1301:7-7-04 Emergency planning and preparedness.

(A) Section 401 General

(1) 401.1 Scope. Reporting of emergencies, coordination with emergency response forces, emergency plans, and procedures for managing or responding to emergencies shall comply with the provisions of this paragraph.

Exception: Firms that have approved on-premises fire-fighting organizations and that are in compliance with approved procedures for fire reporting.

(2) 401.2 Approval. Where required by this code, fire safety plans, emergency procedures and employee training programs shall be approved by the fire code official.

(3) 401.3 Emergency responder notification. Notification of emergency responders shall be in accordance with paragraphs (A)(3)(a)(401.3.1) to (A)(3)(c)(401.3.3) of this rule.

(a) 401.3.1 Fire events. In the event an unwanted fire occurs on a property, the owner or occupant shall immediately report such condition to the fire department.

(b) 401.3.2 Alarm activations. Upon activation of a fire alarm signal, employees or staff shall immediately notify the fire department.

(c) 401.3.3 Delayed notification. A person shall not, by verbal or written directive, require any delay in the reporting of a fire to the fire department.

(4) 401.4 Required plan implementation. In the event an unwanted fire is detected in a building or a fire alarm activates, the emergency plan shall be implemented.

(5) 401.5 Making false report. A person shall not give, signal or transmit a false alarm.

(6) 401.6 Emergency evacuation drills. The sounding of a fire alarm signal and the carrying out of an emergency evacuation drill in accordance with the provisions of paragraph (E)(405) of this rule shall be allowed.

(7) 401.7 Unplanned evacuation. Evacuations made necessary by the unplanned activation of a fire alarm system or by any other emergency shall not be substituted for a required evacuation drill.

(B) Section 402 Definitions

(1) 402.1 Definitions. The following words and terms shall, for the purposes of this rule and as used elsewhere in this code, have the meanings shown herein are defined in rule 1301:7-7-02 of the Administrative Code.

“Emergency evacuation drill.” An exercise performed to train staff and occupants and to evaluate their efficiency and effectiveness in carrying out emergency evacuation procedures.

“Lockdown.” An emergency situation, in other than a Group I-3 occupancy, requiring that the occupants be sheltered and secured in place within a building when normal evacuation would put occupants at risk.

(2) 402.2 Terms used for this rule. The following word takes on an exclusive meaning as used in this rule pursuant to section 3781.104 of the Revised Code.

“Smoke detector.” A readily removable device, sensitive to either visible or invisible particles of combustion or both, which automatically detects any fire condition and broadcasts locally a signal or alarm.

(C) Section 403 Public assemblages and events Emergency preparedness requirements

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(1) 403.1 Fire watch personnel. When, in the opinion of the fire code official, it is essential for public safety in a place of assembly or any other place where people congregate, because of the number of persons, or the nature of the performance, exhibition, display, contest or activity, the owner, agent or lessee shall provide one or more fire watch personnel, as required and approved, to remain on duty during the times such places are open to the public, or when such activity is being conducted.

(a) 403.1.1 Duties. Fire watch personnel shall keep diligent watch for fires, obstructions to means of egress and other hazards during the time such places is open to the public or such activity is being conducted and take prompt measures for remediation of hazards, extinguishment of fires that occur and assist in the evacuation of the public from the structures.

(b) 403.1.2 Deviations. Deviations from the approved plans shall be allowed provided the fire code official determines that the approved plans will provide adequate public safety.

(2) 403.2 Public safety plan. In other than Group A or E occupancies, where the fire code official determines that an indoor or outdoor gathering of persons has an adverse impact on public safety through diminished access to buildings, structures, fire hydrants and fire apparatus access roads, or where such gatherings adversely affect public safety services of any kind, the fire code official shall have the authority to order the development of, or prescribe a plan for, the provision of an approved level of public safety.

(a) 403.2.1 Contents. The public safety plan, where required by paragraph (C)(2)(403.2) of this rule, shall address such items as emergency vehicle ingress and egress, fire protection, emergency egress or escape routes, emergency medical services, public assembly areas and the directing of both attendees and vehicles (including the parking of vehicles), vendor and food concession areas, and the need for the presence of law enforcement, and fire and emergency medical services personnel at the event.

(b) 403.2.2 Public safety plan. Ambulatory care facilities shall comply with the requirements of paragraphs (C)(3)(a)(403.3) to (C)(3)(c)(403.3.3) of this rule.

(c) 403.2.3 Group A occupancies. Group A occupancies shall comply with the requirements of paragraphs (H)(2)(a)(408.2.1) and (H)(2)(b)(408.2.2) of this rule.

(d) 403.2.4 Crowd managers. Crowd managers shall be provided where required by paragraph (C)(12)(b)(403.12.3) of this rule.

(3) 403.3 Announcements. Announcements in theaters, motion picture theaters, auditoriums and similar assembly occupancies in Group A used for noncontinuous programs, an audible announcement shall be made not more than 10 minutes prior to the start of each program to notify the occupants of the location of the exits to be used in the event of a fire or other emergency.

Exception: In motion picture theaters, the announcement is allowed to be projected upon the screen in a manner approved by the fire code official.

(4) 403.4 Fire watch personnel. Fire watch personnel shall be provided where required by paragraph (C)(12)(a)(403.12.1) of this rule.

(5) 403.5 Crowd managers. Crowd managers shall be provided where required by paragraph (C)(12)(c)(403.12.3) of this rule.

(6) 403.6 Ambulatory care facilities. Ambulatory care facilities shall comply with the requirements of paragraphs (C)(3)(a)(403.3) to (C)(3)(c)(403.3.3) of this rule as well as (A)(401) and (D)(404) to (F)(406) of this rule.

For copyright claim information, please see the notice attached to the last page of this rule.
(a) 403.3.1 Fire evacuation plan. The fire safety and evacuation plan required by paragraph (D)(404) of this rule shall include a description of special staff actions. This shall include procedures for stabilizing patients in a defend-in-place response, staged evacuation, or full evacuation in conjunction with the entire building if part of a multitenant facility.

(b) 403.3.2 Fire safety plan. A copy of the plan shall be maintained at the facility at all times. The plan shall include all of the following in addition to the requirements of paragraph (D)(404) of this rule:

(i) Locations of patients who are rendered incapable of self-preservation.

(ii) Maximum number of patients rendered incapable of self-preservation.

(iii) Area and extent of each ambulatory care facility.

(iv) Location of adjacent smoke compartments or refuge areas, where required.

(v) Path of travel to adjacent smoke compartments.

(vi) Location of any special locking, delayed egress or access control arrangements.

(c) 403.3.3 Staff training. Employees shall be periodically instructed and kept informed of their duties and responsibilities under the plan. Records of instruction shall be maintained. Such instruction shall be reviewed by the staff not less than every two months. A copy of the plan shall be readily available at all times within the facility.

(d) 403.3.4 Emergency evacuation drills. Emergency evacuation drills shall comply with paragraph (E)(405) of this rule. Emergency evacuation drills shall be conducted not less than four times per year.

Exception: The movement of patients to safe areas or to the exterior of the building is not required.

(4) 403.4 Group B occupancies. An approved fire safety and evacuation plan in accordance with paragraph (D)(404) of this rule shall be prepared and maintained for buildings containing a Group B occupancy where the Group B occupancy has an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge and for buildings having an ambulatory care facility.

(5) 403.5 Group E occupancies and Group R-2 college and university buildings. Group E occupancies shall comply with the requirements of paragraphs (H)(3)(a) to (H)(3)(d) of this rule and paragraphs (A)(403) to (F)(406) of this rule. Group R-2 college and university buildings shall comply with the requirements of paragraphs (H)(3)(a) to (H)(3)(d) of this rule and paragraphs (A)(403) to (F)(406) of this rule. An approved fire safety and evacuation plan in accordance with paragraph (D)(404) of this rule shall be prepared and maintained for Group E occupancies and for buildings containing both a Group E occupancy and an atrium. Group E occupancies shall comply with paragraphs (C)(5)(a) to (C)(5)(c) of this rule.

(a) 403.5.1 First emergency evacuation drill. The first emergency evacuation drill of each school year shall be conducted within 10 days of the beginning of classes.

(b) 403.5.2 Time of day. Emergency evacuation drills shall be conducted at different hours of the day or evening, during the changing of classes, when the school is at assembly, during the recess or gymnastic periods, or during other times to avoid distinction between drills and actual fires. In Group R-2 college and university buildings, one required drill shall be held during hours after sunset or before sunrise.

(c) 403.5.3 Assembly points. Outdoor assembly areas shall be designated and shall be located a safe distance from the building being evacuated so as to avoid interference with fire department operations. The assembly areas shall be arranged to keep each class separate to provide accountability of all individuals.

(6) 403.6 Group F occupancies. An approved fire safety and evacuation plan in accordance with paragraph (D)(404) of this rule shall be prepared and maintained in buildings containing a Group F occupancy where the Group F occupancy has an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge.
Group H-5 occupancies shall comply with the requirements of paragraphs (A)(4)(a)(403.8.1) to (H)(4)(a)(408.4) of this rule and paragraphs (A)(401) to (G)(402) of this rule. An approved fire safety and evacuation plan in accordance with paragraph (D)(404) of this rule shall be prepared and maintained for Group H-5 occupancies.

(a) 403.7.1 Group H-5 occupancies. Group H-5 occupancies shall comply with paragraphs (C)(7)(a)(i)(403.7.1.1) to (C)(7)(a)(v)(403.7.1.4) of this rule.

(b) 403.8.1 Group I-1 occupancies. Group I-1 occupancies shall comply with the requirements of paragraphs (H)(4)(a)(403.8.1) to (H)(4)(a)(408.4) of this rule and paragraphs (A)(401) to (F)(406) of this rule. An approved fire safety and evacuation plan in accordance with paragraph (D)(404) of this rule shall be prepared and maintained for Group I-1 occupancies. Group I-1 occupancies shall comply with paragraphs (C)(8)(a)(403.8.1.1) to (C)(8)(a)(v)(403.8.1.7) of this rule.

(c) 403.8.1.1 Fire safety and evacuation plan. The fire safety and evacuation plan required by paragraph (D)(404) of this rule shall include special employee actions including fire protection procedures necessary for residents and shall be amended or revised upon admission of any resident with unusual needs.

(d) 403.8.1.1.1 Fire evacuation plan. The fire evacuation plan required by paragraph (D)(404) of this rule shall include a description of special staff actions. In addition to the requirements of paragraph (D)(404) of this rule, plans in Group I-1 Condition 2 occupancies shall include procedures for evacuation through a refuge area in an adjacent smoke compartment and then to an exterior assembly point.

(e) 403.8.1.1.2 Fire safety plans. A copy of the fire safety plan shall be maintained at the facility at all times. Plans shall include the following in addition to the requirements of paragraph (D)(404) of this rule:

(i) Location and number of resident sleeping rooms.

(ii) Location of special locking or egress control arrangements.

(f) 403.8.1.2 Staff training. Employees shall be periodically instructed and kept informed of their duties and responsibilities under the plan. Such instruction shall be reviewed by the staff at least every two months. A copy of the plan shall be readily available at all times within the facility.

(g) 403.8.1.3 Resident training. Residents capable of assisting in their own evacuation shall be trained in the proper actions to take in the event of a fire. In Group I-1 Condition 2 occupancies, training shall include evacuation through an adjacent smoke compartment and then to an exterior assembly point. The training shall include actions to take if the primary escape route is blocked. Where the resident is given rehabilitation or habilitation training, training in methods of fire prevention and actions to take in the event of a fire shall be a part of the rehabilitation training program. Residents shall be trained to assist each other in case of fire to the extent their physical and mental abilities permit them to do so without additional personal risk.
(iv) **408.5.4 403.8.1.4 Drill frequency.** Emergency evacuation drills shall be conducted at least six times per year, two times per year on each shift. In addition to the evacuation drills required in paragraph (E)(2)(405.2) of this rule, employees shall participate in drills an additional two times a year on each shift. Twelve drills shall be conducted in the first year of operation. Drills are not required to comply with the time requirements of paragraph (E)(4)(405.4) of this rule.

(v) **403.8.1.5 Drill times.** Drill times are not required to comply with paragraph (E)(4)(405.4) of this rule.

(vi) **408.5.5 403.8.1.6 Resident participation in drills.** Emergency evacuation drills shall involve the actual evacuation of residents to a selected assembly point and shall provide residents with experience in exiting through all required exits. All required exits shall be used during emergency evacuation drills.

(vii) **403.8.1.7 Emergency evacuation drill deferral.** In severe climates, the fire code official shall have the authority to modify the emergency evacuation drill frequency specified in paragraph (E)(2)(405.2) of this rule.

(viii) **408.6.1 403.8.2.1 Group I-2 occupancies.** Group I-2 occupancies shall comply with the requirements of paragraphs (h)(6)(a)(408.6.1) and (h)(6)(b)(408.6.2) of this rule and paragraphs (A)(401) to (F)(406) of this rule. Drills are not required to comply with the time requirements of paragraph (E)(4)(405.4) of this rule. The drills shall comply with paragraphs (C)(8)(b)(i)(403.8.2.2) to (C)(8)(b)(iii)(403.8.2.3) of this rule as well as (A)(401) and (D)(404) to (F)(406) of this rule.

(i) **403.8.2.1 Fire evacuation plans.** The fire safety and evacuation plans required by paragraph (D)(404) of this rule shall include a description of special staff actions. Plans shall include all of the following in addition to the requirements of paragraph (D)(404) of this rule:

(a) Procedures for evacuation for patients with needs for containment or restraint and post-evacuation containment, where present.

(b) A written plan for maintenance of the means of egress.

(c) Procedure for a defend-in-place strategy.

(d) Procedures for a full-floor or building evacuation, where necessary.

(ii) **403.8.2.2 Fire safety plans.** A copy of the plan shall be maintained at the facility at all times. Plans shall include all of the following in addition to the requirements of paragraph (D)(404) of this rule:

(a) Location and number of patient sleeping rooms and operating rooms.

(b) Location of adjacent smoke compartments or refuge areas.

(c) Path of travel to adjacent smoke compartments.

(d) Location of special locking, delayed egress or access control arrangements.

(e) Location of elevators utilized for patient movement in accordance with the fire safety plan, where provided.

(iii) **403.8.2.3 Emergency evacuation drills.** Emergency evacuation drills shall comply with paragraph (E)(405) of this rule.

Exceptions:

(a) **408.6.1 Evacuation not required.** During emergency evacuation drills, the movement of patients to safe areas or to the exterior of the building is not required.

(b) **408.6.2 Coded alarm signal.** When emergency evacuation drills are conducted after visiting hours or when patients or residents are expected to be asleep, a coded announcement shall be an acceptable alternative to audible alarms.

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Employee training. Employees shall be instructed in the proper use of portable fire extinguishers and other manual fire suppression equipment. Training of new employees shall be provided promptly upon entrance into duty. Refresher training shall be provided not less than annually.

Employee staffing. Group I-3 occupancies shall be provided with 24-hour staffing. An employee shall be within three floors or 300 feet (91 440 mm) horizontal distance of the access door of each resident housing area. In use Group I-3 Conditions 3, 4 and 5, as defined in rule 1301:7-7-02 of the Administrative Code, the arrangement shall be such that the employee involved can start release of locks necessary for emergency evacuation or rescue and initiate other necessary emergency actions within 2 minutes of an alarm.

Exception: An employee shall not be required to be within three floors or 300 feet (91 440 mm) horizontal distance of the access door of each resident housing area in areas in which all locks are unlocked remotely and automatically in accordance with section 408.4 of the building code as listed in rule 1301:7-7-80 of the Administrative Code.

Notification. Provisions shall be made for residents in Group I-3 use Conditions 3, 4 and 5, as defined in rule 1301:7-7-02 of the Administrative Code, to readily notify an employee of an emergency.

Keys. Keys necessary for unlocking doors installed in a means of egress shall be individually identifiable by both touch and sight.

An approved fire safety and evacuation plan in accordance with paragraph (D)(404) of this rule shall be prepared and maintained for buildings containing a Group M occupancy where the Group M occupancy has an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge and for buildings containing both a Group M occupancy and an atrium.

Group M occupancies. An approved fire safety and evacuation plan in accordance with paragraph (D)(404) of this rule shall be prepared and maintained for buildings containing a Group M occupancy where the Group M occupancy has an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge and for buildings containing both a Group M occupancy and an atrium.

Group R occupancies. Group R occupancies shall comply with paragraphs (C)(10)(a)(403.10.1) to (C)(10)(c)(6) of this rule.

Group R-1 occupancies. Group R-1 occupancies shall comply with the requirements of paragraphs (H)(1)(a)(408.8.1) to (H)(1)(d)(408.8.3) of this rule and paragraphs (A)(404) to (F)(406) of this rule. An approved fire safety and evacuation plan in accordance with paragraph (D)(404) of this rule shall be prepared and maintained for Group R-1 occupancies.

Evacuation diagrams. A diagram depicting two evacuation routes shall be posted on or immediately adjacent to every required egress door from each hotel or motel sleeping unit.

Emergency duties. Upon discovery of a fire or suspected fire, hotel and motel employees shall perform the following duties:

Activate the fire alarm system, where provided.

Notify the public fire department.

Take other action as previously instructed.

Fire safety and evacuation instructions. Information shall be provided in the fire safety and evacuation plan required by paragraph (D)(404) of this rule to allow guests to decide whether to evacuate to the outside, evacuate to an area of refuge, remain in place, or any combination of the three.

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(i) 403.10.2.1 College and university buildings. An approved fire safety and evacuation plan in accordance with paragraph (D)(404) of this rule shall be prepared and maintained for Group R-2 college and university buildings. Group R-2 college and university buildings shall comply with paragraphs (C)(10)(b)(v)(i)(403.10.2.1.1) and (C)(10)(b)(v)(ii)(403.10.2.1.2) of this rule.

(g) 403.10.2.1.1 First emergency evacuation drill. The first emergency evacuation drill of each school year shall be conducted within 10 days of the beginning of classes.

(b) 403.10.2.1.2 Time of day. Emergency evacuation drills shall be conducted at different hours of the day or evening, during the changing of classes, when school is at assembly, during recess or gymnastic periods or during other times to avoid distinction between drills and actual fires. One required drill shall be held during hours after sunset or before sunrise.

(a) 408.9.1403.10.2.2 Emergency guide. Fire emergency guides shall be provided for Group R-2 occupancies. Guide contents, maintenance and distribution shall comply with paragraphs (C)(10)(b)(v)(i)(403.10.2.2.1) to (C)(10)(b)(v)(ii)(403.10.2.2.3) of this rule.

(o) 403.10.2.2.1 Guide contents. A fire emergency guide shall be provided which describes the location, function and use of fire protection equipment and appliances accessible to residents, including fire alarm systems, smoke alarms, and portable fire extinguishers. The guide shall also include an emergency evacuation plan for each dwelling unit.

(a) 408.9.2403.10.2.2.3 Distribution. Emergency guide distribution. A copy of the emergency guide shall be given to each tenant prior to initial occupancy.

(a) 408.9.2403.10.2.3 Evacuation diagrams in Group R-2 dormitories. A diagram depicting two evacuation routes shall be posted on or immediately adjacent to every required egress door from each Group R-2 dormitory sleeping unit. Evacuation diagrams shall be reviewed and updated as needed to maintain accuracy.

(a) 408.10.408.10.2.3 Group R-4 occupancies. Group R-4 occupancies shall comply with the requirements of paragraphs (h)(10)(a)(408.10.1) to (h)(10)(e)(408.10.5) of this rule and paragraphs (A)(401) to (F)(406) of this rule. An approved fire safety and evacuation plan in accordance with paragraph (D)(404) of this rule shall be prepared and maintained for Group R-4 occupancies. Group R-4 occupancies shall comply with paragraphs (C)(10)(c)(i)(403.10.3.1) to (C)(10)(c)(v)(403.10.3.6) of this rule.

(a) 408.10.403.10.3.1 Fire safety and evacuation plan. The fire safety and evacuation plan required by paragraph (D)(404) of this rule shall include special staff employee actions, including fire protection procedures necessary for residents, and shall be amended or revised upon admission of a resident with unusual needs.

(a) 403.10.3.1.1 Fire safety plans. A copy of the plan shall be maintained at the facility at all times. Plans shall include the following in addition to the requirements of paragraph (D)(404) of this rule:

(i) Location and number of resident sleeping rooms

(ii) Location of special locking or egress control arrangements.

(a) 408.10.2403.10.3.2 Staff employee training. Employees shall be periodically instructed and kept informed of their duties and responsibilities under the plan. Records of instruction shall be maintained. Such instruction shall be reviewed by the staff employees at least every two months. A copy of the plan shall be readily available at all times within the facility.

(a) 408.10.2403.10.3.3 Resident training. Residents capable of assisting in their own evacuation shall be trained in the proper actions to take in the event of a fire. The training shall include actions to take if the primary escape route is blocked. Where the resident is given rehabilitation or habilitation training, training in methods of fire prevention and actions to take in the event of a fire shall be a part of the rehabilitation training program. Residents shall be trained to assist each other in case of fire to the extent their physical and mental abilities permit them to do so without additional personal risk.

(a) 408.10.403.10.3.4 Drill frequency. Emergency evacuation drills shall be conducted at least six times per year, two times per year on each shift. In addition to the evacuation drills required in paragraph (E)(2)(405.2) of this rule, employees shall participate in drills an additional two times a year on each shift. Twelve drills with all occupants shall be conducted in the first year of operation.

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Drill times are not required to comply with the time requirements of paragraph (E)(4)(405.4) of this rule.

Resident participation in drills. Emergency evacuation drills shall involve the actual evacuation of residents to a selected assembly point and shall provide residents with experience in exiting through all required exits. All required exits shall be used during emergency evacuation drills.

Exception: Actual exiting from emergency escape and rescue windows shall not be required. Opening the emergency escape and rescue window and signaling for help shall be an acceptable alternative.

Covered and open mall buildings. Covered and open mall buildings shall comply with the provisions requirements of paragraphs (H)(11)(a)(408.11.1) to (H)(11)(c)(408.11.3) and (C)(11)(a)(vi)(403.11.1.6) of this rule.

(a) Each occupancy, including identification of tenant.
(b) Exits from each tenant space.
(c) Fire protection features, including the following:
   (i) Fire department connections.
   (ii) Fire command center.
   (iii) Smoke management system controls.
   (iv) Elevators, elevator machine rooms and controls.
   (v) Hose valves outlets.
   (vi) Sprinkler and standpipe control valves.
   (vii) Automatic fire-extinguishing system areas.
   (viii) Automatic fire detector zones.
   (ix) Fire barriers.

Approval lease plan. The lease plan shall be submitted to the fire code official for approval, and shall be maintained on site for immediate reference by responding fire service personnel.

Revisions lease plan revisions. The lease plans shall be revised annually or as often as necessary to keep them current. Modifications or changes in tenants or occupancies shall not be made without prior approval of the fire code official and building official.
Tenant identification shall be provided for secondary exits from occupied tenant spaces that lead to an exit corridor or directly to the exterior of the building. Tenant identification shall be posted on the exterior side of the exit or exit access door and shall identify the business name and address using plainly legible letters and numbers that contrast with their background.

Exception: Tenant identification is not required for anchor stores.

Unoccupied tenant spaces. The fire safety and evacuation plan shall provide for compliance with the requirements for unoccupied tenant spaces in paragraph (K)(311) of rule 1301:7-7:03 of the Administrative Code.

High-rise buildings. An approved fire safety and evacuation plan in accordance with paragraph (D)(404) of this rule shall be prepared and maintained for high-rise buildings.

Underground buildings. An approved fire safety and evacuation plan in accordance with paragraph (D)(404) of this rule shall be prepared and maintained for underground buildings.

Buildings using occupant evacuation elevators. In buildings using occupant evacuation elevators in accordance with Section 3008 of the building code as listed in rule 1301:7-7-80 of the Administrative Code, the fire safety and evacuation plan and the training required by paragraphs (D)(404) and (F)(406) of this rule, respectively, shall incorporate specific procedures for the occupants using such elevators.

Special requirements for public safety. Special requirements for public safety shall be in accordance with paragraphs (C)(12)(a)(403.12.1) to (C)(12)(c)(31) of this rule.

Fire watch personnel. In the opinion of the fire code official, it is essential for public safety in a place of assembly or any other place where people congregate, because of the number of persons, or the nature of the performance, exhibition, display, contest or activity, the owner, agent or lessee shall provide one or more fire watch personnel, as required and approved, to remain on duty during the times such places are open to the public, or when such activity is being conducted. Fire watch personnel shall comply with paragraphs (C)(12)(a)(403.12.1.1) and (C)(12)(a)(403.12.1.2) of this rule.

Duty times. Fire watch personnel shall remain on duty while places requiring a fire watch are open to the public, or when an activity requiring a fire watch is being conducted.

Duties. On-duty fire watch personnel shall have the following responsibilities:

- Keep diligent watch for fires, obstructions to means of egress and other hazards during the time such place is open to the public or such activity is being conducted.
- Take prompt measures for remediation of hazards and extinguishment of fires that occur.
- Take prompt measures to assist in the evacuation of the public from the structures.

Public safety plan for gatherings. In other than Group A or E occupancies, where the fire code official determines that an indoor or outdoor gathering of persons has an adverse impact on public safety through diminished access to buildings, structures, fire hydrants and fire apparatus access roads or where such gatherings adversely affect public safety services of any kind, the fire code official shall have the authority to order the development of a plan for the provision of any public safety plan that provides an approved level of public safety and addresses the following items:

- Contents. The public safety plan, where required by paragraph (C)(12)(403.2) of this rule, shall address such items as:
  - Fire protection,
  - Egress or escape routes,
  - Medical services,
(v) Public assembly areas, and

(vi) The directing of both attendees and vehicles (including the parking of vehicles), and

(vii) Vendor and food concession distribution, and

(viii) The need for the presence of law enforcement, and

(ix) The need for fire and emergency medical services personnel at the event.

(3c) **403.12.3 Crowd managers for gatherings exceeding 1,000 people.** Trained crowd managers shall be provided for Where facilities or events involve a gathering of more than 1,000 persons, crowd managers shall be provided in accordance with paragraphs (C)(12)(c)(i) through (C)(12)(c)(iii) of this rule.

(i) **403.12.3.1 Number of crowd managers.** The minimum number of crowd managers shall be established at a ratio of one crowd manager for every 250 persons.

Exception: Where approved by the fire code official, the number of crowd managers shall be permitted to be reduced where the facility is equipped throughout with an approved automatic sprinkler system or based upon the nature of the event.

(ii) **403.12.3.2 Training.** Training for crowd managers shall be approved.

(iii) **403.12.3.3 Duties.** The duties of crowd managers shall include, but not be limited to:

(a) Conduct an inspection of the area of responsibility and identify and address any egress barriers.

(b) Conduct an inspection of the area of responsibility to identify and mitigate any fire hazards.

(c) Verify compliance with all permit conditions, including those governing pyrotechnics and other special effects.

(d) Direct and assist the event attendees in evacuation during an emergency.

(e) Assist emergency response personnel where requested.

(f) Other duties required by the fire code official.

(g) Other duties as specified in the fire safety plan.

(D) **Section 404 Fire safety, evacuation, and lockdown plans**

(1) **404.1 General.** Where required by paragraph (C)(403) of this rule, fire safety, evacuation and lockdown plans and associated drills shall comply with the requirements of paragraphs (D)(2)(404.2) to (D)(4)(a)(404.4.1) of this rule.

(2) **404.2 Where required.** An approved fire safety and evacuation plan shall be prepared and maintained for the following occupancies and buildings.

(a) Group A, other than Group A occupancies used exclusively for purposes of religious worship that have an occupant load less than 2,000.
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(b) Group B buildings having an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge.

c) Group E.

d) Group F buildings having an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge.

e) Group H.

(f) Group R-1.

(g) Group R-2 college and university buildings.

(i) Group R-4.

(h) High-rise buildings.

(i) Group M buildings having an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge.

(j) Covered malls exceeding 50,000 square feet (4645 m²) in aggregate floor area.

(k) Open mall buildings exceeding 50,000 square feet (4645 m²) in aggregate area within perimeter line.

(m) Underground buildings.

(o) Buildings with an atrium and having an occupancy in Group A, E or M.

(2) 404.3.1 Contents. Fire safety and evacuation plan contents shall be in accordance with paragraphs (D)(3)(a)(404.3.1) and (D)(2)(b)(404.2.2) of this rule.

(a) 404.3.1.1 Fire evacuation plans. Fire evacuation plans shall include the following:

(i) Emergency egress or escape routes and whether evacuation of the building is to be complete or, where approved, by selected floors or areas only or with a defend-in-place response.

(ii) Procedures for employees who must remain to operate critical equipment before evacuating.

(iii) Procedures for the use of elevators to evacuate the building where occupant evacuation elevators complying with Section 3008 of the building code as listed in rule 1301:7-7-80 of the Administrative Code are provided.

(iv) Procedures for assisted rescue for persons unable to use the general means of egress unassisted.

(v) Procedures for accounting for employees and occupants after evacuation has been completed.

(vi) Identification and assignment of personnel responsible for rescue or emergency medical aid.

(vii) The preferred and any alternative means of notifying occupants of a fire or emergency.

(viii) The preferred and any alternative means of reporting fires and other emergencies to the fire department or designated emergency response organization.

(ix) Identification and assignment of personnel who can be contacted for further information or explanation of duties under the plan.

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(vii) Identification and assignment of personnel responsible for maintenance, housekeeping and controlling fuel hazard sources.

(c) 404.2.3 Lockdown plans. Where facilities develop a lockdown plan, the lockdown plan shall be in accordance with paragraphs (i)(ii)(iii)(iv)(v)(i)(ii)(iii)(iv)(v)(vi)(i) of this rule.

(i) 404.2.3.1 Lockdown plan contents. Lockdown plans shall be approved by the fire code official and shall include the following:

(a) Initiation. The plan shall include instructions for reporting an emergency that requires a lockdown.

(b) Accountability. The plan shall include accountability procedures for staff to report the presence or absence of occupants.

(c) Recall. The plan shall include a prearranged signal for returning to normal activity.

(d) Communication and coordination. The plan shall include an approved means of two-way communication between a central location and each secured area.

(ii) 404.2.3.2 Training frequency. The training frequency shall be included in the lockdown plan. The lockdown drills shall not substitute for any of the fire and evacuation drills required in paragraph (E)(2)(405.2) of this rule.

(iii) 404.2.3.3 Lockdown notification. The method of notifying building occupants of a lockdown shall be included in the plan. The method of notification shall be separate and distinct from the fire alarm signal.

(A) 404.4.1 Maintenance. Fire safety and evacuation plans shall be reviewed or updated annually or as necessitated by changes in staff assignments, occupancy or the physical arrangement of the building.

(B) 404.4.2 Availability. Fire safety and evacuation plans shall be available in the workplace for reference and review by employees, and copies shall be furnished to the fire code official for review upon request.

(a) 404.4.2.1 Distribution. The fire safety and evacuation plans shall be distributed to the tenants and building service employees by the owner or the owner’s agent. Tenants shall distribute to their employees applicable parts of the fire safety plan affecting the employees’ actions in the event of a fire or other emergency.

(b) 404.4.2.2 An evacuation plan indicating the primary and secondary emergency evacuation routes, and including proper occupant-to-building orientation, shall be permanently and conspicuously posted at the main exit door inside of each room accessible to all persons in all educational occupancies. The plan shall not be obscured from view by any materials.

(E) Section 405 Emergency evacuation drills

(1) 405.1 General. Emergency evacuation drills complying with the provisions of this paragraph, paragraphs (E)(2)(405.2) to (E)(9)(405.9) of this rule shall be conducted at least once less than annually in the occupancies listed where fire safety and evacuation plans are required by paragraph (A) of 404.2.1[(403)] of this rule or elsewhere required by the fire code official. Drills shall be designed in cooperation with the local authorities.

(a) 405.1.1 A principal or person in charge of a public or private school or educational institution having an average daily attendance of twenty or more pupils, shall instruct and train such children by means of drills or rapid dismissals at least once during the school year at the times and frequency prescribed in this rule, so that such children in a sudden emergency may leave the building in the shortest possible time without confusion in compliance with section 3737.72 of the Revised Code and this rule. A person in charge of any children’s home or orphanage housing twenty or more minor persons shall instruct and train such children by means of drills or rapid dismissals at least once each month while the home is in operation. 405.1.1 Schools and children’s homes. A principal or person in charge of a public or private school or educational institution having an average daily attendance of twenty or more pupils or a person in charge of any children’s home or orphanage housing twenty or more minor persons shall instruct and train such children by means of drills or rapid dismissals so that such children in a sudden emergency may leave the building in the shortest possible time without confusion. Such drills or rapid dismissals shall be conducted in accordance with the following:

(i) All drills or rapid dismissals shall be conducted at the times and frequencies prescribed in this rule.
The principal or person in charge of a public or private school or educational institution having an average daily attendance of twenty or more pupils shall conduct not less than one drill or rapid dismissal during each month of the school year as required by and in accordance with section 3737.73 (E) of the Revised Code.

The principal or person in charge of a school or educational institution that has smoke detectors or a sprinkler system in all classroom buildings of the school or educational institution shall conduct a drill or rapid dismissal not less than six times during the school year.

The principal or person in charge of a school or educational institution that does not have smoke detectors or a sprinkler system in all classroom buildings of the school or educational institution shall conduct a drill or rapid dismissal not less than nine times during the school year.

The principal or person in charge of a children's home or orphanage shall conduct drills or rapid dismissals at least once each month while the home is in operation as required by and in accordance with section 3737.73 (A) of the Revised Code.

A drill or rapid dismissal conducted pursuant to this paragraph shall not be conducted in such a manner that the evacuation of students is in conjunction with the dismissal of students for the day.

In conjunction with the drills or rapid dismissals required in this paragraph, the principal or person in charge of a public or private primary or secondary school or educational institution shall instruct pupils in safety precautions to be taken in case of a tornado alert or warning and shall designate an appropriate location or locations to be used to shelter pupils in case of a tornado, tornado alert, or warning in accordance with paragraph (D)(408) of this rule.

Records. While school is in operation, the person responsible for conducting fire drills pursuant to section 3737.73 of the Revised Code shall file a copy of the fire drill records containing the information required under paragraph (E)(5)(A) of this rule and other information required by the state fire marshal for inspection verification with the state fire marshal. When required by the fire code official, such fire drill records shall also be submitted to the firefighting agency having jurisdiction that conducts inspections of the subject facility. Such fire drill records shall be submitted at the middle point and again at the end of the school year. The “school year” includes any time during which the average daily attendance comprises twenty or more pupils.

Pursuant to section 3737.73 (A), (B), (C), or (F) of the Revised Code, any duly constituted fire department of a political subdivision of the state may become the designee of the state fire marshal for the purposes of annually conducting inspections of schools, educational institutions, children’s home, or orphanage to determine compliance with this paragraph and sections 3737.73 (A), (B), (C), or (F) of the Revised Code.

To become the state fire marshal’s designee, the fire department shall file a written notice with the state fire marshal of the department’s intent to conduct inspections of schools, educational institutions, children’s homes or orphanages. Such written notice shall identify each school, educational institution, or children’s home specifically by name and address. Notice shall be submitted to the state fire marshal on or before the first day of August of each calendar year.

Any fire department that files a written notice with the state fire marshal of its intent to conduct inspections and becomes the state fire marshal’s designee shall remain the state fire marshal’s designee and shall conduct inspections for the purposes of determining compliance with this paragraph and with section 3737.73 of the Revised Code until such time as the department notifies the state fire marshal that it will no longer conduct such inspections. Such notice shall be in writing and shall identify each school, educational institution, children’s home, or orphanage specifically by name and address and shall clearly state that the department will no longer inspect. Notice shall be submitted to the state fire marshal at least 30 days prior to the time that the department discontinues its inspection program.

Nothing in this paragraph shall be construed to limit a fire code official’s authority to conduct an inspection of a school for the purpose of determining compliance with this code.

Inspections. After filing a notice in accordance with paragraph (E)(1)(c)(405.1.3) of this rule, a fire department shall thereafter conduct inspections in accordance with the following:

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(a) 405.1.3.1 School or educational institution. The fire department shall annually inspect a school or educational institution for the purpose of determining whether or not the principal or person in charge of the school or educational institution has, in accordance with paragraph (E)(1)(a)(405.1.1) of this rule and section 3737.73 of the Revised Code, conducted drills or rapid dismissals, has instructed pupils in safety precautions to be taken in case of a tornado alert or warning, and has designated an appropriate location to be used to shelter pupils in case of a tornado, tornado alert, or warning.

(b) 405.1.3.1.2 Children’s home or orphanage. The fire department shall annually inspect a children’s home or orphanage for the purpose of determining whether or not the principal or person in charge of the children’s home or orphanage has conducted drills or rapid dismissals in accordance with paragraph (E)(1)(a)(405.1.1) of this rule and section 3737.73 of the Revised Code.

Upon inspection and a determination that the school, educational institution, children’s home, or orphanage has not complied with the provisions of this paragraph or the provision of section 3737.73 of the Revised Code, the state fire marshal’s designee shall issue a written warning to the principal or person in charge of the school, educational institution or children’s home. The warning shall indicate the specific violation and the date by which the violation shall be corrected.

(iii) 405.1.1.3 Jurisdiction. For the purpose of this paragraph, the fire agency having jurisdiction shall be the state fire marshal or any such duly constituted fire department of a political subdivision having filed the written notice of intent to conduct inspections in accordance with this paragraph.

(2) 405.2 Frequency. Required emergency evacuation drills shall be held at the intervals specified in Table 405.2 of this rule or more frequently where necessary to familiarize all occupants with the drill procedure.

<table>
<thead>
<tr>
<th>Group or occupancy</th>
<th>Frequency</th>
<th>Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>Quarterly</td>
<td>Employees</td>
</tr>
<tr>
<td>Group B</td>
<td>Annually</td>
<td>Employees</td>
</tr>
<tr>
<td>Group B^* (Ambulatory care facilities)</td>
<td>Annually</td>
<td>Employees/All occupants</td>
</tr>
<tr>
<td>Group B^* (Clinic, outpatient)</td>
<td>Annually</td>
<td>Employees</td>
</tr>
<tr>
<td>Group E</td>
<td>Monthly^</td>
<td>All occupants</td>
</tr>
<tr>
<td>Group F</td>
<td>Annually</td>
<td>Employees</td>
</tr>
<tr>
<td>Group I-1</td>
<td>Seasonally on each shift</td>
<td>All occupants</td>
</tr>
<tr>
<td>Group I-2</td>
<td>Quarterly on each shift^</td>
<td>Employees^</td>
</tr>
<tr>
<td>Group I-3</td>
<td>Quarterly on each shift^</td>
<td>Employees^</td>
</tr>
<tr>
<td>Group I-4</td>
<td>Monthly on each shift^</td>
<td>All occupants</td>
</tr>
<tr>
<td>Group R-1</td>
<td>Quarterly on each shift</td>
<td>Employees</td>
</tr>
<tr>
<td>Group R-2^</td>
<td>Four annually</td>
<td>All occupants</td>
</tr>
<tr>
<td>Group R-4^</td>
<td>Quarterly/Semiannually on each shift</td>
<td>Employees^/All occupants</td>
</tr>
</tbody>
</table>

(a) The frequency shall be allowed to be modified in accordance with paragraph (H)(3)(b)(408.2.3) of this rule. In severe climates, the fire code official shall have the authority to modify the emergency evacuation drill frequency.

(b) Fire and evacuation drills in residential care assisted living facilities shall include complete evacuation of the premises in accordance with paragraph (H)(10)(e)(408.10.51) of this rule. Where occupants receive habilitation or rehabilitation training, fire prevention and fire safety practices shall be included as part of the training program.

(c) Emergency evacuation drills are required in Group B buildings having an occupant load of 500 or more persons or more than 100 persons above or below the lowest level of exit discharge.

(d) Emergency evacuation drills are required in ambulatory care facilities in accordance with paragraph (C)(2)(403.3) of this rule.

(e) Emergency evacuation drills in Group R-2 college and university buildings shall be in accordance with paragraph (H)(3)(408.2)/C(10)(b)(ii)(i)(403.10.2.1) of this rule. Other Group R-2 occupancies shall be in accordance with paragraph (C)(10)(b)(ii)(i)(403.10.2.2) of this rule.

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(b) Evacuation training. Employees shall be familiarized with the fire alarm and evacuation signals, their assigned duties in the event of an alarm or emergency, evacuation routes, areas of refuge, exterior assembly areas and procedures for evacuation.

(d) Fire safety training. Employees assigned fire-fighting duties shall be trained to know the locations and proper use of portable fire extinguishers or other manual fire-fighting equipment and the protective clothing or equipment required for its safe and proper use.

(e) Emergency lockdown training. Where a facility has a lockdown plan, employees shall be trained on their assigned duties and procedures in the event of an emergency lockdown.

(f) Fire safety training. Employees assigned fire-fighting duties shall be trained to know the locations and proper use of portable fire extinguishers or other manual fire-fighting equipment and the protective clothing or equipment required for its safe and proper use.

(G) Section 407 Hazard communication

(1) General. The provisions of paragraphs (G)(2) through (G)(7) of this rule shall be applicable where hazardous materials subject to permits under paragraph (A)(13) of this rule are permitted to be stored, dispensed, handled or used in Group R-2 occupancies.

(2) Material Safety Data Sheets. Material Safety Data Sheets (MSDS) for all hazardous materials shall be included in the permit application. The permit holder or applicant shall submit to the fire code official a facility closure plan in accordance with sections 407.6, 407.7, and 407.9 of this rule. The fire code official is authorized to accept a similar plan required by other regulations.

(3) Identification. Individual containers of hazardous materials, cartons or packages shall be marked or labeled in accordance with applicable federal regulations. Buildings, rooms and spaces containing hazardous materials shall be identified by hazard warning signs in accordance with sections 407.3 and 407.8 of this rule.

(4) Training. Persons responsible for the operation of areas in which hazardous materials are stored, dispensed, handled or used shall be familiar with the chemical nature of the materials and the appropriate mitigating actions necessary in the event of a fire, leak or spill. Responsible persons shall be designated and trained to be liaison personnel for the fire department. These persons shall aid the fire department in preplanning emergency responses and identification of the locations where hazardous materials are located, and shall have access to Material Safety Data Sheets and be knowledgeable in the site emergency response procedures.

(5) Hazardous Materials Inventory Statement. Where required by the fire code official, each application for a permit shall include a Hazardous Materials Inventory Statement (HMIS) in accordance with sections 407.4 and 407.5 of this rule.

(6) Hazardous Materials Management Plan. Where required by the fire code official, each application for a permit shall include a Hazardous Materials Management Plan (HMMP) in accordance with sections 407.6 and 407.2 of this rule.

(7) Facility closure plans. The permit holder or applicant shall submit to the fire code official a facility closure plan in accordance with sections 407.7 and 407.8 of this rule.

(8) Group R-2 occupancies. Group R-2 occupancies shall comply with the requirements of paragraph (A)(1) of this rule.

(a) Emergency guide. A fire emergency guide shall be provided which describes the location, function and use of fire protection equipment and appliances accessible to residents, including fire alarm systems, smoke alarms, and portable fire extinguishers. The guide shall also include an emergency evacuation plan for each dwelling unit.

(b) Evacuation diagrams. A diagram depicting two evacuation routes shall be posted on or immediately adjacent to every required egress door from each Group R-2 dormitory sleeping unit.

(c) Maintenance. Emergency guides shall be reviewed and approved in accordance with paragraph (A)(2) of this rule. Evacuation diagrams shall be reviewed and updated in accordance with paragraph (A)(4) of this rule.

(d) Distribution. A copy of the emergency guide shall be given to each tenant prior to initial occupancy.

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Group R-4 occupancies shall comply with the requirements of paragraphs (H)(10)(a)(408.10.1) to (H)(10)(e)(408.10.5) of this rule and paragraphs (A)(401) to (F)(406) of this rule.

(a) 408.10.1 Fire safety and evacuation plan. The fire safety and evacuation plan required by paragraph (D)(404) of this rule shall include special staff actions, including fire protection procedures necessary for residents, and shall be amended or revised upon admission of a resident with unusual needs.

(b) 408.10.2 Staff training. Employees shall be periodically instructed and kept informed of their duties and responsibilities under the plan. Such instruction shall be reviewed by the staff at least every two months. A copy of the plan shall be readily available at all times within the facility.

(c) 408.10.3 Resident training. Residents capable of assisting in their own evacuation shall be trained in the proper actions to take in the event of a fire. The training shall include actions to take if the primary escape route is blocked. Where the resident is given rehabilitation or habilitation training, training in fire prevention and actions to take in the event of a fire shall be a part of the rehabilitation training program. Residents shall be trained to assist each other in case of fire to the extent their physical and mental abilities permit them to do so without additional personal risk.

(d) 408.10.4 Drill frequency. Emergency evacuation drills shall be conducted at least six times per year, two times per year on each shift. Twelve drills shall be conducted in the first year of operation. Drills are not required to comply with the time requirements of paragraph (E)(4)(405.4) of this rule.

(e) 408.10.5 Resident participation. Emergency evacuation drills shall involve the actual evacuation of residents to a selected assembly point and shall provide residents with experience in exiting through all required exits. All required exits shall be used during emergency evacuation drills.

Exception: Actual exiting from windows shall not be required. Opening the window and signaling for help shall be an acceptable alternative.

(11) 408.11 Covered and open mall buildings. Covered and open mall buildings shall comply with the provisions of paragraphs (H)(11)(a)(408.11.1) to (H)(11)(c)(408.11.3) of this rule.

(a) 408.11.1 Lease plan. A lease plan shall be prepared for each covered and open mall building. The plan shall include the following information in addition to that required by paragraph (D)(3)(b)(404.3.2) of this rule:

1. Each occupancy, including identification of tenant.
2. Exits from each tenant space.
3. Fire protection features, including the following:
   3.1 Fire department connections.
   3.2 Fire command center.
   3.3 Smoke management system controls.
   3.4 Elevators, elevator machine rooms and controls.
   3.5 Hose valves outlets.
   3.6 Sprinkler and standpipe control valves.
   3.7 Automatic fire-extinguishing system areas.
   3.8 Automatic fire detector zones.
   3.9 Fire barriers.

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(i) 408.11.1.1 Approval. The lease plan shall be submitted to the fire code official for approval, and shall be maintained on site for immediate reference by responding fire service personnel.

(ii) 408.11.1.2 Revisions. The lease plans shall be revised annually or as often as necessary to keep them current. Modifications or changes in tenants or occupancies shall not be made without prior approval of the fire code official and building official.

(b) 408.11.2 Tenant identification. Each occupied tenant space provided with a secondary exit to the exterior or exit corridor shall be provided with tenant identification by business name and/or address. Letters and numbers shall be posted on the corridor side of the door, be plainly legible and shall contrast with their background.

Exception: Tenant identification is not required for anchor stores.

(c) 408.11.3 Maintenance. Unoccupied tenant spaces shall be:

(i) Kept free from the storage of any materials.

(ii) Separated from the remainder of the building by partitions of at least 0.5-inch-thick (12.7 mm) gypsum board or an approved equivalent to the underside of the ceiling of the adjoining tenant spaces.

(iii) Without doors or other access openings other than one door that shall be kept key locked in the closed position except during that time when opened for inspection.

(iv) Kept free from combustible waste and be broom-swept clean.

(3) 408.11.4.1 Pursuant to section 3737.73 of the Revised Code, principals or persons in charge of public or private primary and secondary schools or educational institutions having an average daily attendance of twenty or more pupils shall designate appropriate locations in their respective facilities to be used to shelter pupils in case of a tornado, tornado alert, or tornado warning. The designation of such locations shall be in accordance with the standards prescribed by the fire marshal, as set forth herein. However, nothing in these rules shall be construed as requiring a school or institution to construct or improve a facility or area thereof for use as a tornado shelter, or to install a tornado alarm system.

(b) The principal or person in charge of the school shall submit a clear, comprehensive, detailed, and legible drawing to the local fire code official, showing the building floor plan(s) and designated tornado shelter area(s). Each room or area shown on the plan shall be clearly indicated as to its particular use.

(c) The drawing required by paragraph (b) of this rule, shall be submitted to the local fire code official for his information. A copy shall be maintained in the office of each school, for examination by the state fire marshal or local fire code official.

(d) The fire alarm system shall not be used to alert building occupants of a tornado, tornado alert, or tornado warning.

(e) The occupants of modular classroom facilities shall be moved out of such facilities and to the designated tornado shelter area(s) in the event of a tornado, tornado alert, or tornado warning.

(f) Each local fire code official conducting the annual inspection of each school or institution shall be designated pursuant to division (C) of section 3737.73 of the Revised Code to verify compliance with the tornado safety provisions of this rule.

(3) 408.11.4 Standards for shelter designation.

It is recommended that the designation of areas to be used as tornado shelters be in accordance with the following criteria:

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(a) Whenever possible, designate areas which are located below ground level, in the core of the building, in rooms or spaces with short ceiling spans, and on the leeward side. The farther the area is below ground level, the greater the protection. In any event, the area should be on the lowest floor, in the center of the building, and in a corridor or small room.

(b) First aid kits and supplies should be in or close to the tornado shelter area(s).

(c) Avoid walls of glass, windows, skylights, and areas containing trophy cases or other fixtures of glass.

(d) Avoid load-bearing walls and exterior walls, especially those on the windward side or facing the south, southwest, or west.

(e) Avoid corridors which are not baffled with a wall or walls and that open to the south, southwest, or west.

(f) Avoid an area with only one exit, unless overriding considerations should prevail.

(g) Avoid areas or rooms which are locked, since they may not be readily accessible during an emergency.

(h) Avoid, absolutely, chimneys and the use of cars, buses, and modular classroom buildings.

(i) Avoid rooms or spaces with long ceiling spans, that are opposite openings or doorways that lead into rooms with windows in exterior walls, or that are within the unprotected, falling radius of higher building components.

(4) General considerations.

Every building is different and contains some vulnerable elements that cannot be counted upon to withstand a tornado. Portions of buildings that contain one or more of these elements should be avoided wherever possible.

(a) Windows, skylights, and other components of glass, should be avoided. Glass is no match for tornado force winds and usually breaks into many jagged pieces which are blown into interior spaces from the windward side. Acrylic or poly carbonate plastics are more resistant to impact than glass, but large panes will pop out. Tempered glass will shatter into thousands of cube-like pieces that will be propelled by the winds like shrapnel. Windows at the ends of corridors, particularly those facing south, southwest, and west, are very dangerous. They will probably be blown down the corridor in a wind tunnel effect.

(b) Windward side walls, which usually are on the south and west, receive the full strength of the winds. It is assumed that winds on these sides will be broken and blown into the rooms on the windward side. This often results in increased air pressure, which aids in raising the roof.

(c) Wind tunnels occur in unprotected corridors facing the oncoming winds, which usually come from the south or west. Openings facing these directions allow the winds to penetrate into interior spaces. The winds apparently occupy almost the entire volume of such a wind tunnel, as debris marks have been found to cover the full height of the walls. If entrances are baffled with a solid massive wall, this effect is much less serious.

(d) Lightweight roofs such as steel deck plate, wood planks, or plywood will usually be lifted up by the wind and partially carried away, with some roof debris falling below.

(e) Heavier roofs, especially precast concrete planks, may lift up and move slightly and then fall, but not always returning to their original support location. If the support has collapsed, the heavy roof may fall into the area below.

(f) Long-span rooms almost always have high ceilings. The exterior walls are usually higher than the typical one-story wall. Often these walls, especially those with southern or western exposures, will collapse into the long span. If they are load-bearing walls, the roof will cave in on the area also. Avoid rooms such as gyms, auditoriums and cafeterias.

(g) Load-bearing walls are the sole support for floors or roofs above. If winds cause the supporting walls to fail, part or all of the roof or floors above will collapse. The most dangerous locations in a building are usually along the south and west sides, and at all corners.

(h) Masonry construction is not immune to wall collapse. Most masonry walls are not vertically reinforced, and can fail when high horizontal forces occur, such as those caused by winds.

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