotel Plan). Explain in detail how the plan should be completed and how to provide necessary information concerning how the building’s fire and life-safety systems operate.
5. Explain that property management is responsible for disseminating appropriate information regarding the high-rise fire safety plan to the people within their building.
6. Provide a copy of and discuss code official’s letter “Burning Issues”.
7. Explain that certification training is required for all high-rise property management staff, employees, contract personnel, and all tenant Fire Wardens.
8. Discuss the responsibilities and training of the Fire Safety Director(s) to manage and direct the execution of the approved emergency plans and procedures, including the following:
  - a. The Fire Safety Director will notify the fire department of alarms and any known existing conditions without delay.
  - b. Explain how and when to direct the activation of all applicable building fire safety equipment and systems to minimize the emergency’s effect on the occupants, the building, and responding fire department personnel.
  - c. Convey to the Fire Safety Director the administration of appropriate public-address announcements.
  - d. Ensure that the Fire Safety Director assigns individuals to:

- i. Call the fire department;
  - ii. Meet the arriving fire department personnel;
  - iii. Recall the elevators, and;
  - iv. Monitor the fire panel for additional alarms.
9. Discuss training of the Fire Safety Director(s) in the elevator car selection process and the automatic and manual activation of the Phase I Fire Service Elevator Recall and the activation and operation of Phase II Fire Service.
10. Discuss notifying answering service of the requirements for reporting automatic fire alarms in accordance with the City of Houston *Fire Code*.
11. Provide a sample copy of and discuss the fire code official's approved fire alarm recording messages.
12. Provide sample copy of and discuss Building Information Sheet.
13. Provide copy of the fire code official's letter "Fire Alarm System Maintenance During Construction in High-Rise Buildings" and discuss "false" fire alarms due to construction work being performed within buildings.
14. Discuss the provisions of the City of Houston's False Alarm Ordinance as may apply to the particular occupancy in question.
15. Discuss fire drill procedures and the importance of notification of tenants in advance of any planned fire drill.
16. Provide sample letters for fire drill and Fire Warden certification participation.
17. Discuss the number of Fire Wardens required per code and set a date for the Fire Warden training if possible.

## **Section 18.6 – High-Rise Certification Class**

### **18.6.1 High-Rise Certification Class.**

Attendance at a High-Rise Certification Class is required for all high-rise tenant Fire Wardens and appropriate property management employees, staff, and/or contract personnel.

#### **18.6.1.1 Elements of High-Rise Fire Warden Certification Training.**

High-Rise Fire Warden Certification training shall include, at a minimum, the following elements:

1. Discuss the necessity for all high-rise buildings within the City of Houston to have a Fire Marshal approved high-rise fire safety plan.
2. Advise property management of their responsibility for disseminating appropriate information regarding the high-rise fire safety plan to the people within their building.

3. Explain the building's fire safety features including, but not limited to, fire alarm systems (both automatic and manually operated), audible and visual alarms, public address system operations, emergency generators, and/or lighting.
4. Explain elevator features and dangers including, but not limited to, shunt trips, elevator recall, "alternate floor" response, and service elevators.
5. Explain automatic fire sprinkler systems and their effectiveness.
6. Explain the dangers of firefighting and discuss effective life-safety tactics to assist in minimizing the dangers of a fire. Tactics to be discussed include but are not limited to: proper notification of building inhabitants, "Get Out, Never Go Back In", confinement of fire by closing the door on the fire, and the necessity of leaving the firefighting to the professionals.
7. Discuss the uses and hazards of portable fire extinguishers and tenant fire hoses. When possible, provide demonstration and practice on the safe and effective use of portable fire extinguishers.
8. Discuss the role of the Fire Safety Director in the event of a fire or fire alarm.
9. Discuss the role of the Fire Wardens in the event of a fire or fire alarm.
10. Discuss, in detail, the Fire Safety Plan's "Procedures for Reporting Fires and Fire Alarms".
11. Discuss the mechanics of a fire including rapid flame spread and effect of fire and smoke on the human body.
12. Explain how smoke spreads in a high-rise building and emphasize the need to get down and stay down low in a fire situation. Discuss the limits and feasibility of areas of refuge within a building and the need for immediate evacuation.
13. Discuss the "Delay of Alarm" and present examples in history.
14. Discuss the cause and effect of panic in a fire situation.
15. Discuss the proper smoke detector use and their function and location in relation to early or delayed detection.
16. Discuss fire prevention, safety, and pre-fire planning on the job.
17. Discuss the planned fire drill to be conducted within the high-rise building and what such a drill may entail.
18. Discuss the fire department responses and the need to notify the department of any change in conditions.
19. Discuss the "Three Phases of Evacuation" and the simultaneous multi-phase. Determine which phase applies to whom and when initiation of each phase should take place.

Explain:



- a. Phase #1 – Horizontal evacuation to the 1<sup>st</sup> staging location on your floor. The 1<sup>st</sup> staging location is adjacent to the exit stairway door. This location is generally safe for mobility impaired occupants.
- b. Phase #2 – Vertical evacuation to the 2<sup>nd</sup> staging location, which is down the exit stairway to three or more floors below the lowest fire affected floor.
- c. Phase #3 – If not on the exit egress floor, Phase 3 vertical evacuation takes place through the exit stairway to the exterior of and away from the building. This evacuation should end at a place of safe refuge.

20. Discuss compartmentalization (floor and ceiling assemblies, inside doors, hallway walls and doors, stair doors, stair rating, and stair pressurization).

21. Discuss general fire safety and pre-fire planning on the job and in the home using “E.D.I.T.H.” or similar safety programs.

## **Section 18.7 – Fire Drill**

### **18.7.1 Fire Drill as a Final Step in Plan Approval.**

The final step in the plan approval process shall be a supervised fire drill.

### **18.7.2 Preparation for and Conducting of a Fire Drill.**

The following steps be taken to prepare for, conduct, and review the effectiveness of a fire drill:

#### **18.7.2.1 Pre-Drill Preparations.**

1. In advance of the date chosen for the drill, property management shall provide all of the tenants on every floor with written notification of the intent to conduct a fire drill on that date.
2. It is recommended that property management arrange for representatives from the fire alarms and elevator service companies to be present at the building at the time of the fire drill when possible.

#### **18.7.2.2 Day of Drill Preparations.**

1. It is recommended that property management again provide notification of tenants and visitors to the building as to the specific time of the planned drill.
2. Property management shall notify their fire alarm monitoring service (where applicable) and the Fire Department Emergency Communication Center in advance of the planned fire drill. Property management shall instruct the UL monitoring station NOT to call the fire department during the time of the fire drill.

### **18.7.2.3 Conducting the Drill.**

1. At the previously announced start time, the building or the selected floors within the building shall be put into alarm.
2. All elevators shall be placed in Fire Service Recall (Phase I – Fire Service) to recall to their designated floor(s).
3. During the fire drill, which has been designed to spot check building systems operation to ensure proper functioning, members of the Fire Safety Team should take notice of and report any issues to the Fire Safety Director.

### **18.7.2.4 Post Drill.**

At the conclusion of the drill, property management shall:

1. Immediately notify their fire alarm monitoring services (where applicable) and the Fire Department Emergency Communications Center that the fire drill has concluded and that the building is to be placed back on fire alarm monitoring status.
2. Conduct a post fire drill review to analyze the effectiveness of the fire drill and resolve any problems encountered.
3. Make recommendations on how additional training might improve performance.

## **Section 18.8 – Fire Safety Plan Approval**

### **18.8.1 Conditions of Approval.**

Approval of a fire safety plan by the fire code official is contingent upon completion of the following:

1. Completion of all three phases of training and consultation.
2. Submission of a completed standard fire safety plan with adequate number of trained Fire Wardens.
3. Property management and personnel must demonstrate adequate knowledge and performance of emergency procedures and basic operation of building's emergency systems.

## **Section 18.9 – Certificates of Approval**

### **18.9.1 Code Official Approval Letters.**

Once building management has completed all the requirements covered within this standard, the approved training instructor shall prepare and submit a letter to the fire code official requesting approval of the Fire Safety Plan. Upon receipt of the request letter, if approval is granted, the fire code official shall issue a letter or certificate of approval for that building.

### **18.9.2 Certificates of Completion of Fire Warden Training.**

A certificate of satisfactory course completion shall be issued by the approved training instructor providing an approved course of Fire Warden training. Provision and distribution of certificates are solely the responsibility of the approved training instructor. The design of the certificate shall be sufficiently different so as not to be confused with those issued by the Houston Fire Department. Each certificate shall include the recipient's name, the instructor's name, and the date of the class written or printed legibly. A copy of such certificate shall be submitted to the fire code official for approval before distribution to Fire Wardens. Upon distribution, the certificate shall be considered valid for a period of five (5) years from the class date.

### **18.9.3 Maintaining an Approved Fire Safety Plan.**

Fire safety plan approvals are maintained for a period of 3 years, unless any of the following conditions should occur:

1. Change of Fire Safety Director, unless site certified within 30 days of change; or
2. The lack of certification of the minimum required number of Fire Wardens; or
3. A change of the building's occupancy classification; or
4. Building employees are not properly trained or training is not maintained as required by the City of Houston *Fire Code* and this standard; or
5. The plan becomes outdated due to age or changes in City of Houston codes, ordinances, or standards.

## **Section 18.10 – Procedures for Transmitting Automatic Fire Alarms**

### **18.10.1 General.**

The procedures for transmitting automatic fire alarms will be in accordance with Chapter 4 of the City of Houston *Fire Code*.

### **18.10.2 Scope.**

In the event an unexpected fire occurs or upon the discovery of a fire, smoke, or unauthorized release of flammable or hazardous materials on any property, the owner or occupant shall immediately report such condition to the fire department. Building employees and tenants shall implement the appropriate emergency plans and procedures and notify the fire department as soon as notice can be safely given. No person shall, by verbal or written directive, require any delay in the reporting of a fire to the fire department.

### **18.10.3 Violations.**

Fire inspectors are authorized to issue written citations to any persons in any occupancy or receiving station who delays or otherwise suppresses the immediate relay of alarms or reports in their facility to the fire department. Fines range from \$500 to \$2,000 for each violation.

## **Section 18.11 – Fire Alarm System Maintenance During Construction**

### **18.11.1 General.**

Fire detection, alarm, and extinguishing systems shall be maintained in an operative condition at all times, and shall be replaced or repaired where defective, per the City of Houston *Fire Code* Section 901.6. Nonrequired fire protection systems and equipment shall be inspected, tested, and maintained or removed.

### **18.11.2 During Construction.**

In accordance with the City of Houston *Fire Code*, if the nature of construction warrants, the following options are approved by the Houston Fire Department during full or partial construction of floor(s) within a building:

1. Installation of molded plastic cups over smoke detectors.
2. Installation of bags over smoke detectors.
3. Replacement of smoke detectors with rate-of-rise detectors.

### **18.11.3 Cups of Bags Installation.**

If cups or bags are installed, a written process shall be established by the property management and included into the building's construction rules and regulations to ensure:

1. Proper installation of cups/bags.
2. Proper removal of cups/bags whenever an involved area is unoccupied and follow-up verification of such removal.
3. Maintenance of daily documentation of involved locations, including contact names.
4. Designation of appropriate person(s) in construction area to activate the fire alarm and notify the Houston Fire Department and property management in the event of an actual smoke/fire situation.

### **18.11.4 Heat Detectors in Elevator Lobbies.**

Heat detectors are not acceptable in elevator lobbies. Lobbies must have cups/bags installed on smoke detectors.

### **18.11.5 Alarm System Disabling.**

The Houston Fire Department does not allow the disabling of an alarm system by device, zone, or floor, nor the complete deactivation of the fire alarm system.

### **18.11.6 Alarm System Removal.**

In the event of demolition of a floor(s), including the removal of the fire alarm system, property management shall:

1. Notify the Houston Fire Department Emergency Communications Center by telephone: (713) 884-3143; or fax: (713) 884-4237.
2. Check with an alarm company for temporary alternatives for fire detection and notification to the fire department.

3. At a minimum during the demolition, provide the following: **(a)** a temporary standpipe at a location approved by the fire code official, and **(b)** two exits from the building.

#### **18.11.7 Violations.**

Violation for the above requirements may subject the property management to City of Houston *Fire Code* citations (fines ranging \$500 - \$2,000 for each violation), and/or fines for violation of False Fire Alarm Ordinance.

#### **References**

1. City of Houston *Fire Code*
2. Life Safety Bureau (LSB) Standard No. 06, "Key Depository Boxes"
3. Life Safety Bureau (LSB) Standard No. 07, "High-Rise Fire Safety Plan"
4. Life Safety Bureau (LSB) Standard No. 08, "Fire Drills"
5. Fire Marshal's Letter, "Burning Issues"
6. Fire Marshal's Letter, "Fire Alarm System Maintenance During Construction in High-Rise Buildings"
7. (LSB) "High-Rise Apartment/Condominium Fire Safety Plan"
8. (LSB) "High-Rise Hotel Fire Safety Plan"
9. (LSB) "High-Rise Office Building Fire Safety Plan"

All reference materials used under this Life Safety Bureau standard shall be in accordance with the most current adopted City of Houston *Construction Code*.