# Fire safety in assembly occupancies

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## Information about assembly occupancies

An assembly occupancy is generally defined as "an occupancy (1) used for a gathering of 50 or more persons for deliberation, worship, entertainment, eating, drinking, amusement, awaiting transportation, or similar uses; or (2) used as a special amusement building, regardless of occupant load." Assembly occupancies might include the following: Armories,assembly halls, auditoriums,club rooms, dance halls, drinking establishments and exhibition halls among others.

Fires in assembly occupancies have shown to be some of the most deadly when the proper features, systems and construction materials were not present. Nightclubs, theaters and auditoriums differ from office buildings because they contain a large number of people in one main space. NFPA code provisions mandate that a considerable number of safety systems and features be present in order to keep everyone safe should an unwanted fire occur. The level of safety provided is not the result of any single safety system or feature, but rather is achieved through the combination of multiple safeguards that are provided.

NFPA publishes a number of codes and standards that work in harmony to prevent the type of life-loss that can occur in assembly occupancies:

- NFPA 1126, *Use of Pyrotechnics Before a Proximate Audience*
- NFPA 1, *Uniform Fire Code*™
- NFPA 101®, *Life Safety Code*®
- NFPA 5000®, *Building Construction and Safety Code*®

The following elements provide an outline of the most basic requirements and criteria as found in NFPA 101®, *Life Safety Code*®, 2000 edition. The order in which they are presented in is indicative of how they lessen a life threatening condition.

**Ignition sources**
There are a number of possible ignition sources in assembly occupancies. Fires caused by so-called "controlled" fire (for example, alcohol or solid alcohol fires in restaurants, flames used for dramatic effects in theaters) are well documented. Control of other unintentional ignition sources is also of crucial importance. Those include:

- Pyrotechnics – safe use of pyrotechnic displays indoors and out.
- Open flame – controls for safe use of open flame devices, including cooking and heating equipment
- Cooking facilities – controls for any fire on cooking surfaces, including

portable cooking equipment

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**Furnishings & contents**
Controls based on flame spread characteristics; Evaluation of existing interior finish is sometimes difficult. Where flame spread characteristics cannot be readily determined, the questionable material should be removed or treated with approved flame retardants. Where treatment cannot reduce flame spread to the required limits, automatic sprinklers can be provided to help compensate for the deficiency.

The purpose of interior finish requirements is to slow the flame spread across these surfaces to allow additional time for occupants to relocate or evacuate the building.

- Fire testing – for purpose of evaluating flame spread and smoke development characteristics.
- Interior finish – exposed surfaces of walls, ceilings, and floors within buildings.
- Decorations and Panels – hanging or mounting of these materials, even if on a temporary basis, can introduce a source of combustible fuel. Proper treatment and use of these materials is crucial.

**On-site fire protection**

- Fire alarm systems – this includes means for detection of a fire, initiation of the alarm and/or suppression systems, and notification of occupants.
- Automatic sprinkler systems – sprinkler systems are required in most new occupancies and many existing occupancies.
- Portable fire extinguishers – extinguishers should be provided in specific types of assembly occupancies, and must be used only by properly trained personnel.

**Exiting**

- Occupant load - the number of people anticipated to be in the building is a function of the intended use of that building. Based upon this calculated value, other criteria, such as the number of exits and the width of exits are derived.
- Number and arrangement of exits-in general terms, at least two exits need to be provided from each building. In an assembly occupancy, it is also important that the main entrance/exit be adequately sized to accommodate half of the occupant load.
- Exit signs – signs are needed to identify exits and direct the ways to get to those exits. This includes location of such signs and how to illuminate them.
- Emergency lighting –When a fire occurs in a building, visibility is one key factor that could affect how occupants react to an emergency situation and their ability to evacuate.
- Posting maximum occupant load – signage indicating the maximum permitted occupant capacity for a building or space within a building.

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