CHAPTER 93

MINIMUM STANDARDS FOR HIGH-RISE BUILDINGS

Note: Chapter 93 is entirely Seattle amendments to the *International Fire Code* and is not underlined.

Chapter 93 Point of Information

The requirements of this chapter originated in City of Seattle Ordinance 110299, effective January 23, 1982. Where used in this chapter, the term "Building Code" shall mean the 1982 Seattle Building Code. Where used in this chapter, the terms "this Code" and "the fire code" shall mean the 1982 Seattle Fire Code.

SECTION 9301
GENERAL

9301.1 Purpose. The main purpose of this chapter is to improve the fire and life safety of existing high-rise buildings that do not conform to current City codes so that the health, safety and welfare of the general public is provided for and promoted. It is recognized that the application of present day fire protection techniques to some existing high-rise buildings is difficult. For this reason, this chapter may permit the use of alternative methods and innovative approaches and techniques to achieve its purpose, if *approved* by the *fire code official* and the Building Official.

9301.2 Scope. This chapter applies to all high-rise buildings in existence at the time of its adoption, as well as to all high rise buildings coming into existence after the adoption thereof.

9301.2.1 Hazards and design features. If the *fire code official* finds a condition in a high-rise building not specifically addressed in this chapter, which in the *fire code official's* opinion makes fire escape or fire fighting unusually difficult, the *fire code official* is authorized to declare it to be a hazard, notify the owner of such condition and order its correction in a manner consistent with these minimum safeguards.

9301.2.2 Exempt buildings. The *fire code official* and the Director of the Seattle Department of Construction and Inspections may exempt high-rise buildings that meet the requirements of Section 403 of the 1982 *Seattle Building Code* from complying with the provisions of this chapter.

9301.2.3 Conflicts. If there is a conflict between the provisions of this chapter and the provisions of an ordinance or code adopted after January 23, 1982, the provisions of the later adopted ordinance or code apply.

9301.3 Definitions. For the purpose of this chapter, certain words shall be construed as specified in this section.

CENTRAL STATION: A fire alarm reporting service listed by the Underwriters Laboratories or authorized by the *fire code official* to report alarms to the Seattle Fire Department Alarm Center. In lieu of connection to a central station listed by Underwriters Laboratories, the *fire code official* may approve building staff monitoring of a fire alarm annunciator panel if:

1. Such staff are properly trained to monitor the annunciator panel and report alarm signals to the fire department alarm center via the 9-1-1 system.
2. One or more building staff is on duty 24 hours a day and remains in the direct vicinity of the annunciator panel, e.g., a hotel desk clerk if the panel is behind the registration desk.
3. Staff persons are available in low income high-rise buildings whose primary duty requires them to be at the front desk.

DEAD-END CORRIDOR: A corridor that permits only one direction of travel from a unit or normally occupied room door to an exit, or that intersects an exit corridor on one end and does not provide an exit path on the other end. A corridor that has fire escapes directly accessible from it is not a dead-end corridor.

FLOOR USED FOR HUMAN OCCUPANCY: A floor designed and intended for occupancy by one or more persons for any part of a day, including a roof garden and an active storage area. An area that is permanently unoccupied or is occupied for the service of building equipment only is not included in this definition.

HIGH-RISE BUILDING: Buildings having floors used for human occupancy located more than 75 feet above the lowest level of fire department vehicle access.

LOW INCOME RESIDENTIAL BUILDINGS: Those buildings that meet the following requirements:

1. At least 50 percent of the dwelling or housing units as defined in the Seattle Housing and Building Maintenance Code (Seattle Municipal Code Ch. 22.204) are rented to non-transient persons at a rent at or below 0.9% of the current median income for all families in the Seattle area as determined by the United States Department of Housing and Urban Development; and

2. The average monthly rent for all dwelling or housing units in the building does not exceed 1.4% of the Median Income Limit.

For purposes of calculating the average monthly rent, a room that is rented on a hostel-style basis to three or more non-related persons is considered as one room rented for $200 per month.

Monthly rent includes all charges for shelter and provision of items normally associated with such use, but does not include board, health care, telephone charges and other such items.

SECTION 9302
EXITS

9302.1 General. All exits in high-rise buildings shall be illuminated as required in Section 1104 of this Code and enclosed with a minimum of one-hour fire resistive construction. Every high-rise building shall have at least one such exit. If existing exterior fire escapes are used for additional exits, they shall be tested and identified as required in Section 9302.3.

9302.2 Smokeproof enclosure. Where a high-rise building has a single, enclosed exit, the enclosure shall be continued to the exterior of the building, the exit shall be smoke-proof by mechanical ventilation in accordance with Section 3310 of the 1982 *Seattle Building Code*, or mechanically pressurized with fresh air to 0.15 inches water column and shall have a concurrent 2500 cubic feet per minute (CFM) exhaust to atmosphere in an emergency, in accordance with the provisions of the Building Code.

Exceptions:

1. Pressurization may be omitted if the building has an *approved* automatic sprinkler system, all corridor openings are self-closing, all occupied areas have access to a second means of egress or a fire escape and the omission is *approved* by the *fire code official.*
2. A single stair may exit through a building lobby, if the lobby is of non-combustible construction, does not contain combustible furnishings, and is separated from the rest of the building by one-hour fire resistive construction. Wire-glass protected by sprinklers on both sides may be accepted as one-hour fire-resistive construction. If the lobby contains no combustible materials, wire-glass need only be protected by sprinklers on the side opposite the lobby.

9302.3 Fire escapes. Exterior fire escapes shall be accessible and structurally safe at all times. Owners of high-rise buildings shall load test fire escapes at least once every five years with a weight of not less than 100 lb/sq. foot. The results of such a load test shall be submitted in writing to the *fire code official.* In lieu of such a test, the *fire code official* may accept the opinion of a structural engineer licensed by the State of Washington describing his inspection and/or tests and stating that the fire escape is structurally safe and will support a load of 100 lb/sq. foot. There shall be signs *approved* by the *fire code official* clearly identifying the route of access to the fire escape from every public corridor. Fire escapes that are not maintained structurally safe and not otherwise required by provisions of the Fire Code shall be removed. Locked doors or windows are prohibited between public corridors and fire escapes.

Exceptions: If all of the following criteria are met and *approved* by the *fire code official:*

1. An identified tool or device for opening the locked door or window is permanently affixed in close proximity to the locked point.
2. The area around the locked door or window is served by emergency illumination.
3. Clearly understandable directions indicating the use of the tool and the route to the fire escape are posted at the locked door or window.

9302.4 Doors. All exit doors in the path of exit travel shall be self-closing or automatic closing in accordance with Section 713.6 of the 1982 Building Code. Doors held open by fusible links and sliding or vertical doors are prohibited in exit ways. Stairway doors shall be self-latching.

9302.5 Unlocking of doors. Stairway doors, including the doors between any stairway and the roof, shall not have locks or shall unlock automatically whenever a fire alarm is activated in the high-rise building. Such locks shall unlock automatically when power is off (fail safe). If the only locked door in a stair shaft is the one that leads to the roof, it may be locked by panic hardware or *approved* alarm lock-paddle bars.

9302.6 Egress from stairways. Enclosed stairways serving more than six floors shall have two means of egress from the stairway. Enclosed stairways serving ten or more floors shall have re-entry into the building at approximately 5-story intervals. Re-entry signs shall be posted in the stair.

Exceptions:

1. Jails.
2. If telephones connected to a 24-hour manned location are provided in the stairway in each 5-floor increment that does not have a means of egress.
3. If any door serving as an entrance to the stair does not automatically lock behind a person entering the stair.

4. If alternate means of alerting building management to persons trapped in a stairwell are *approved* by the Building Official.

SECTION 9303
DEAD-END CORRIDORS

9303.1 Dead-end corridors. Dead-end corridors are limited to 75 feet in length in office occupancies and 30 feet in length in all other occupancies. If such limits are exceeded, automatic sprinkler protection meeting the requirements of the Fire Code and the Building Code shall be provided for the entire dead-end corridor, with one head on the room side of each door opening onto the corridor. Domestic water systems may be used to supply such sprinklers when *approved* by the *fire code official.*

Exceptions:

1. In high-rise buildings, inactive doors leading from the dead-end corridor into spaces that are not in normal use may be covered with 5/8-inch type "x" gypsum board or its equivalent, in lieu of installing a sprinkler head over the door or smoke detector in the room.
2. In office occupancies, sprinkler heads on the room side of each door opening onto the corridor need not be installed.
3. In residential buildings, if corridors and each guest room are equipped with electrically supervised heat detectors connected to the building fire alarm system, sprinkler heads, or any combination thereof. If heat detectors are used in rooms in lieu of sprinklers, doors must be rated at 20 minutes and must be self-closing.
4. In office occupancies, sprinkler systems are not required in a dead-end corridor if the corridor is equipped with smoke detectors and each room opening onto the corridor is equipped with at least one smoke detector. Such detector shall be electrically supervised and connected to the building fire alarm system.
5. If there is a fire escape not directly accessible from the corridor and the exit route is protected by electrically supervised smoke detection.
6. Corridors within residential units are exempt.
7. Corridors within private offices may have corridor only smoke detection connected to the building alarm systems.

SECTION 9304
FIRE RESISTIVE CONSTRUCTION

9304.1 Fire separation. Any space larger than 1,500 square feet shall be separated from building stair shafts, elevator shafts and air handling shafts by non-combustible smoke resistive separation (glass walls with wood stops are acceptable) and equipped with smoke detectors connected to the building fire alarm system.

Exceptions:

1. Spaces that have *approved* automatic sprinkler systems.
2. Building lobbies or corridors which are equipped with an *approved* smoke control system that includes shaft pressurization and automatic smoke removal.
3. Building lobbies or corridors of any size that do not contain combustible furnishings (other than carpet) or commercial spaces and have non-combustible interior finish throughout.

   NOTE: To qualify for exception 3, all spaces adjacent to the building lobby must be separated and equipped with smoke detectors as outlined in this section, and all doors leading into the lobby must be self-closing or automatically closing upon activation of the building fire alarm system.
4. Office areas above the main lobby, including open space design areas.

   NOTE: This exception does not apply to retail or wholesale stores, display rooms, restaurants, cocktail lounges and bars, banquet rooms, meeting rooms, storage rooms and spaces that, because of unusual fuel load or other conditions, pose an unusual hazard in the opinion of the *fire code official.*
5. Smoke detectors are not required in spaces that are separated by one-hour fire-resistive construction, with openings protected by one-hour self-closing doors. Domestic water systems may be used to supply the sprinkler system referred to in this section if *approved* by the *fire code official.*

9304.2 Shaft enclosures. All openings that connect three or more floors shall be enclosed with a minimum of one-hour fire resistive construction.

Exception: Openings complying with Sections 304.6 or 402 of the 1982 Seattle Building Code.

SECTION 9305
HEATING, VENTILATION AND AIR CONDITIONING SYSTEM (HVAC) SHUTDOWN

9305.1 Air moving systems. Air moving systems that serve more than the floor on which they are located shall automatically shut down on any high-rise building fire alarm, or shall be provided with a manual shutdown switch located at the fire alarm panel in the main building lobby.

Exception: Air moving systems of:

1. Less than 2,000 CFM.
2. Exhaust only systems of less than 15,000 CFM, such as toilet, range hood, kitchen, fume hood, etc.
3. HVAC systems of less than 15,000 CFM with automatic shut-down on smoke detectors in the area served, which are connected to the building fire alarm system.
4. Life safety pressurization systems as provided in the Building Code.
5. Buildings with *approved* automatic smoke control pursuant to Section 1807 of the 1982 edition of the Seattle Building Code.

SECTION 9306
FIRE ALARM AND DETECTION SYSTEMS

9306.1 General. Every high-rise building, except a residential occupancy with a system installed under Ordinance 106107 as now or hereafter amended, shall have an electrically supervised fire alarm and detection system *approved* by the *fire code official,* as follows:

A manual pull station shall be located at every floor exit door, except in office occupancies.

The alarm system for the high-rise building shall be monitored by a central station, or other such means *approved* by the *fire code official*. The alarm systems shall be electrically supervised and have battery emergency power sufficient to operate for a period of 24 hours and sound the alarm for 10 minutes at the end of that period.

9306.2 Automatic smoke detection. There shall be electrically supervised automatic smoke detection in elevator landings, public corridors, and on the corridor or floor side of each exit stairway.

Exception: If a corridor has an *approved* automatic sprinkler system, smoke detectors may be omitted from the corridor.

There shall be electrically supervised automatic smoke detectors within 50 feet of building perimeter walls and at standard spacing (approximately 30 feet) to the center of the floor.

Exceptions:

1. Interior of residential units.
2. Floors that have an *approved* automatic sprinkler system.
3. Parking garages.
4. Building Mechanical Spaces.
5. Any space above the top occupied floor.

9306.3 Rooms without sprinklers. There shall be electrically supervised automatic heat or smoke detection in rooms used for storage, shops, handicraft, janitor, trash and similar purposes where the fuel load may be significantly higher than the average floor fuel load and no automatic sprinkler system exists.

Exceptions:

1. Rooms with an *approved* automatic sprinkler system.
2. Rooms under 10 square feet opening onto exit corridors.
3. Rooms under 100 square feet not opening onto exit corridors.
4. Rooms within residential units.
5. Rooms where the storage is in closed metal containers.
6. Rooms other than those opening onto a corridor and within 30 ft. of an electrically supervised automatic smoke detector.

9306.4 Audibility. Alarm systems shall have audible devices producing a slow “whoop” sound audible at 15 dBA above ambient sound levels with a minimum of 60 dBA throughout residential occupancies and 10 dBA above ambient sound levels with a minimum of 55 dBA throughout other occupancies, and shall have a microphone capable of making voice announcements simultaneously to all floors. The alarm shall sound at a minimum on the floor where the fire is occurring and the floor above, and

the alarm system shall be capable of sounding a general alarm throughout the high rise building. The alarm system shall be designed so that a general alarm may be activated from two separate locations.

9306.4.1 Zones. Fire alarm systems shall be zoned per floor.

9306.4.2 Panels. There shall be an annunciator panel in the main lobby of a high rise building or in such other areas *approved* by the *fire code official* as an emergency control center.

9306.5 Automatic sprinklers. If an automatic sprinkler system has been installed for fire protection, the water flow alarm shall be connected to the building fire alarm.

Exception: Where automatic smoke detectors are installed in the area and zoned, a single water flow alarm may be used.

9306.6 Elevator shafts. For purposes of Section 9306, wiring for fire alarm and fire detection systems may be installed in elevator shafts, if:

1. Such wiring shall not interfere with the safe operation of the elevator.
2. Such wiring shall be enclosed within metal conduit and all junction boxes shall be located outside the shaft.
3. All wiring work shall be done under applicable permit obtained from the Seattle Department of Construction and Inspections.

9306.7 Elevator recall. A fire alarm originating on a floor other than the main lobby floor shall cause all elevators to be returned to the main floor in accordance with Chapter 30 of the 1982 *Seattle Building Code.* Whenever new elevator controllers are installed, they shall meet provisions of the current *Seattle Building* and *Elevator Codes.* Newly installed controllers shall have the capability of selecting alternate recall floors.

Exception: Freight elevators with manually operated doors.

SECTION 9307
EMERGENCY POWER

9307.1 General. High-rise buildings not meeting the Building Code in effect at the time of the original adoption of this article shall have, as a minimum, emergency power as follows:

1. Stairway pressurization emergency power shall be provided by an on-site diesel engine generator set. Such power shall start automatically on fire alarm and the generator set shall have a two-hour fuel supply.
2. Exit signs and pathway illumination shall have emergency power by trickle charged storage batteries. Such batteries shall have a capacity to provide required illumination for 90 minutes.
3. Fire alarm emergency power shall be provided as required in Section 9306.

SECTION 9308
SIGN REQUIREMENTS

9308.1 General. All signs in this section shall be *approved* by the *fire code official* and have graphic symbols if possible. In hotels, signs must have graphic symbols. Sign lettering shall follow Appendix I-C of the 1982 *Seattle Fire Code.* A sign shall be posted on the room side of every hotel guest room indicating the relationship of that room to the exits and fire extinguishers, and giving basic information on what to do in the event of fire in the building.

9308.2 Stairs. Signs shall be provided on the stairway side of every stair door indicating the number of the stair, the floor that the door serves, the high-rise building re-entry points, and stair termination.

9308.3 Elevators. A sign shall be posted in every elevator lobby above each call switch noting that the elevators will be recalled to the building lobby on fire alarm. This sign shall warn persons not to use the elevator in the event of fire and direct them to use the stairway. If exit signs are not clearly visible from the elevator lobby, signs shall be installed to indicate the direction to stair and fire escape exits.

9308.4 Emergency illumination. Emergency illumination shall be provided at the elevator lobby sign location.

9308.5 Exit identification. "NOT AN EXIT" signs shall be installed at all doorways, passageways, or stairways that are not exits, exit accesses or exit discharges, and that may be mistaken for an exit. A sign indicating the use of the doorway, passageway, or stairway, such as "to basement," "storeroom," or "linen closet," is permitted in lieu of the "NOT AN EXIT" sign.

SECTION 9309
EMERGENCY PREPAREDNESS

9309.1 Emergency plan. Owners of high-rise buildings shall prepare an emergency operations plan in accordance with Section 403 of the 1982 Seattle Building Code. In addition to the requirements of Section 403 of the 1982 Seattle Building Code, the

emergency operations plan shall specify the duties during a fire emergency of the building management and staff, the building fire safety directors and floor wardens as identified in Section 9309.2.

9309.2 Building staff training. Owners of high-rise buildings shall designate from existing staff a building fire safety director who shall be responsible for the operation of the building fire protection equipment. Owners of high-rise buildings and/or tenants employing over 100 persons shall designate a floor warden for each floor to be responsible for evacuating the people on their respective floors in emergencies. The names and work locations of the director and the floor wardens shall be maintained on a roster contained in the building emergency operations plan.

Exceptions:

1. Residential condominiums and apartment occupancies not employing staff.
2. Office and retail occupancies after normal business hours.

NOTE: In residential buildings employing staff, if there are not enough staff to appoint a floor warden for each floor, wardens shall be appointed to the fire floor, the floor above and as many additional floors as possible. In buildings where only one staff person is available, that person will be the Fire Safety Director.

9309.3 Fire drills. The staff of high-rise buildings shall conduct, and the occupants thereof shall participate in, fire drills on a regular basis as established in Chapter 4 of the 2018 Seattle Fire Code.