



Is Your Fire Brigade Up To Snuff?

by Leo Old, P.E.

Many healthcare institutions choose to maintain a group of employees, whose responsibilities include responding to fire alarms and fire-related emergencies throughout the facility. Such groups are often designated as “Fire Brigades” or “Fire Response Teams.”

“Fire Brigade” and “Fire Response Team” are synonymous terms. According to the Occupational Safety and Health Administration (OSHA), a fire brigade represents an organized group of employees who are knowledgeable, trained and skilled in at least basic fire fighting operations.¹ Fire brigades vary widely in responsibility, function and size. Some facilities choose to maintain a fire brigade capable of interior structural fire-fighting; however, most healthcare institutions maintain a fire brigade capable of only incipient-stage fire-fighting. *NFPA 600: Standard on Industrial Fire Brigades*, 2000 edition, describes incipient stage fire-fighting as including the following actions:

- Able to fight the fire in normal work clothing
- Not required to crawl or take evasive action to avoid heat or smoke
- Not required to wear thermal protective clothing (including coats, trousers, gloves, and head, eye and face protection) or self contained breathing apparatus (SCBA)
- Able to fight the fire effectively with portable fire extinguishers or handlines flowing up to 125 gallons per minute of water (i.e., class II standpipe systems).²

Regardless of their level of responsibility, function or size, employers are required to follow standards established by OSHA, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and local authorities having jurisdiction regarding fire brigades. It’s important to be aware of organizational, training and operational requirements for fire brigades performing incipient stage fire-fighting in healthcare facilities.

Policies and Procedures

If an institution chooses to utilize a fire brigade, written policies and procedures regarding its fire brigade program should be developed and maintained. The fire brigade program should be one part of an overall institutional fire safety program.

An important part of a fire brigade program is the preparation and maintenance of an OSHA-required organizational statement, which establishes the existence of the fire brigade. The organizational statement shall include the following:

- Basic organizational structure of the fire brigade
- Type, amount and frequency of training for fire brigade members
- Members of the fire brigade
- Functions that the fire brigade will perform at the workplace.³

JCAHO Environment of Care standards require hospitals, ambulatory health clinics,



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behavioral health institutions, long term care facilities and laboratories to develop and implement a fire response plan. As a minimum, the fire response plan shall address the following issues:

- Facility-wide fire response actions
- Fire response needs for specific areas, including fire evacuation routes
- Specific roles and responsibilities of staff, licensed independent practitioners and volunteers at a fire's point of origin
- Specific roles and responsibilities of staff, licensed independent practitioners and volunteers away from a fire's point of origin
- Specific roles and responsibilities of staff, licensed independent practitioners and volunteers regarding building evacuation.⁴

These JCAHO standards are similar to standards within the *Life Safety Code*. The *Life Safety Code*, 2000 edition, requires healthcare occupancies to have a written fire safety plan. The fire safety plan shall provide procedures for the following:

- Use of alarms
- Transmission of alarm to fire department
- Response to alarms
- Isolation of fire
- Evacuation of immediate area
- Evacuation of smoke compartment
- Preparation of floors and building for evacuation
- Extinguishment of fire.⁵

Instead of an organization having three separate fire-response related documents (i.e., fire brigade organizational statement, fire response plan and fire safety plan), it's reasonable to combine the necessary documentation and procedures into one overall fire safety document, which addresses all of the appropriate information.

Training

Because of the inherent dangers in responding to fire emergencies, healthcare fire brigades should be adequately trained and prepared to deal with such situations. Although your fire brigade may only perform incipient stage fire fighting, both JCAHO and OSHA require fire brigade members to receive training.

The frequency and content of your training depends on the duties of your fire response team. As a minimum, fire brigade members that perform incipient stage fire fighting shall receive hands-on training annually.⁶ OSHA does not specify required content for fire brigade training and education because it expects organizations to develop site-specific, performance-oriented training programs. However, OSHA strongly recommends that fire brigade training include the following topics:

- Emergency action procedures
- Pre-fire planning
- Special hazards in the workplace to which brigade members may be exposed during a fire or other emergency (i.e., flammable liquids, flammable gases, toxic chemicals, radioactive sources and water-reactive substances)
- Procedures for actions involving exposure to special hazards
- Locations of exits and egress routes
- Use of fire equipment, such as fire extinguishers and standpipes.^{6,7}

Further, JCAHO requires periodic implementation of the plan through fire drills. Staff members, including fire brigade members, should be trained periodically in their roles and responsibilities during fires and other emergencies. JCAHO requires that the effectiveness of fire response training be evaluated at least annually.⁸

Fire brigade leaders and instructors shall be provided training, which is more comprehensive than that provided to other members of the fire brigade. Although OSHA and JCAHO provide no performance requirements, fire brigade instructors should be knowledgeable about site-specific hazards and the functions of the brigade and able to demonstrate skills in communication, teaching methods and motivation. OSHA suggests that *NFPA (National Fire Protection Association) 1041: Standard for Fire Service Instructor Professional Qualifications*, 2002 edition, or similar publications be consulted for recommended qualifications of fire brigade training instructors.⁷

OSHA acknowledges that fire brigades must have competent leaders capable of supervising fire brigade activities during hazardous and stressful situations. OSHA recommends that fire brigade leaders receive training that enables them to demonstrate skills in strategy and tactics, fire suppression and prevention techniques, leadership principles, pre-fire planning and safety practices.

Lastly, fire brigade training should not be confused with fire extinguisher training for other employees. As an additional standard, OSHA requires annual fire extinguisher training for employees (including those not on the fire brigade), who have access to portable fire extinguishers for use in the workplace.⁹

Fire Extinguishers

One of the most common pieces of fire equipment used by fire brigade members includes portable fire extinguishers. The *Life Safety Code*, 2000 edition, requires portable fire extinguishers be provided in all healthcare and ambulatory healthcare occupancies. Fire extinguishers also shall be installed, inspected and maintained in accordance with *NFPA 10: Standard for Portable Fire Extinguishers*, 1998 edition (NFPA 10).^{10,11}



Portable fire extinguishers should be strategically located for expedient accessibility. NFPA 10 permits a maximum travel distance of 75 feet to a class “A” fire extinguisher.¹² Additionally, NFPA 10 specifies maximum travel distances for class “B” fire extinguishers. The varying travel distances for class “B” fire extinguishers are based on the hazard classification of the occupancy and the ratings of the class “B” fire extinguishers. For example, NFPA 10 specifies the following travel distances to class “B” fire extinguishers for ordinary hazard occupancies:

Fire Extinguisher Rating	Maximum Travel Distance Between Class “B” Fire Hazards and Extinguisher
10B	30 feet
20B	50 feet

Appropriate places for class “B” fire extinguishers include laboratories, boiler rooms, hazardous material storage areas and kitchens.¹³

Fire extinguishers with class “C” ratings shall be required, where energized electrical equipment may be encountered. NFPA 10 provides no specific travel distance requirements for fire extinguishers with class “C” designations. Instead, fire extinguishers for class “C” fires shall be sized and located on the basis of the anticipated class “A” or “B” hazard.¹⁴

Lastly, both JCAHO and OSHA Standards require portable fire extinguishers to receive monthly visual inspections. Portable fire extinguishers shall also receive an annual maintenance check.^{15,16}

Standpipe and Hose Systems

The three classes of standpipe systems are designated as Class I, II and III. Class I systems provide two-and-a-half-inch hose connections at designated building locations for use by fire departments. Class II systems provide one-and-a-half-inch hose stations (includes hose rack, hose connection, hose and nozzle) at designated building locations for use by fire departments or fire brigades. Class III systems provide both two-and-a-half-inch” hose connections for fire departments and one-and-a-half-inch hose stations for fire brigades.

The *Life Safety Code*, 2000 edition, and other building codes typically specify where standpipe and hose systems are required. For example, the *Life Safety Code* requires installation of a Class I standpipe system in new healthcare occupancies classified as high-rise buildings. The *Life Safety Code* does not require installation of standpipe or hose systems in existing healthcare occupancies. Where installation is required, they shall be installed in accordance with *NFPA 14: Standard for the Installation of Standpipe, Private Hydrant and Hose Systems*, 2000 edition. Further, the *Life Safety Code* requires standpipe and hose systems to be inspected, tested and maintained in accordance with *NFPA 25: Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection*

Systems, 1998 edition.^{17,18} Healthcare institutions should also check with their local authority having jurisdiction for more restrictive installation requirements.

Where hose stations are provided for fire brigade use (i.e., in Class II and III systems), 100 feet of one-and-a-half-inch hose is typically required.¹⁹ Authorities having jurisdiction may allow removal of such hose from the hose station. Healthcare institutions should check with their local authority having jurisdiction regarding removal of hoses from hose stations. When fire brigades are authorized to use hose stations for fire-fighting, fire brigade members shall be trained on the operation of such equipment.

Patient Evacuation

Patient relocation and/or evacuation may be a critical responsibility for fire brigade members. Although healthcare occupancies are designed for a “defend-in-place” strategy for fire emergencies, healthcare personnel should be trained and prepared to relocate or evacuate patients, when hazardous conditions are present. The *Life Safety Code*, 2000 edition, recommends that fire drills include provisions for moving patients to adjacent smoke compartments. The *Life Safety Code* further recommends practicing patient relocation with simulated patients or empty wheelchairs.²¹

Other Responsibilities

It’s common for healthcare fire brigades to take on other emergency-related responsibilities. Some fire brigades also respond to hazardous material incidents, perform confined space rescue, serve on patient decontamination teams and participate in other functions. Such additional responsibilities are certainly permissible; however, employers should understand that all of these activities require special training and education. Training for one responsibility does not eliminate the need for training in other responsibilities.

Cooperation with Local Fire Department

The local fire department should participate in pre-fire planning with the institution’s fire brigade. Pre-fire planning will familiarize local fire department members with work-place and process hazards within a hospital. Involvement with the local fire department may promote coordination and communication between the fire brigade and local fire department.

Conclusion

Fire brigades may be an important part of a healthcare institution’s overall fire response strategy. The “defend-in-place” strategy is a total concept approach. Healthcare staff actions during fire emergencies are an integral part of the overall fire response. The staff’s response, including that of the fire brigade, influences the outcome of a fire. Proper staff training and execution of duties, coupled with a building’s Life Safety systems and features, provides a relatively safe environment for a vulnerable patient population.²²

Continued: Is Your Fire Brigade Up To Snuff?

Compliance Assessment Tool

Healthcare institutions can assess compliance of their fire brigade program with JCAHO and OSHA standards using the following checklist:

Compliance Issue	Compliant?		Action Needed
	Yes	No	
Existence of written organizational statement			
Existence of written fire response/safety plan			
Annual hands-on training for fire brigade members			
Additional training for fire brigade instructors and leaders			
Fire extinguisher training for other employees			
Travel distances between class "A" hazards & fire extinguishers <75'			
Travel distances between class "B" hazards & fire extinguishers < 30' or < 50' (depending on extinguisher rating)			
Monthly inspections and annual maintenance checks for fire extinguishers			
Inspection, testing and maintenance of hose systems in accordance with NFPA 25			
Periodic patient relocation/evacuation exercises during fire drills			

References

1. 29 Code of Federal Regulations 1910.155(c)(18).
2. *NFPA 600: Standard on Industrial Fire Brigades*, 2000 edition. Section 1.4.3.1.
3. 29 Code of Federal Regulations 1910.156(b)(1).
4. JCAHO Environment of Care Standard EC.5.10.
5. *NFPA 101: Life Safety Code*, 2000 edition. Section 19.7.2.
6. 29 Code of Federal Regulations 1910.156(c).
7. 29 Code of Federal Regulations 1910.156, Appendix A to Subpart L to Part 1910.
8. JCAHO Environment of Care Standard EC.5.30.
9. 29 Code of Federal Regulations 1910.157(g).
10. *NFPA 101: Life Safety Code*, 2000 edition. Section 19.3.5.6.
11. *NFPA 101: Life Safety Code*, 2000 edition. Section 21.3.5.2.
12. *NFPA 10: Standard for Portable Fire Extinguishers*, 1998 edition. Section 3.2.1.
13. *NFPA 10: Standard for Portable Fire Extinguishers*, 1998 edition. Section 3.3.1.
14. *NFPA 10: Standard for Portable Fire Extinguishers*, 1998 edition. Section 3.5.
15. JCAHO Environment of Care Standard EC.5.40.
16. 29 Code of Federal Regulations 1910.157(e).
17. *NFPA 101: Life Safety Code*, 2000 edition. Section 18.4.2.
18. *NFPA 101: Life Safety Code*, 2000 edition. Section 19.4.2.
19. *NFPA 14: Standard for the Installation of Standpipe, Private Hydrant and Hose Systems*, 2000 edition. Section 2.6.3.
20. 29 Code of Federal Regulations 1910.156(e).
21. *NFPA 101: Life Safety Code*, 2000 edition. Section A.19.7.1.2.
22. Coté, R., editor. *Life Safety Code Handbook*, eighth edition. National Fire Protection Association. 2000. p. 505.

