

Life and Fire Safety at Health Care Premises



Challenges

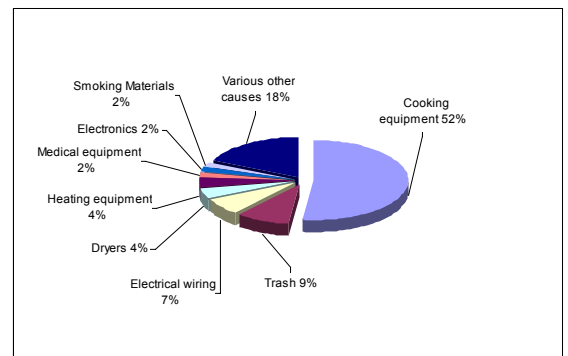
In healthcare premises, particularly in patient access areas, the immediate and total evacuation of a compartment, or sub-compartment in the event of fire may not be possible or desirable. Patients with restricted mobility, patients who use wheelchairs, and bed-bound patients cannot negotiate escape routes, particularly stairways, unaided.

Patients under medication may require staff assistance, and patients who are dependent on electrical/mechanical equipment for their survival cannot always be disconnected and moved rapidly without serious consequences. In certain scenarios, due to the patient's medical condition and/or dependency on electrical/mechanical equipment, it may not be practical or advisable to move or disconnect the patient from such life support equipment. In this context the evacuation of patients from their position of care is effectively a 'last resort' and therefore available technologies should be used to minimize the probability of this occurrence.

Main causes of hospital fires

Hospital fires cause injuries (sometimes fatal) to patients and staff, result in millions of dollars in property damages and thrust hospitals into local or even national news headlines. The NFPA tracked the causes of hospital fires between 2003 and 2006 and documented the most common causes. During that time period, some 1,600 fires broke out at hospitals and hospice facilities. The eight leading causes are given in the graphic

The Study also revealed that in hospital facilities and clinic or doctor's offices, fires peaks occurred during weekdays between 8 a.m. and 1 p.m. A number of these causes can be prevented by



taking simple preventative measures s.a. maintenance and inspections programs, switching of office equipment after duty a.o..

In the table below, an overview is given of recent and past 'big' hospital fires.

Year	Hotel	Country	Life Loss	Year	Hotel	Country	Life Loss
2009	Hospital fire Bursa	Turkey	8	2004	St. Andrews Hospital fire	USA	
	Fire in drug rehab clinic	Kazakhstan	38		VA Hospital	USA	1
2006	Siberian hospital fire	Russia	8		Hospital Evacuates Patients	USA,DC	
	Moscow hospital fire	Russia	42		Belarus hospital fire	Belarus	30
	Fire Erupts In Hospital	USA		2002	East Ham Memorial Hospital Fire	USA	
	Hospital fire in China	China	27	2000	Hospital Fire in Beijing	China	3
	Surgery room fire	Holland	1	1999	Leningrad Oblast Hospital Fire	Russia	21
2005	Hospital fire in China	China	39	1998	Manila Hospital Fire	Philippine	20
	Costa Rica Hospital fire	Costa Rica	18	1994	Virginia Hospital Fire	USA	4
	Warrington fire	UK		1971	Fire in a psychiatric clinic	Switzerland	28
	El Camino Hospital Fire	USA		1960	Fire in a mental hospital	Guatemala	235
	12 die in Iraq hospital fire	Iraq	12	1950	Iowa, Mercy Hospital Fire	USA	41
2003	Sheppard Pratt Hospital Building	USA		1942	Seacliff Mental Hospital	New Zealand	37
	Hospital Evacuates Patients	USA,DC					
	Belarus hospital fire	Belarus	30				

The six cornerstones

The nature of health care facilities operations is such that facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire emergency requiring the evacuation of occupants.

Life and Firesafety for health care facilities depends upon a series of basic elements, which have to be determined individually and assessed in their relation to one another.

Fire load - Safety precautions which are either intended to prevent a fire from igniting or to limit rapid fire and smoke development.

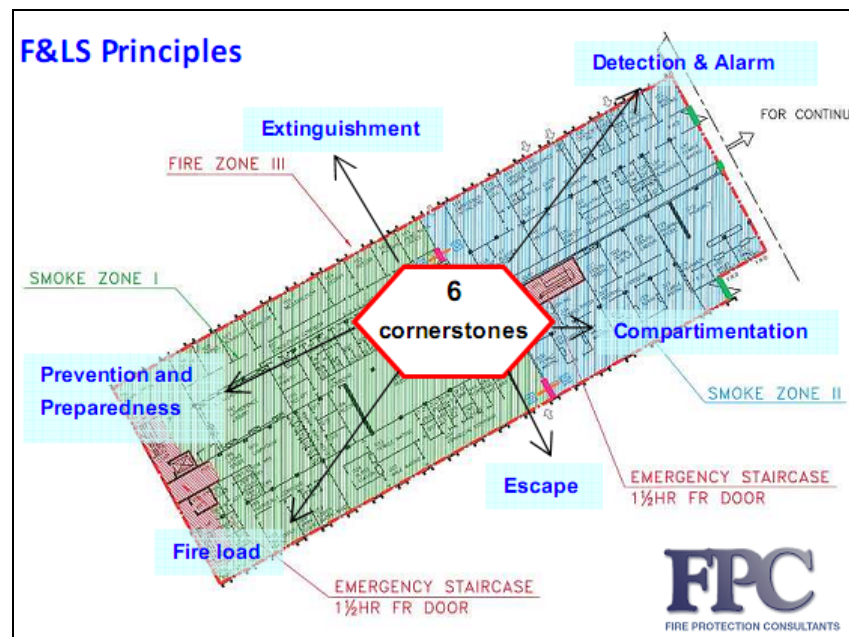
Compartmentation - Structural methods aimed at dividing the building into sections to control fire development and restrict the spread of fire and smoke.

Escape - Exit systems designed for the purpose of giving occupants a safe and accessible means of exiting from the building.

Detection and Alarm - Evaluates the provisions for detecting fire or smoke and alarm systems for signaling patients, occupants, staff and/or public fire services.

Extinguishment - Methods to achieve positive extinguishment of a fire s.a. manual fire fighting capability and automatic suppression systems e.g. sprinklers.

Prevention & Preparedness - Hospitals should have a Fire Emergency Preparedness Plan (FEPP) and initiate training programs to ascertain that all staff are completely familiar with all life and fire safety systems at the hospital and capable of rendering proper assistance to patients during emergencies. A plan for the protection of all persons in the event of fire, for their evacuation to areas of refuge, and for their evacuation from the building when necessary should be available for all health care facilities.



Evacuation or Defend-in-Place

The two basic occupant-protection strategies are evacuation — either total or staged — and defend-in-place. Determining which strategy is most appropriate depends on a variety of factors, including the type of incident, the occupants' evacuation capabilities, how the building is constructed, and the presence of fire protection and other life safety systems. Total evacuation is relatively straightforward: An alarm sounds, or other means of emergency notification is activated, and all building occupants simultaneously exit the building. Staged evacuation is a bit more complicated. Where staged evacuation is used, the location of the fire or other incident in the high-rise building is identified, and only those occupants who might be immediately threatened are notified to leave the building.

For these reasons, hospitals are designed to accommodate the defend-in-place strategy, whereby occupants are relocated to a safe location on the same floor rather than being evacuated. The safe locations are created by subdividing the floors of the building into two or more smoke compartments or fire compartments, separated by specially constructed walls designed to limit the transfer of smoke or restrict the spread of fire from one side to the other.