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## CODE CORNER

### ABOUT CODE CORNER

CCFS would like to remind you to check with your local "Authority Having Jurisdiction (AHJ)" for questions and opinions concerning your local Fire and Building Codes. The information contained in this article is supplied as a courtesy by the International Code Council (ICC) and is based on the International Fire and Building Codes and their respective commentaries. Your local codes or ordinances may vary.

## CHAPTER 4

# Emergency Planning and Preparedness

## Part 2 of 4

About the 2012 Edition ... CCFS will be publishing sections of the 2012 IFC for your review and comparison. Please note that CCFS is not suggesting you adopt this new regulation. Any regulations used in your state/organization should be in accordance with the recommendations set forth by your local Building Regulations Organization and State Fire Marshal's Office.

### SECTION 404 FIRE SAFETY AND EVACUATION PLANS

**404.1 General.** Fire safety, evacuation and lockdown plans and associated drills shall comply with the requirements of Sections 404.2 through 404.5.1.

▢ *This section simply states that all fire safety, evacuation and lockdown plans must comply with Section 404.*

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

1. Group A, other than Group A occupancies used exclusively for purposes of religious worship that have an *occupant load* less than 2,000.
2. 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*.
3. Group E.
4. 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*.
5. Group H.
6. Group I.
7. Group R-1.
8. Group R-2 college and university buildings.
9. Group R-4.
10. High-rise buildings.
11. 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*.
12. Covered malls exceeding 50,000 square feet (4645 m<sup>2</sup>) in aggregate floor area.

13. Open mall buildings exceeding 50,000 square feet (4645 m<sup>2</sup>) in aggregate area within perimeter line.

14. Underground buildings.

15. Buildings with an atrium and having an occupancy in Group A, E or M.

*▫The list indicates when fire safety and evacuation plans and procedures need to be developed. As discussed earlier, the occupancies and uses addressed by this chapter were chosen based on the density and location of occupants, the layout of the building or the limitations of the occupants during an emergency. The Evacuation Planning Guide for Stadiums published by the U.S. Department of Homeland Security (DHS) provides useful guidance for evacuation planning in large assembly structures. The principles used in that document could also be applied to the other occupancy groups listed in this section.*

**404.3 Contents.** Fire safety and evacuation plan contents shall be in accordance with Sections 404.3.1 and 404.3.2.

*▫The two primary plans required by Section 404.3 are a fire evacuation plan and a fire safety plan. The fire evacuation plan focuses primarily on the procedures for the evacuation of the occupants in an emergency. The fire safety plan focuses on the overall understanding of the fire protection package of the building as it pertains to the layout of the building, the contents of the building, the means of egress system, the fire hazards and the identification of key contacts during an emergency.*

**404.3.1 Fire evacuation plans.** Fire evacuation plans shall include the following:

1. Emergency egress or escape routes and whether evacuation of the building is to be complete or, where approved, by selected floors or areas only.
2. Procedures for employees who must remain to operate critical equipment before evacuating.
3. Procedures for assisted rescue for persons unable to use the general means of egress unassisted.

4. Procedures for accounting for employees and occupants after evacuation has been completed.

5. Identification and assignment of personnel responsible for rescue or emergency medical aid.

6. The preferred and any alternative means of notifying occupants of a fire or emergency.

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

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

9. A description of the emergency voice/alarm communication system alert tone and preprogrammed voice messages, where provided.

*▫The primary focus of evacuation plans is to prepare for and define the roles for evacuation and relocation of occupants during an emergency. The fire evacuation plan is important for both the emergency responders and the building or facility occupants. It focuses the occupants' activities on facilitating a smoother evacuation or relocation process and provides the fire department with critical information on the building and the location of the occupants. Keep in mind that these requirements apply to all occupancies listed in Section 404.2. The occupancy- and use specific requirements are located within Section 408; therefore, the requirements listed here are general and will vary based on many factors, such as the occupants' mobility and familiarity with the building.*

*Item 1 requires that specific escape routes be defined. This is important because the building is generally designed to facilitate a particular pattern of evacuation or relocation in an emergency. For instance, as noted earlier, a high-rise building will most likely be evacuated in phases. If floors begin evacuating before intended, the evacuation of the occupants in the fire area may be delayed. Also, if everyone tries to use the same exits in a facility, such as a multiplex theater, evacuation of the building will be delayed. As stated earlier, studies have shown that people tend to exit the way they enter a building. Note that the code sometimes requires a certain level of redundancy to account for*

occupants using the same exits. For example, the IBC requires that the main exit of multiplex theaters be sized for at least half of the occupants even though plenty of egress width may be available elsewhere in the building. The more coordinated the plan, the more evenly the exits will be used.

Item 2 requires that specific procedures for evacuation be provided to those employees who must operate critical equipment before evacuation. These procedures are necessary to ensure a clear understanding to the occupant when evacuation is critical and the operation should be abandoned.

Item 3 provides for the inclusion of procedures relative to those occupants unable to evacuate using the general egress features and, therefore may need assisted rescue. It is important that there be adequate information and procedures established and available to staff and fire fighters so that assistance can be offered to anyone who needs help using the general means of egress as quickly as possible.

Item 4 simply states that a plan be developed to account for all occupants after evacuation or relocation. This is important not only to the occupants but also to the emergency responders to assess their actions when arriving at the scene.

Item 5 has two roles. First, it provides a designated person for occupants to look to for assistance in an emergency. This will reduce the stress of the situation. Second, when the emergency responders arrive they will have a specific contact to help them assess the situation. These contacts can also be beneficial to emergency responders when preplanning their response to that specific facility.

Item 6 requires that the notification to the occupants of the emergency be standardized. The approach will vary based on the occupancy and use. For instance, all occupants in a multiplex theater would be notified, whereas in a correctional facility or hospital only staff will be notified. Also, if the method is standardized, it is easier to differentiate between emergency and nonemergency signals, which facilitates a smoother reaction when an emergency does occur.

Item 7 is focused on the notification of the emergency

responders. They are more likely to get the notification of an emergency if a standard protocol exists. This can vary from one occupancy or use to another but as long as a straightforward, consistent method is used, it will facilitate a quicker response. Note that Section 401.3.2 requires direct contact with the fire department once the fire alarm signal is activated; therefore, no intermediate steps, such as an investigation, are allowed.

As with Item 5, Item 8 requires a specific contact who is familiar with the plan and how the building operates. This information is helpful for the emergency responders in their preplanning activities. Without a specific contact, the process of getting vital information can become much more difficult for the fire department. In a large building or facility, the safety officer or similar person is most appropriate for such a role.

Item 9 requires documentation of the voice/alarm communications system alert tone and preprogrammed voice messages. This provides emergency responders with a better understanding of the information provided to occupants to better assess the appropriate response. Additionally, if conditions in that building change, the plan can be evaluated to see whether this aspect of the notification system needs to be revised. For instance, if the procedures for evacuation have changed, the voice announcement may need to be revised.

**404.3.2 Fire safety plans.** Fire safety plans shall include the following:

1. The procedure for reporting a fire or other emergency.
2. The life safety strategy and procedures for notifying, relocating or evacuating occupants, including occupants who need assistance.
3. Site plans indicating the following:
  - 3.1. The occupancy assembly point.
  - 3.2. The locations of fire hydrants.
  - 3.3. The normal routes of fire department vehicle access.
4. Floor plans identifying the locations of the following:

- 4.1. Exits.
- 4.2. Primary evacuation routes.
- 4.3. Secondary evacuation routes.
- 4.4. Accessible egress routes.
- 4.5. Areas of refuge.
- 4.6. Exterior areas for assisted rescue.
- 4.7. Manual fire alarm boxes.
- 4.8. Portable fire extinguishers.
- 4.9. Occupant-use hose stations.
- 4.10. Fire alarm annunciators and controls.

5. A list of major fire hazards associated with the normal use and occupancy of the premises, including maintenance and housekeeping procedures.

6. Identification and assignment of personnel responsible for maintenance of systems and equipment installed to prevent or control fires.

7. Identification and assignment of personnel responsible for maintenance, housekeeping and controlling fuel hazard sources.

□*This section requires an overall fire safety plan with emphasis on the building and building site layout and hazards. More specifically, information, such as the evacuation and relocation aspects of the building layout, needs to be clarified; the list of specific hazards associated with normal use of the building needs to be noted and fire department access road locations need to be provided.*

*This plan also includes identification of the specific personnel who are charged with managing the fire protection systems and equipment and with fire prevention duties, such as controlling combustibles on site. Having specific personnel assigned to perform this duty will work to increase the likelihood of these actions occurring.*

*The requirements of this plan provide the building owner and occupants a better understanding of how to react in an emergency and how to decrease the likelihood of an emergency occurring. Additionally, this report assists emergency responders during periodic inspections and evaluations of the plans and, more importantly, when responding to an emergency. Generally, buildings that have fairly rigid and well maintained plans and procedures in place reduce not only the likelihood and magnitude of an incident within the jurisdiction but also the burden to emergency responders.*

**404.3.3 Lockdown plans.** Where facilities develop a lockdown plan, the lockdown plan shall be in accordance with Sections 404.3.3.1 through 404.3.3.3.

□*The provisions of this section introduce the requirements for plans and procedures for lockdowns (see commentary to the definition in Section 202). Note that the code does not require a lockdown plan; however, if a lockdown plan is developed, it must be strictly supervised in order to maintain occupant safety at an acceptable level. Many facilities are adopting procedures that can significantly affect fire and life safety, such as using the fire alarm system to signal a security emergency, locking doors with devices that prevent egress in violation of the provisions of Chapter 10 of the code, and chaining exit discharge doors from the inside to prevent occupants from leaving the building. It is important that plans for security threats do not include procedures that result in violations of life safety and actually increase the hazard to the occupants. The sections that follow intend to establish the conditions for lockdown plans so that they will not decrease the level of life safety in the event of fire.*

**404.3.3.1 Lockdown plan contents.** Lockdown plans shall be approved by the fire code official and shall include the following:

1. Initiation. The plan shall include instructions for reporting an emergency that requires a lockdown.
2. Accountability. The plan shall include accountability procedures for staff to report the presence or absence of occupants.
3. Recall. The plan shall include a prearranged signal for returning to normal activity.
4. Communication and coordination. The plan shall in-

clude an *approved* means of two-way communication between a central location and each secured area.

□ *Lockdown plans often include procedures for locking occupants into individual rooms within the building and, if the lockdown plan is not reviewed for life safety precautions, it could have a negative impact on fire and life safety. To reduce the likelihood of an inadequate or sub-standard plan, approval of the plan by the fire code official is required.*

*In accordance with Item 1, the plan must include a well thought out list of exactly what types of situations will warrant the implementation of a lockdown and how those “trigger” situations will be reported and to whom. Key to the success of a lockdown is the ability to account for all building occupants. To increase the likelihood that everyone will be properly accounted for, Item 2 requires that specific accountability procedures to be followed by lockdown supervisors be included in the plan. When the reason for a lockdown has been mitigated and it is safe to again move about within or reenter a building, Item 3 requires that signaling an “all-clear” condition must be done by an authorized person by a means used only for that purpose and readily recognizable as such. Item 4 requires that a central “command” location be preplanned and that a reliable means of two-way communication be provided in order to keep locked-down occupants apprised of the status of the situation, thus reducing their level of anxiety and the likelihood of panic.*

*Note that although the code does not assume simultaneous events, it would be advisable for the lockdown plan to include procedures to be followed if a fire alarm occurs during a lockdown.*

**404.3.3.2 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 Section 405.2.

□ *To utilize lockdown training and the lessons learned from it to the best advantage, training should be conducted on a regular basis to familiarize staff and occupants with the lockdown plan. Training should be designed and practiced to reinforce lockdown procedures as adaptive planned responses to stressful and potentially dangerous situations. It is important to note that*

*lockdown training and drills may not be credited to the required number of fire and evacuation drills so as not to diminish the impact of either (see also commentary, Section 406.3.3.).*

**404.3.3.3 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.

□ *Area-wide notification systems, ranging from low-tech sirens to text-message alerts on cell phones, are but several means of notification available for lockdown announcements. Whatever the method chosen for a particular occupancy, it must be separate and distinct from the building fire alarm system to avoid a miscue which could trigger an inappropriate response to a threatening situation unrelated to a fire.*

**404.4 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.

□ *In order to be of optimum value to a facility, plans must accurately reflect building conditions. Plans must be reviewed annually or when building changes affecting the instructions or procedures in the fire safety or emergency evacuation plan occur. Such a review should prompt an immediate revision and redistribution of the plan to all concerned parties, including emergency response personnel.*

**404.5 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.

□ *This essentially requires that these plans be easily accessible to building occupants and the fire code official. If the plans are difficult to access, they are less likely to be updated when necessary and are more likely to be lost or forgotten. This places a burden on the emergency responders when planning methods of response, and puts the occupants of the building at a higher risk during an emergency. Having the documents readily available makes review and use for training occupants more likely.*

**404.5.1 Distribution.** The fire safety and evacuation

plans shall be distributed to the tenants and building service employees by the owner or 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.

□ Fire safety and evacuation plans are only effective when all building occupants have been informed of the contents of the plan. In the case of a multiple-tenant building, the plan must address the individual tenant spaces and distribution to all affected occupants is important for a coordinated response to an emergency.

*This section requires that the building owner or the owner's agent distribute the plan to all tenants and building service employees. Since the owner or agent of the owner usually does not have direct access to the tenants' employees, the individual tenants would then have the responsibility to distribute the applicable portion of the plan to their employees. This provides for a wider distribution of the responsibility to plan for emergencies and to follow the requirements of the plan.*

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