


OCCUPANCY

CLASSIFICATION — STEP 1

SECTION 3-1 GENERAL

A building is erected to house a specific function, which must be known and declared at the outset. If the extent of a possible danger is known, it becomes possible to plan for it. However, according to statistics, the occupancy may change during the life span of a building. A building may be built as a residence and later converted to an office or a small church; a warehouse may be converted to an apartment building or a retail grocery market.

It cannot be predicted if the first occupancy will be the last, yet the use or ownership may change without change in occupancy. The implication here is that ownership or tenancy has no particular bearing on occupancy and the accompanying hazards. A building may house a restaurant or clothing store for years but have several owners or tenants. The hazards remain the same.

On the other hand, the occupancy may change during the life span of a building, which could involve a modification in the potential hazard. In such an event, the building must be reclassified accordingly and comply in all respects with the new classification. For example, many residential areas along well-traveled thoroughfares have been changing in nature to commercial areas. One frequently finds that land-use zoning maps designate such areas as commercial, although some of the uses may continue to be residential. Assume someone acquires a dwelling in the area, intending to convert it to an insurance office (or drapery shop or restaurant). The owner has, in effect, proposed changing the occupancy from residential to commercial. As a result, the plan reviewer must reclassify the occupancy according to the newly presented commercial hazards and confirm that the conversion meets requirements for the new occupancy. The reviewer may find that additional exiting capacity is required, that additional fire protection must be supplied, or that sanitary facilities must be augmented. Design live loads must also be verified per Table 1607.1. At the most extreme, the plan reviewer may conclude that the conversion is impossible because of general construction features, in which case the owner could not use the building for the commercial occupancy proposed.

This latter notion involves a basic implication of building law. A pre-existing nonconforming occupancy may be continued in service, provided it can be shown not to be dangerous to life. See Sections 102.6 and 3408.1. The dwelling, although existing prior to code enactment (pre-existing), may continue in service as a residence even though it does not comply with present law (nonconforming). Building codes generally do not have retroactive application. Now, if the

occupancy is changed from residential to commercial, it is no longer pre-existing, although the building housing it is, and an entirely different set of hazards has been introduced. Thus, the existing building must meet the safety provisions for the new hazards.

SECTION 3-2 (Step 1a) OCCUPANCY CLASSIFICATION

Occupancies are divided into 10 different and distinct categories or groups. Some groups are further divided into additional subcategories. All structures and all areas of the building must be classified into one or more of these occupancy classifications. These occupancy classifications are listed below:

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5
2. Business (see Section 304): Group B
3. Educational (see Section 305): Group E
4. Factory and Industrial (see Section 306): Groups F-1 and F-2
5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5
6. Institutional (see Section 308): Groups I-1, I-2, I-3 and I-4
7. Mercantile (see Section 309): Group M
8. Residential (see Section 310): Groups R-1, R-2, R-3 and R-4
9. Storage (see Section 311): Groups S-1 and S-2
10. Utility and Miscellaneous (see Section 312): Group U

Where a structure is proposed for a purpose that is not specifically provided for in the IBC, such structure should be classified into the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved. Note that there are laundry lists for most occupancy classifications within the code; however, these lists are not to be considered all inclusive.

The IBC has a number of methods that are allowed in dealing with mixed-occupancy conditions within a building. These include Accessory occupancies (Section 508.2), Nonseparated occupancies (Section 508.3) and Separated occupancies (Section 508.4). Unless the plans are very clear, it may be difficult to determine what the designer had in mind in applying these provisions. These conditions will be covered in more detail in Chapter 8 of this manual.

There are varying characteristics of each occupancy classification. Some occupancy classifications may have similar characteristics, while others may have contrasting characteristics.

Group A occupancies in general are used for the gathering of persons for such purposes as civic, social or religious functions; recreation, food or drink consumption; or awaiting transportation. There are four significant exceptions:

1. Buildings used for assembly purposes with an occupant load of less than 50 persons are classified as Group B.
2. Accessory assembly rooms or spaces with an occupant load of less than 50 persons shall be classified as Group B or the same as the occupancy they are within.
3. Assembly rooms that are less than 750 square feet and are accessory to another occupancy are classified as Group B or the same as the occupancy they are within.

4. Assembly areas that are accessory to Group E occupancies may be classified as a portion of the Group E, provided the assembly occupancy requirements of Chapter 11 (Accessibility) and Section 1028 (Means of Egress, Assembly) are met.

Group A occupancies (Section 303) include five subcategories:

Group A-1 occupancy classifications usually are provided with fixed seating intended for the production and viewing of the performing arts or motion pictures, including theaters, concert halls, and television and radio studios that admit audiences. Characteristics of these theaters include low lighting levels, potentially large occupancy densities, row seating, projection screens, raised stage, catwalks, rigging lofts, orchestral pits, projection booths, scenery docks, workrooms, storerooms, and fixed or moveable seating.

Group A-2 occupancy classifications are intended for food and/or drink consumption and include nightclubs, banquet halls, restaurants, taverns and bars, and fast-food establishments, all with occupant loads of 50 or more. Characteristics include consumption of food and/or drink, high occupant densities, variable lightning levels and access aisles that often are not clearly defined.

Group A-3 occupancies include multipurpose assembly spaces, legislative assembly halls, art galleries, exhibition halls, museums, lecture halls, libraries, conference rooms, courtrooms, passenger waiting areas at airports, bus and rail stations, places of religious worship, chapels, funeral chapels, mosques and indoor recreational centers, including bowling alleys, billiard parlors, ice rinks without seating and swimming facilities without seating. It should be noted that places of religious worship would include the entire “worship facility”, including associated religious study and fellowship rooms. However, if these associated spaces are used for activities such as K through 12th grade educational purposes, child care not associated with religious activities, or a variety of other purposes, the use will need to be classified accordingly.

Group A-4 occupancies are intended for indoor sporting events and activities with spectator seating including arenas, skating rinks, swimming pools and tennis courts. Characteristics include potential fluctuating lighting levels, some food or drink consumption, mostly fixed seating, and medium to high density occupant loads.

Group A-5 occupancies typically include the viewing of or participation in outdoor activities including amusement park structures, bleachers, grandstands and stadiums. Characteristics include open-air facilities where smoke cannot accumulate (spectators may be afforded some protection from the elements), limited or no conditioned air, and mostly fixed seating arrangements.

Group B occupancies (Section 304) are typically those where buildings or portions thereof are used for office, professional or service-type transactions, including storage of records and accounts.

Group B occupancies include a wide variety of activities, including airport traffic control towers, animal hospitals, banks, civic administration, outpatient clinics and ambulatory health-care facilities, educational occupancies above the 12th grade, testing and research laboratories, motor vehicle showrooms, post offices, professional offices, and training and

skill development that is not within a school or academic program. A significant characteristic of Group B occupancies is that the normal building occupants are usually quite familiar with the building and its means of egress system. Additionally, many of the occupants are adults that are capable of recognizing and effectively responding to emergency situations.

Group E occupancies (Section 305) are typically those where buildings or portions thereof are used for educational purposes.

Group E occupancies are primarily used for K through 12th grade educational facilities. Educational facilities above the 12th grade are classified as either Group A-3 or Group B occupancies. Religious educational rooms and religious auditoriums accessory to places of worship with occupant loads of less than 100 are classified as Group A-3 occupancies. Group E occupancies also include a building or portion thereof for educational, supervision or personal care services (day care) for more than five children older than two and a half years of age. Characteristics include students younger than adults that are capable of self-preservation. The age range is from two and a half years to the 12th grade. Examples include child day-care facilities, preschools, elementary schools, middle schools and high schools.

Group F occupancies (Section 306) are those where factory and other industrial activities are undertaken. Included in the activities of factory/industrial uses are assembling, disassembling, fabricating, finishing, manufacturing, packaging, repair and processing operations that do not involve quantities of hazardous materials above the maximum allowed. Storage of the materials to be processed or completed products is typically classified as a Group S occupancy.

Group F-1 occupancies are moderate-hazard occupancies that include activities such as the manufacturing of aircraft, appliances, boats, brooms or brushes, and a myriad of other activities as listed in Section 306.2. This occupancy classification also includes bakeries and the processing and bottling of beverages with an alcohol content of over 12 percent. Obvious characteristics are the production, assembling, finishing, packaging or repairing of products.

Group F-2 occupancies are low-hazard occupancies that include metal fabrication plants, masonry manufacturing, ceramic factories that have ovens to glaze the finished product and the processing and bottling of beverages with an alcohol content up to 12 percent. Characteristics include those similar to Group F-1, but with limited amounts of combustible material in the production or packaging of the product.

Group H occupancies (Section 307) are those that involve the manufacturing, processing, generation or storage of materials that constitute a physical or health hazard in quantities greater than those allowed in control areas constructed and located as required in Section 414. Simply because buildings have hazardous materials within them does not mean that they are classified as Group H hazardous occupancies. In fact, Section 307.1 lists 13 exceptions that allow buildings containing various quantities and types of hazardous materials to not be classified as Group H occupancies. Key to the determination of hazardous materials are Table 307.1(1), *Maximum Allowable Quantity Per Control Area of Hazardous Materials Posing A Physical Hazard* and Table 307.1(2), *Maximum Allowable Quantity Per Control Area of Haz-*

ardous Materials Posing a Health Hazard. Section 307.2 provides an extensive list of definitions applicable to hazardous materials. Group H occupancies include five subcategories:

Group H-1 occupancies generally pose a detonation hazard. Detonations are explosions that progress at a rate greater than the speed of sound.

Group H-2 occupancies generally pose a deflagration hazard or accelerated burning hazard. Deflagration hazards may lead to an explosion. A common example of a Group H-2 occupancy is one in which flammable or combustible materials are used, mixed or transferred in an open condition.

Group H-3 occupancies generally contain materials that readily support combustion or pose a physical hazard. Included in this category are flammable solids, combustible fibers (not densely packed baled cotton) and Class 2 unstable (reactive materials). Flammable or combustible materials in a closed condition, such as storage or closed piping, also create a Group H-3 occupancy where the maximum allowable quantities are exceeded.

Group H-4 occupancies include health hazards. Materials causing this classification include corrosives, highly toxic materials and toxic materials as listed in Table 307.1(2).

Group H-5 occupancies are either semiconductor fabrication facilities or comparable research and development areas where HPM (hazardous production materials) are used in excess of those in Tables 307.1(1) and Tables 307.1(2). Further details are found in Section 415.8.

Group H occupancies may fall within more than one subcategory. Where a hazardous occupancy contains materials representing hazards classified in one or more of Groups H-1, H-2, H-3 or H-4, they must comply with the specific occupancy requirements for each of the occupancies so classified. As a side note, the storage and/or use of hazardous materials in any occupancy must comply with Section 414.

Group I occupancies (Section 308) are those uses where people are cared for or live in a supervised environment, or where the occupants have physical limitations because of age or health requiring harbored care for medical treatment. Also included are occupants who are incarcerated in penal or other correction facilities or whose liberty is restricted. Group I occupancies include four subcategories.

Group I-1 occupancies include residential board and care facilities, assisted living facilities, halfway houses, group homes, alcohol and drug centers, and similar facilities. Characteristics include more than 16 occupants, not including staff, who stay at the facility 24 hours a day, are aware and ambulatory, are free to exit the building at any time, are over 2¹/₂ years of age, and are supervised for counseling and assistance rather than for self-preservation.

Group I-2 occupancies include buildings used for medical, surgical, psychiatric, nursing or custodial care on a 24-hour basis including hospitals, nursing homes, mental hospitals and detoxification facilities. Characteristics include conditions where occupants are provided with 24-hour care, are semi-aware or semi-ambulatory, but are not capable of self-preservation or have limited self-preservation capabilities.