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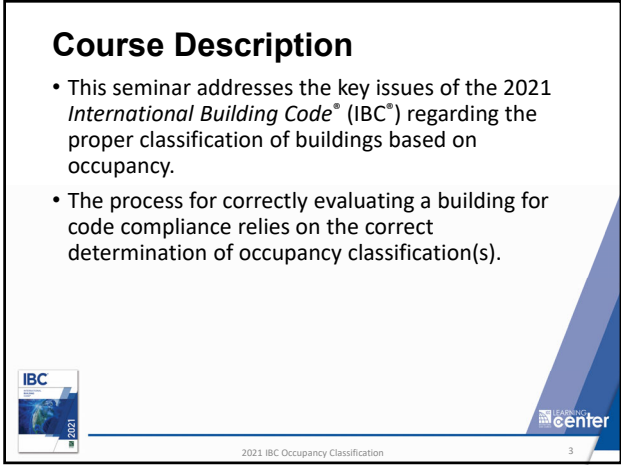
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### Course Description

- Everything starts with occupancy classification!
- A clear understanding of the classification process provides the groundwork for the proper application of many other important code provisions.



2021 IBC Occupancy Classification 4

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### Goal

- Participants will be able to assign the appropriate occupancy classification(s) based on IBC Chapter 3



2021 IBC Occupancy Classification 5

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### Objectives

Upon completion, participants will be better able to:

1. Identify and describe the 26 specific occupancy groups established in the 2021 IBC.
2. Determine how occupant load can sometimes be important in the occupancy classification process.
3. Identify those areas, rooms and spaces that are to be regulated as incidental uses.



2021 IBC Occupancy Classification 6

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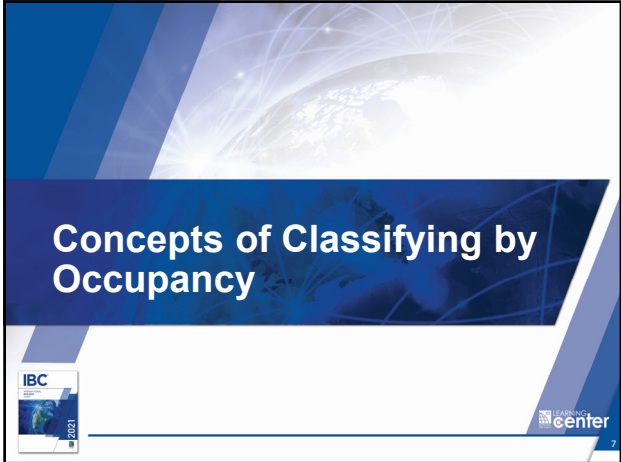
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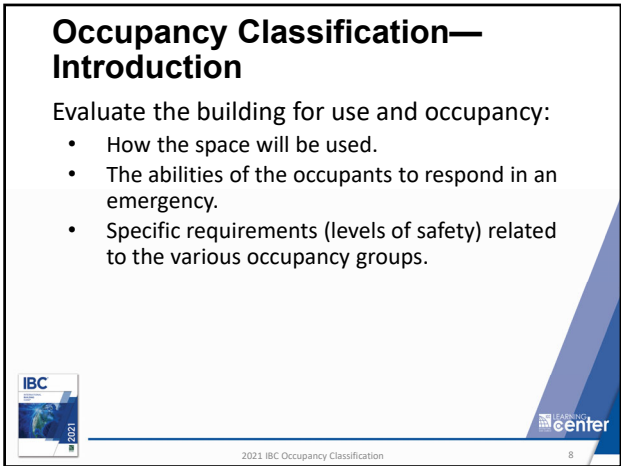
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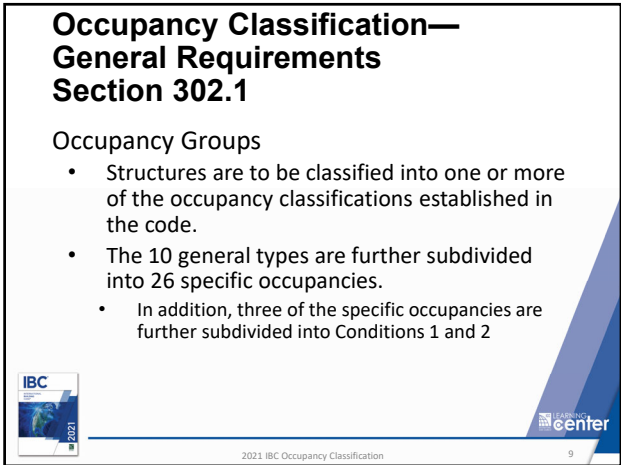
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### Occupancy Classification— General Requirements Section 302.1

- Where a room or space is to be occupied for different types of uses at different times, all of the requirements applicable to each of the uses must be considered.
- Those buildings that contain two or more distinct occupancy classifications must comply with the provisions of Section 508 for mixed-occupancy buildings.
- Occupied roofs to be classified in group that occupancy most nearly resembles, based on fire safety and relative hazard.



2021 IBC Occupancy Classification 10

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### Use vs. Occupancy

- “Use” and “Occupancy” are terms that differ in meaning and application within the IBC.
- “Use” describes the activity that occurs within the space, room or building.
  - “Use” is seldom utilized in the IBC as the scoping mechanism.
  - Examples include occupant load calculation and incidental uses.
- “Occupancy” describes the specific classification a “use” is assigned when applying the code to a space, room or building.
  - Almost all code provisions with application to a limited number of situations are regulated by “Occupancy”.
  - Primary examples include allowable height and area, fire protection features and means of egress requirements.



2021 IBC Occupancy Classification 11

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### Use vs. Occupancy

- Multiple uses do not necessarily create multiple occupancies.
- General occupancy classification is intended to include related support areas such as corridors, stairways, restrooms, mechanical equipment rooms, small storage areas, etc.
- Support areas of higher hazard are often regulated as incidental uses.



2021 IBC Occupancy Classification 12

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### Occupancy Classification— General Requirements Section 302.1

- When in doubt, it is important that an occupancy classification be assigned that most nearly resembles those occupancies with similar fire safety and life safety risks.



2021 IBC Occupancy Classification 13

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### Classification of Occupancies Section 302

- Chapter 3 provides an extensive listing of various uses and their corresponding occupancy classifications.
- There are many special cases and exceptions.
- Unsure of classification? Ask for more information.
- If two or more distinct occupancy groups are present, the provisions of Section 508 will apply.



2021 IBC Occupancy Classification 14

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### Occupancy Classification

- Occupant-related Hazards
  - Number of occupants.
  - Density of the occupants.
  - Age of the occupants.
  - Mobility of the occupants.
  - Awareness of the occupants.



2021 IBC Occupancy Classification 15

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### Occupancy Classification

- Content-related Hazards
  - Density of contents.
  - Quantity of contents.
  - Type of contents.
  - Environment of contents.
  - Flammability of contents.



2021 IBC Occupancy Classification 16

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### Incidental Uses



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### Incidental Uses Section 509.2

- Prior to the discussion on the proper classification of buildings by occupancy, it is important to clarify the scope of Section 509 addressing incidental uses.
- Incidental uses have no relationship to:
  - Occupancy classification
  - Mixed occupancies
- Incidental uses shall not be individually classified in accordance with Section 302.1.
- Incidental uses shall be included in the building occupancies within which they are located.



2021 IBC Occupancy Classification 18

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### Incidental Uses

#### Section 509

- Rooms or spaces that pose risks which aren't addressed by the provisions specific to a general occupancy group:
  - Presence of combustible or hazardous material.
  - Presence of a hazardous activity or equipment.
- Limited to those found in Table 509.1.
- Regulated according to their hazard level.
- Regulated as part of primary occupancy.
- Not regulated as accessory occupancy.
- Not regulated under mixed occupancy provisions.
- Limited to 10% of area of story in which located.



2021 IBC Occupancy Classification

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### Incidental Uses

#### Identification

Uses are those listed in Table 509.1, including:

- Furnace rooms where any piece of equipment exceeds a 400,000-Btu per hour input rating.
- Paint shops (where located in other than a Group F occupancy, and not when Group H occupancy).
- Laboratories in Group E occupancies.
- Vocational shops located in Group E occupancies.
- Laundry rooms over 100 square feet.
- Physical plant maintenance shops in Group I-2 occupancies.



2021 IBC Occupancy Classification

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### Incidental Uses Classification

- Occupancy classification is consistent with the general classification of the area of the building in which the incidental use is located.
  - A refrigerant machinery room in a manufacturing building. Classified as Group E occupancy.
  - A physical plant maintenance shop in a hospital. Classified as Group I-2 occupancy.



2021 IBC Occupancy Classification

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### Incidental Uses Classification

Separated or Protected Per Table 509.1



Group E Chemistry Classroom

Group E High School

Separated or Protected Per Table 509.1

220 square feet Group R-1 Laundry Room

Group R-1 Hotel



2021 IBC Occupancy Classification22

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### Incidental Uses Separation and Protection

- Intent is to isolate incidental use hazard from remainder of building, typically through use of:
  - Fire-resistance-rated separation; or
  - Smoke-resistant separation plus sprinkler system.
- Under certain conditions, sprinkler option cannot be substituted for fire-resistance-rated separation.
- Both fire-resistance-rated separation and automatic sprinkler system protection are mandated in limited cases.



2021 IBC Occupancy Classification23

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### Incidental Uses: Separation and Protection

Incinerator Room

Protected by automatic sprinkler system



Minimum 2-hour fire barrier

Group F-1 Factory

Physical Plant Maintenance Shop

Minimum 1-hour fire barrier

Group I-2 Nursing Home



2021 IBC Occupancy Classification24

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REFER TO



2021 IBC  
Table 509.1  
Page 5-14

## Incidental Uses Table 509.1

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour or provide automatic sprinkler system
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or provide automatic sprinkler system
Refrigerant machinery room	1 hour or provide automatic sprinkler system
Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, L and R occupancies
Incinerator rooms	2 hours and provide automatic sprinkler system
Paint shops, not classified as Group H, located in occupancies other than Group H	2 hours, or 1 hour and provide automatic sprinkler system
In Group I occupancies, laboratories and vocational shops not classified as Group H	1 hour or provide automatic sprinkler system
In Group I-2 occupancies, laboratories not classified as Group H	1 hour or provide automatic sprinkler system
In ambulatory care facilities, laboratories not classified as Group H	1 hour or provide automatic sprinkler system
Laboratory rooms over 100 square feet	1 hour or provide automatic sprinkler system
In Group I-2, laundry rooms over 100 square feet	1 hour
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops	1 hour
In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater	1 hour
In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet	1 hour or provide automatic sprinkler system
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet	1 hour
Electrical installations and transformers	See Sections 110.26 through 110.34 and Sections 450.8 through 450.48 of NFPA 70 for protection and separation requirements.

For H: 1 square foot = 0.0929 m<sup>2</sup>; 1 pound per square inch (psi) = 6.9 kPa; 1 British thermal unit (Btu) per hour = 0.293 watts; 1 horsepower = 746 watts; 1 gallon = 3.785 L; 1 cubic foot = 0.0283 m<sup>3</sup>.

2021 IBC Occupancy Classification

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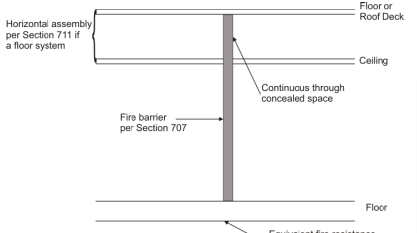
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## Separation Section 509.4.1



\*Not required for 1-hour fire barriers in Type IIB, IIB or VB construction

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2021 IBC Occupancy Classification

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## Protection Section 509.4.2

- Table 509.1 allows for the installation of an automatic sprinkler system provided the incidental use:
  - Is separated by construction capable of resisting passage of smoke.
  - Has doors that are automatic or self closing (no openings).
  - Has smoke dampers on air transfer openings in walls.
- Other:
  - Need not be fire-resistance rated.
  - Not required to be built as smoke partition (Section 710).

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2021 IBC Occupancy Classification

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LEARNING center

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### Protection

### Section 509.4.2

Diagram illustrating fire protection assembly details for Section 509.4.2. The assembly includes a floor or roof deck, fire-resistance-rated floor/ceiling or roof/ceiling assembly, walls extending tight to the deck or rated assembly, and walls constructed to resist smoke passage. A note specifies door requirements: self-closing, no air transfer openings, and no excessive undercuts.

2021 IBC Occupancy Classification

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### Occupancy Classification

2021 IBC Occupancy Classification

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### Occupancy Classification —

### General Requirements

### Section 302.1

Types of Use	General Occupancy Group	Occupancy Sub-Groups
Assembly	Group A	A-1, A-2, A-3, A-4, A-5
Business	Group B	None
Educational	Group E	None
Factory / Industrial	Group F	F-1, F-2
High Hazard	Group H	H-1, H-2, H-3, H-4, H-5
Institutional	Group I	I-1, I-2, I-3, I-4
Mercantile	Group M	None
Residential	Group R	R-1, R-2, R-3, R-4
Storage	Group S	S-1, S-2
Utility	Group U	None

2021 IBC Occupancy Classification

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### Occupancy Classification— Assembly Group A Section 303.1

Assembly Group A occupancies include buildings or portions of buildings where persons (usually 50 or more) gather for:

- Civic, social or religious functions.
- Recreation.
- Food and/or drink consumption.
- Awaiting transportation.
- Similar activities.



2021 IBC Occupancy Classification 31

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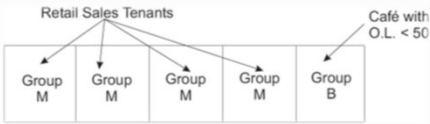
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### Occupancy Classification—Assembly Section 303.1.1

**Small buildings and tenant spaces:** Buildings or tenant spaces with an occupant load of 49 or less. The building or space is a stand-alone use and is not accessory to any other occupancy. The classification of Group B is appropriate.



Retail Center with Individual Tenants



2021 IBC Occupancy Classification 32

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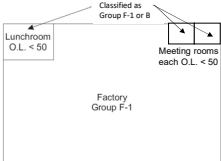
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### Occupancy Classification—Assembly Section 303.1.2, #1

**Small assembly spaces:** A room with an occupant load less than 50 and accessory to another occupancy is to be classified either as a part of that occupancy or as Group B.



Example of small lunchrooms and meeting rooms in a manufacturing facility



2021 IBC Occupancy Classification 33

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### Occupancy Classification—Assembly Section 303.1.2, #2

**Small assembly spaces:** Similar to Item #1, a room or space with a floor area of less than 750 square feet and accessory to another occupancy is to be classified as a part of that occupancy or as Group B.

Casino Gaming < 750 sf

Classified as Group B-1 or B

Hotel Group B-1

Casino Gaming Area Associated with a Hotel

IBC 2021

2021 IBC Occupancy Classification

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### Occupancy Classification—Assembly Section 303.1.3

**Associated with Group E:** In a Group E educational occupancy, assembly areas that are accessory to the educational portions of the building may be classified as portions of the Group E.

Gymnasium

Library

Commons

Classrooms Group E

Auditorium

Accessory assembly rooms (or) associated assembly rooms classified as Group E

Group E Assembly Uses

IBC 2021

2021 IBC Occupancy Classification

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### Occupancy Classification—Assembly Section 303.1.4

**Accessory to places of religious worship:** In places of religious worship, accessory religious educational rooms and religious auditoriums with occupant loads of less than 100 need not be considered as separate occupancies.

Gymnasium

Library

Commons

Classrooms Group E

Auditorium

Accessory assembly rooms (or) associated assembly rooms classified as Group E

Group E Assembly Uses

IBC 2021

2021 IBC Occupancy Classification

center

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### Occupancy Classification—Assembly

Spaces in Group A fall into two basic groups:

- Those assembly uses that occur within a building (Groups A-1, A-2, A-3 and A-4).
- Those assembly uses that occur in structures primarily open to the exterior (Group A-5).



2021 IBC Occupancy Classification 37

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### Occupancy Classification—Assembly Section 303.2

**Group A-1**

Characteristics	Examples
<ul style="list-style-type: none"><li>▪ High occupant density</li><li>▪ Usually fixed seating</li></ul>	<ul style="list-style-type: none"><li>▪ Motion picture theaters</li><li>▪ Symphony/concert halls</li></ul>
<ul style="list-style-type: none"><li>▪ Foyers/lobbies</li><li>▪ Stages, platforms or projection screen</li><li>▪ Low-light conditions</li><li>▪ Sizable occupant loads</li></ul>	<ul style="list-style-type: none"><li>▪ Television/radio studios</li><li>▪ Performance theaters</li></ul>



2021 IBC Occupancy Classification 38

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### Occupancy Classification—Assembly Section 303.3

**Group A-2**

Characteristics	Examples
<ul style="list-style-type: none"><li>▪ Consumption of food and/or drink (primary characteristic)</li><li>▪ Moderate occupant density</li><li>▪ Variable lighting levels</li><li>▪ Aisles not clearly defined</li><li>▪ Movable furnishings</li></ul>	<ul style="list-style-type: none"><li>▪ Banquet halls</li><li>▪ Casino gaming areas</li><li>▪ Nightclubs</li><li>▪ Taverns and bars</li><li>▪ Restaurants (including related kitchen)</li></ul>



2021 IBC Occupancy Classification 39

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### Occupancy Classification—Assembly Section 303.5

**Group A-4**

Characteristics	Examples
<ul style="list-style-type: none"><li>▪ Lighting levels can fluctuate</li><li>▪ Some food or drink consumption</li><li>▪ Spectator seating typically fixed</li><li>▪ Medium to high density</li></ul>	<ul style="list-style-type: none"><li>▪ Arenas</li><li>▪ Skating rinks</li><li>▪ Gymnasiums</li></ul>



2021 IBC Occupancy Classification 40

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### Occupancy Classification—Assembly Section 303.4

**Group A-3**

Characteristics	Examples
<ul style="list-style-type: none"><li>▪ Moderate occupant density</li><li>▪ Adequate lighting levels</li><li>▪ Moderate fire loading</li></ul>	<ul style="list-style-type: none"><li>▪ Art galleries</li><li>▪ Exhibition halls</li><li>▪ Libraries</li><li>▪ Museums</li><li>▪ Places of religious worship</li></ul>



2021 IBC Occupancy Classification 41

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### Occupancy Classification— Assembly

- Group A-3 is the default classification for assembly occupancies.
- If an assembly use cannot obviously be classified as one of the four other indoor Group A classifications, then it should be considered as a Group A-3 occupancy.



2021 IBC Occupancy Classification 42

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### Occupancy Classification—Assembly Section 303.6

**Group A-5**

Characteristics	Examples
<ul style="list-style-type: none"><li>No enclosure to contain smoke, although spectator might be protected from rain and sun</li><li>Limited or no conditioned air</li><li>Most seating is fixed</li></ul>	<ul style="list-style-type: none"><li>Amusement park structures</li><li>Bleachers and reviewing stands</li><li>Grandstands</li><li>Stadiums</li></ul>



2021 IBC Occupancy Classification 43

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### Occupancy Classification—Business Section 304.1

**Group B**

Characteristics	Examples
<ul style="list-style-type: none"><li>Many occupants are familiar with the premises</li><li>Most occupants are adults capable of recognizing and effectively responding to “emergency situations”</li><li>Moderate fire load</li></ul>	<ul style="list-style-type: none"><li>Ambulatory care facilities</li><li>Banks</li><li>Barber/beauty shops</li><li>Office areas</li><li>Outpatient clinics</li><li>Post offices</li><li>Training and skill development</li></ul>



2021 IBC Occupancy Classification 44

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### Occupancy Classification—Q&A

- Is there an occupant load or floor area limit for “educational occupancies for students above the 12<sup>th</sup> grade” to be considered as Group B occupancies?
- Under what conditions would “training and skill development” be classified as a Group A?



2021 IBC Occupancy Classification 45

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### Occupancy Classification—Educational Sections 305.1, 305.2

**Group E**

Characteristics	Examples
<ul style="list-style-type: none"><li>Six or more occupants at a time</li><li>Students younger than college age</li><li>2½ years to the 12<sup>th</sup> grade is the general default age for this classification</li></ul>	<ul style="list-style-type: none"><li>High schools (through 12<sup>th</sup> grade)</li><li>Middle schools</li><li>Elementary schools</li><li>Preschools</li><li>Day care facilities (more than 5 children, older than 2½ years)</li></ul>



2021 IBC Occupancy Classification 46

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### Occupancy Classification—Educational Section 308.5.1

**• Infant/Toddler Care Classification as Group E:**  
A child care facility housing infants and toddlers is classified as Group E, rather than Group I-4, where:

- More than 5, but no more than 100, children are 2½ years of age or less.
- Rooms where such infants/toddlers are cared for are located on level of exit discharge.
- Each of these infant/toddler care rooms has an exit door directly to the outside.



2021 IBC Occupancy Classification 47

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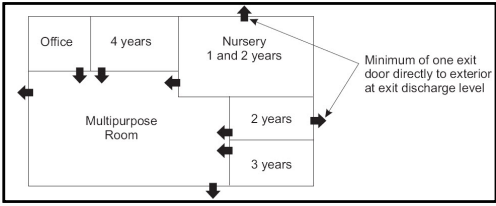
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### Occupancy Classification—Educational



**Group E—Day Care Facility**



2021 IBC Occupancy Classification 48

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### Occupancy Q&A

- If there is a total of five or fewer children in an educational setting within a dwelling unit, what is the proper classification?
  - The condition is not much different from that of a large family. Therefore, such small educational facilities are to be classified as Group R-3 or may be designed and constructed under the provisions of the *International Residential Code*.
- What if the day care use is located in a building with another occupancy? What if it is located in a stand-alone condition with no other occupancy?



2021 IBC Occupancy Classification 49

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### Occupancy Classification— Factory/Industrial Section 306.1

Group F occupancies are facilities where manufacturing operations and similar industrial activities occur, other than those classified as Group H. Operations may include assembling, fabricating, finishing, manufacturing, packaging, repair or processing work.

- F-1: where combustible materials are used in the operations.
- F-2: where all of the materials are noncombustible.



2021 IBC Occupancy Classification 50

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### Occupancy Classification— Factory/Industrial Section 306.2

#### Group F-1 Moderate-Hazard Factory

Characteristics	Examples
<ul style="list-style-type: none"><li>▪ All Group F operations that are not considered Group F-2</li><li>▪ Production, assembling, finishing, packaging or repair of combustible products</li></ul>	<ul style="list-style-type: none"><li>▪ Aircraft, automobile, appliance and machine manufacturers</li><li>▪ Water/sewer treatment</li><li>▪ Clothing manufacturers</li><li>▪ Furniture makers</li><li>▪ Woodworking shops</li><li>▪ Energy storage systems in dedicated use buildings</li></ul>



2021 IBC Occupancy Classification 51

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### Occupancy Classification— Factory/Industrial Section 306.3

**Group F-2 Low-Hazard Factory**

Characteristics	Examples
<ul style="list-style-type: none"><li>Similar to Group F-1, but no combustibles other than limited amounts in finishing, packing or processing operations</li></ul>	<ul style="list-style-type: none"><li>Ceramic products</li><li>Glass products</li><li>Masonry manufacturing</li><li>Metal fabrication plant</li></ul>



2021 IBC Occupancy Classification

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### Occupancy Q&A

- What is the classification of a energy storage system (ESS) area in a mixed-use building?
  - The ESS area would be regulated as the same occupancy as the major occupancy served by the ESS.



2021 IBC Occupancy Classification

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### Occupancy Classification—High Hazard Section 307.1

**Group H occupancies:**

- Involve the manufacturing, processing, generation or storage of materials that constitute a physical and/or health hazard.
- Quantities of such hazardous materials exceed those permitted within control areas as regulated by Section 414.2, based on Tables 307.1(1) and/or 307.1(2).



2021 IBC Occupancy Classification

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### Occupancy Classification—High Hazard Section 307.1.1

**Conditions not considered as Group H:** There are 19 conditions where a classification of Group H is not to be assigned.

Even if the structure meets one of these conditions, the applicable provisions of Section 414 and the *International Fire Code*® (IFC®) for such materials must be met.



2021 IBC Occupancy Classification 55

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### Occupancy Classification—High Hazard Section 307.1.1

**Conditions not considered as Group H**

- Application of flammable finishes in conformance with Section 416 of the IFC and the IBC.
- Sales and storage of flammable and combustible liquids in Group M occupancies if compliant with the IFC.
- Aerosol storage in conformance with the IFC.



2021 IBC Occupancy Classification 56

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### Occupancy Classification—High Hazard Section 307.1.1

**Conditions not considered as Group H (cont.)**

- Closed piping systems containing flammable or combustible liquids or gases utilized for operation of machinery or equipment.
- Dry cleaning establishments with specified safeguards.
- Liquor stores and distributors without bulk storage.
- Corrosive personal or household products in original packaging used in retail display.



2021 IBC Occupancy Classification 57

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### Occupancy Classification—High Hazard Section 307.1.1

**Conditions not considered as Group H (cont.)**

- Commonly used corrosive building materials.
- Refrigeration systems.
- Agricultural materials only stored or utilized on the premises.
- Stationary battery systems for facility emergency power.
- Personal and household products in retail display (not considered corrosives).



2021 IBC Occupancy Classification 58

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### Occupancy Classification—High Hazard Section 307.1.1

**Conditions not considered as Group H**

- Display and storage of nonflammable and noncombustible liquids in Group M or S occupancies where in compliance with Section 414.2.5.
- Black powder, smokeless propellant and small arms primers stored in Groups M and R-3, in accordance with the IFC.
- Storage of special industrial explosive devices in Groups B, F, M and S, in accordance with the IFC.



2021 IBC Occupancy Classification 59

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### Occupancy Classification—High Hazard Section 307.1.1

**Conditions not considered as Group H**

- Stationary fuel cell power systems in compliance with the IFC.
- Capacitor energy storage systems conforming with the IFC.
- Group B higher education laboratory suites that comply with IBC Section 428 as well as Chapter 38 of the IFC.



2021 IBC Occupancy Classification 60

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### Occupancy Classification—High Hazard Section 307.1.1

**Conditions not considered as Group H**

- Distilling or brewing of beverages conforming to requirements of the IFC.
- Storage of beer, distilled spirits and wines in barrels and casks conforming to the requirements of the IFC.



2021 IBC Occupancy Classification 61

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### Occupancy Classification

- Where compliance with Section 307.1 is not met, Tables 307.1(1) and 307.1(2) can be applied to determine if buildings, structures or materials are exempt from the Group H classification.
- In accordance with Section 307.2, the design of high-hazard buildings must conform to additional requirements in the IFC and Section 414 of the IBC.



2021 IBC Occupancy Classification 62

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### Occupancy Classification—High Hazard Tables 307.1(1), 307.1(2)

- Use Table 307.1(1) for the maximum allowable quantities of materials posing a physical hazard.
- Use Table 307.1(2) for materials posing a health hazard.

If the quantity of hazardous materials does not exceed the total amount permitted, then the use is not considered a Group H occupancy.



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MATERIAL	CLASS	GROUP WHEN ALLOWABLE QUANTITY IS EXCEEDED	STORAGE <sup>5</sup>			USE-CLOSED SYSTEM <sup>6</sup>			USE-OPEN SYSTEM <sup>7</sup>		
			Solid pounds (cubic feet)	Liquid gallons (cubic feet)	Gas cubic feet at NTP	Solid pounds (cubic feet)	Liquid gallons (cubic feet)	Gas cubic feet at NTP	Solid pounds (cubic feet)	Liquid gallons (cubic feet)	Gas cubic feet at NTP
Combustible dust	NA	H-2	See Note q	NA	NA	See Note q	NA	NA	See Note q	NA	NA
Combustible fiber <sup>8</sup>	Loose Bulk <sup>9</sup>	H-3	(100) (1,000)	NA	NA	(100) (1,000)	NA	NA	(20) (200)	NA	NA
Combustible liquid <sup>10</sup>	II IIA IIB	H-2 or H-3 H-2 or H-3 NA	NA	120 <sup>11</sup> 320 <sup>12</sup> 13,200 <sup>13</sup>	NA	NA	120 <sup>11</sup> 320 <sup>12</sup> 13,200 <sup>13</sup>	NA	NA	30 <sup>14</sup> 80 <sup>15</sup> 3,300 <sup>16</sup>	NA
Cryogenic flammable	NA	H-2	NA	45 <sup>17</sup>	NA	NA	45 <sup>17</sup>	NA	NA	10 <sup>18</sup>	NA
Cryogenic inert	NA	NA	NA	NA	NL	NA	NA	NL	NA	NA	NA
Cryogenic oxidizing	NA	H-3	NA	45 <sup>17</sup>	NA	NA	45 <sup>17</sup>	NA	NA	10 <sup>18</sup>	NA
Explosives	Division 1.1 Division 1.2 Division 1.3 Division 1.4 Division 1.4C Division 1.5 Division 1.6	H-1 H-1 H-1 or H-2 H-3 H-3 H-1 H-1	1 <sup>19</sup> 1 <sup>19</sup> 5 <sup>19</sup> 50 <sup>19</sup> 125 <sup>19</sup> 1 <sup>19</sup> 1 <sup>19</sup>	(1) <sup>19</sup> (1) <sup>19</sup> (5) <sup>19</sup> (50) <sup>19</sup> (125) <sup>19</sup> (1) <sup>19</sup> (1) <sup>19</sup>	NA	NA	0.25 <sup>20</sup> (0.25) <sup>20</sup> 1 <sup>21</sup> (1) <sup>21</sup> 50 <sup>22</sup> NA 0.25 <sup>23</sup> NA	0.25 <sup>20</sup> (0.25) <sup>20</sup> 1 <sup>21</sup> (1) <sup>21</sup> 50 <sup>22</sup> NA 0.25 <sup>23</sup> NA	0.25 <sup>20</sup> (0.25) <sup>20</sup> 1 <sup>21</sup> (1) <sup>21</sup> 50 <sup>22</sup> NA 0.25 <sup>23</sup> NA	0.25 <sup>20</sup> (0.25) <sup>20</sup> 1 <sup>21</sup> (1) <sup>21</sup> 50 <sup>22</sup> NA 0.25 <sup>23</sup> NA	NA
Flammable gas	Gaseous Liquefied	H-2	NA	NA (150) <sup>24</sup>	1,000 <sup>25</sup> NA	NA	NA (150) <sup>24</sup>	1,000 <sup>25</sup> NA	NA	NA	NA
Flammable liquid <sup>26</sup>	IA IB and IC	H-2 or H-3	NA	30 <sup>27</sup> 120 <sup>28</sup>	NA	NA	30 <sup>27</sup> 120 <sup>28</sup>	NA	NA	10 <sup>29</sup> 30 <sup>30</sup>	NA
Flammable liquid, combination (IA, IB, IC)	NA	H-2 or H-3	NA	120 <sup>28</sup>	NA	NA	120 <sup>28</sup>	NA	NA	30 <sup>30</sup>	NA

(continued)



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NL = Not Limited; NA = Not Applicable; UD = Unclassified Detonable.

a. For use of control areas, see Section 414.2.

b. The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

c. The quantities of alcoholic beverages in retail and wholesale sales occupancies shall not be limited provided the liquids are packaged in individual containers not exceeding 1.5 gallons. In retail and wholesale sales occupancies, the quantities of medicines, foodstuffs or consumer products, and cosmetics containing not more than 50 percent by volume of water-miscible liquids with the remainder of the solutions not being flammable, shall not be limited, provided that such materials are packaged in individual containers not exceeding 1.5 gallons.

d. Maximum allowable quantities shall be increased 100 percent in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. Where Note e also applies, the increase for both notes shall be applied accumulatively.

e. Maximum allowable quantities shall be increased 100 percent when stored in approved storage cabinets, day boxes, gas cabinets, gas rooms or exhausted enclosures or in listed safety cans in accordance with Section 503.9.10 of the *International Fire Code*. Where Note d also applies, the increase for both notes shall be applied accumulatively.

f. Quantities shall not be limited in a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

g. Allowed only in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

h. Containing not more than the maximum allowable quantity per control area of Class IA, IB or IC flammable liquids.

i. The maximum allowable quantity shall not apply to fuel oil storage complying with Section 603.3.2 of the *International Fire Code*.

j. Quantities in parentheses indicate quantity units in parentheses at the head of each column.

k. A maximum quantity of 220 pounds of solid or 25 gallons of liquid Class 1 oxidizers is allowed when such materials are necessary for maintenance purposes, operation or sanitation of equipment when the storage containers and the manner of storage are approved.

l. Net weight of the pyrotechnic composition of the fireworks is not known, 25 percent of the gross weight of the fireworks, including packaging, shall be used.

m. For gallons of liquids, divide the amount in pounds by 10 in accordance with Section 503.1.2 of the *International Fire Code*.


n. For storage and display quantities in Group M and storage quantities in Group S occupancies complying with Section 414.2.5, see Tables 414.2.5(1) and 414.2.5(2).

o. Densely packed hand cutton that complies with the packing requirements of ISO 8115 shall not be included in this material class.


p. The following shall not be included in determining the maximum allowable quantities:

1. Liquid or gaseous fuel in fuel tanks on vehicles.
2. Liquid or gaseous fuel in fuel tanks on nonrated equipment operated in accordance with the *International Fire Code*.
3. Gaseous fuels in piping systems and fixed appliances regulated by the *International Fuel Gas Code*.
4. Liquid fuels in piping systems and fixed appliances regulated by the *International Mechanical Code*.
5. Alcohol-based hand rubs classified as Class I or II liquids in dispensers that are installed in accordance with Sections 5705.5 and 5705.5.1 of the *International Fire Code*. The location of the alcohol-based hand rub (ABHR) dispensers shall be provided in the construction documents.

q. Where manufactured, generated or used in such a manner that the concentration and conditions create a fire or explosion hazard based on information prepared in accordance with Section 414.1.3.



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Occupancy Classification—  
Example

**GIVEN:** A fully sprinklered Group F-1 industrial building housing Class II combustible liquids. The Class II liquids are all stored in approved safety cans. The entire building is to be considered as a single control area.

**DETERMINE:** The maximum allowable quantity of the Class II liquids in storage in order to maintain the Group F-1 classification.



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### Occupancy Classification— Example

**SOLUTION:**

Basic MAQs in accordance with Table 307.1(1)	120 gallons
Sprinkler increase in accordance with Note d (100%)	120 gallons
	240 gallons
Safety can increase in accordance with Note e (100%)	240 gallons
<b>Total of maximum quantity permitted for Group F-1 classification (storage only, no materials in use)</b>	<b>480 gallons</b>



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### Occupancy Classification— Example

**Assuming there will be some materials in use:**

Basic MAQs in accordance with Table 307.1(1)	30 gallons
Sprinkler increase in accordance with Note d (100%)	30 gallons
Maximum amount permitted in use	60 gallons
<b>Total of 480 gallons permitted with no more than 60 gallons in use (Note b) for classification as Group F-1.</b>	



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(F) TABLE 307.1(2)  
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIAL POSING A HEALTH HAZARD<sup>a, b, c, d, e, f, g, h, i</sup>

MATERIAL	STORAGE <sup>a</sup>			USE-CLOSED SYSTEMS <sup>b</sup>			USE-OPEN SYSTEMS <sup>c</sup>		
	Solid pounds <sup>d, e</sup>	Liquid gallons (pounds) <sup>d, e</sup>	Gas cubic feet at NTP (pounds) <sup>d</sup>	Solid pounds <sup>d</sup>	Liquid gallons (pounds) <sup>d</sup>	Gas cubic feet at NTP (pounds) <sup>d</sup>	Solid pounds <sup>d</sup>	Liquid gallons (pounds) <sup>d</sup>	
Corrosives	5,000	500	Gaseous 810 <sup>f</sup> Liquefied (150)	5,000	500	Gaseous 810 <sup>f</sup> Liquefied (150)	1,000	100	
Highly Toxic	10	(10)	Gaseous 20 <sup>f</sup> Liquefied (4) <sup>f</sup>	10	(10)	Gaseous 20 <sup>f</sup> Liquefied (4) <sup>f</sup>	3	(3)	
Toxic	500	(500)	Gaseous 810 <sup>f</sup> Liquefied (150) <sup>f</sup>	500	(500)	Gaseous 810 <sup>f</sup> Liquefied (150) <sup>f</sup>	125	(125)	

<sup>f</sup> For M: 1 cubic foot = 0.028 m<sup>3</sup>; 1 pound = 0.454 kg; 1 gallon = 3.785 L.

<sup>a</sup> For use of control areas, see Section 414.2.

<sup>b</sup> The aggregate quantity in use and storage shall not exceed the quantity listed for storage.

<sup>c</sup> In retail and wholesale sales occupancies, the quantity of medicines, foodstuffs or consumer products, and cosmetics containing not more than 50 percent by volume of water-miscible liquids and with the remainder of the solutions not being flammable, shall not be limited, provided that such materials are packaged in individual containers not exceeding 1.5 gallons.

<sup>d</sup> Maximum allowable quantities shall be increased 100 percent in buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1. Where Note e also applies, the increase for both notes shall be applied accumulatively.



<sup>e</sup> Maximum allowable quantities shall be increased 100 percent where stored in approved storage cabinets, gas cabinets or exhausted enclosures as specified in the *International Fire Code*. Where Note d also applies, the increase for both notes shall be applied accumulatively.

<sup>f</sup> For storage and display quantities in Group M and storage quantities in Group S occupancies complying with Section 414.2.5, see Tables 414.2.5(1) and 414.2.5(2).

<sup>g</sup> Allowed only where stored in approved exhausted gas cabinets or exhausted enclosures as specified in the *International Fire Code*.

<sup>h</sup> Quantities in parenthesis indicate quantity units in parenthesis at the head of each column.

<sup>i</sup> For gallons of liquids, divide the amount in pounds by 10 in accordance with Section 5003.1.2 of the *International Fire Code*.



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### Occupancy Classification—High Hazard Section 414.2

**Control Areas**

If the amount of hazardous materials exceeds that provided by Table 307.1(1) or 307.1(2), it is still possible that a Group H occupancy does not exist.

Additional quantities are permitted in non-Group H buildings if they are properly distributed in control areas complying with Section 414.2.



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### Occupancy Classification—High Hazard Section 202

**Control Areas**

- *Spaces within a building where quantities of hazardous materials not exceeding the maximum allowable quantities per control area are stored, dispensed, used or handled.*
- A similar approach is provided in Section 428 for addressing laboratory suites in college and university settings.



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### Occupancy Classification—High Hazard Section 414.2.1, 414.2.2

**Control areas**

- Must be separated from each other by fire barriers and/or horizontal assemblies.
- Are limited to a specified percentage of maximum allowable quantities based on the floor level under consideration (see Table 414.2.2).



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Occupancy Classification—High Hazard  
Section 414.2.3

Control areas

- Are limited to a maximum number per story as established by Table 414.2.2.
- Shall be separated with the minimum degree of fire resistance as established in Table 414.2.2 and Section 414.2.4.



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(F) TABLE 414.2.2  
DESIGN AND NUMBER OF CONTROL AREAS

STORY	PERCENTAGE OF THE MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA <sup>a</sup>	NUMBER OF CONTROL AREAS PER STORY	FIRE-RESISTANCE RATING FOR FIRE BARRIERS IN HOURS <sup>b</sup>
Above grade plane	Higher than 9	1	2
	7-9	2	2
	6	2	2
	5	2	2
	4	2	2
	3	2	1
	2	3	1
Below grade plane	1	4	1
	75	3	1
	50	2	1
Lower than 2	Not Allowed	Not Allowed	Not Allowed

a. Percentages shall be of the maximum allowable quantity per control area shown in Tables 307.1(1) and 307.1(2), with all increases allowed in the notes to those tables.  
b. Separation shall include fire barriers and horizontal assemblies as necessary to provide separation from other portions of the building.



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Occupancy Classification—  
Laboratory Suites  
Section 428

A similar approach to the regulation of hazardous materials is established in Section 428 regarding laboratory suites.

TABLE 428.3  
DESIGN AND NUMBER OF LABORATORY SUITES PER FLOOR

FLOOR LEVEL	PERCENTAGE OF THE MAXIMUM ALLOWABLE QUANTITY PER LAB SUITE <sup>a</sup>	NUMBER OF LAB SUITES PER FLOOR	FIRE-RESISTANCE RATING FOR FIRE BARRIERS IN HOURS <sup>b</sup>
Above Grade Plane	21+	Not Permitted	Not Permitted
	16-20	1	2 <sup>c</sup>
	11-15	1	2 <sup>c</sup>
	7-10	2	2 <sup>c</sup>
	4-6	4	1
	3	4	1
	1-2	6	1
Below Grade Plane	1	4	1
	75	2	1
	50	2	1
Lower than 2	Not Allowed	Not Allowed	Not Allowed

a. Percentages shall be of the maximum allowable quantity per control area shown in Tables 307.1(1) and 307.1(2), with all increases allowed in the footnotes to those tables.  
b. Fire barriers shall include walls, floors and ceilings necessary to provide separation from other portions of the building.  
c. Vertical fire barriers separating laboratory suites from other spaces on the same floor shall be permitted to be 1-hour fire resistance rated.



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### Occupancy Classification—High Hazard

Where the amount of hazardous materials exceeds those permitted in complying control areas or laboratory suites, and is such that none of the conditions set forth in Section 307.1.1 are applicable, then the use is to be classified as a Group H occupancy.

There are 5 categories of Group H to address the hazards more directly.



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### Occupancy Classification—High Hazard

Types of Materials by Group  
**Group H-1 (Section 307.3)**

- Explosives
- Detonable pyrophoric materials
- Organic peroxides, unclassified detonable
- Oxidizers, Class 4
- Unstable (reactive) materials, Class 3 detonable and Class 4



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### Occupancy Classification—High Hazard

Types of Materials by Group  
**Group H-2 (Section 307.4)**

- Combustible dust
- Flammable and combustible liquids (Class I, II and IIIA) in open systems
- Cryogenic fluids, flammable
- Organic peroxides, Class I
- Flammable gases
- Oxidizers, Class 3, in open systems
- Pyrophoric materials, nondetonable
- Unstable (reactive) materials, Class 3, nondetonable
- Water-reactive materials, Class 3



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### Occupancy Classification—High Hazard

Types of Materials by Group

**Group H-3 (Section 307.5)**

- Combustible fibers
- Flammable and combustible liquids (Class I, II and IIIA) in closed systems
- Flammable solids
- Organic peroxides, Classes II and III
- Oxidizers, Class 2
- Oxidizers, Class 3, in closed systems
- Oxidizing gases
- Unstable (reactive) materials, Class 2
- Water-reactive materials, Class 2
- Cryogenic fluids, oxidizing
- Consumer fireworks, 1.4G (Class C, Common)



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### Occupancy Classification—High Hazard

Types of Materials by Group

<p><b>Group H-4 (Section 307.6)</b></p> <ul style="list-style-type: none"><li>▪ Corrosives</li><li>▪ Toxic materials</li><li>▪ Highly toxic materials</li></ul>	<p><b>Group H-5 (Section 307.7)</b></p> <ul style="list-style-type: none"><li>▪ Semiconductor fabrication facilities and comparable research and development areas</li></ul>
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### Occupancy Classification—Required Information

- Section 414.3 references the need for submittal to the building official:
  - A report and opinion prepared by a qualified person or firm, identifying the maximum expected quantities of hazardous material based on the material classification categories established in Tables 307.1(1) and 307.1(2).
    - Report to include methods of protection from hazards, including use of control areas, fire protections systems and Group H occupancies.
    - Expert opinion to be utilized to assist building official in addressing hazards, recommending safeguards and assigning proper occupancy classification.



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### Occupancy Classification— Institutional

- Group I—Characteristics
  - People are cared for or live in a supervised environment.
  - People with physical limitations because of health or age are harbored for medical treatment or other care/treatment.
  - People who are detained for penal or correctional purposes or in which the liberty of the occupants is restricted.



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### Occupancy Classification— Institutional

**Group I-1 (Section 308.2)**

Characteristics	Examples
<ul style="list-style-type: none"><li>▪ More than 16 occupants (not including staff).</li><li>▪ Residents—require assistance with day-to-day living tasks.</li><li>▪ Housed on a 24-hour basis.</li><li>▪ Custodial care includes persons who evacuate at a slower rate.</li><li>▪ Residents may have mental and psychiatric complications.</li></ul>	<ul style="list-style-type: none"><li>▪ Group homes</li><li>▪ Rehabilitation facilities</li><li>▪ Halfway houses</li><li>▪ Assisted living facilities</li></ul>



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### Occupancy Classification— Institutional

**Group I-1 (Section 308.2)**

- Group I-1, Condition 1
  - All persons receiving custodial care are capable, without assistance, of responding to an emergency situation to complete building evacuation or relocation.
- Group I-1, Condition 2
  - Any persons receiving custodial care who require limited verbal or physical assistance while responding to an emergency situation to complete building evacuation or relocation.



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### Occupancy Classification - Q&A

- What is considered as requiring “limited verbal or physical assistance”?
  - Applies to persons who, because of age, physical limitations, cognitive limitations, treatment or chemical dependency, and may not independently recognize, respond or evacuate without limited verbal or physical assistance during an emergency situation.
    - Limited verbal assistance includes prompting, giving and repeating instructions.
    - Limited physical assistance includes assistance with transfers to walking aids or mobility devices and assistance with egress.



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### Occupancy Classification—Institutional

**Group I-2 (Section 308.3)**

Characteristics	Examples
<ul style="list-style-type: none"><li>▪ Used for medical care activities for six or more persons.</li><li>▪ Receive 24-hour care.</li><li>▪ May be semi-aware or semi-ambulatory, but not capable of self-preservation.</li></ul>	<ul style="list-style-type: none"><li>▪ Hospitals</li><li>▪ Detoxification facilities</li><li>▪ Nursing homes</li><li>▪ 24-hour infant/toddler care facilities (foster care facilities)</li></ul>



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### Occupancy Classification—Institutional

**Group I-2 (Section 308.3)**

- Group I-2, Condition 1
  - Nursing homes, foster care facilities and similar uses that provide nursing and medical care but do not provide emergency care, surgery and obstetrics.
- Group I-2, Condition 2
  - Hospitals and similar facilities that provide nursing and medical care, and could also provide emergency care, surgery and obstetrics.



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### Occupancy Classification - Q&A

- Are convalescent facilities considered as Group I-1 if the residents are incapable of self-preservation for some period of time?
- How are alcohol and drug centers to be classified if lockdown of the residents is possible?



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### Occupancy Classification—Institutional

**Group I-3 (Section 308.4)**

Characteristics	Examples
<ul style="list-style-type: none"><li>▪ More than 5 occupants (not including staff).</li><li>▪ Supervised.</li><li>▪ Physically restricted from evacuating the building.</li><li>▪ Further classified into 5 occupancy conditions based on capability of free movement within facility.</li></ul>	<ul style="list-style-type: none"><li>▪ Detention centers</li><li>▪ Jails</li><li>▪ Prerelease centers</li><li>▪ Prisons</li></ul>



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### Occupancy Classification—Q&A

- What is a facility classified that has 5 or fewer individuals restrained or secured, such as a drunk tank at a sports arena or a viewing room in a jewelry store?



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### Occupancy Classification— Institutional

**Group I-4 (Section 308.5)**

Characteristics	Examples
<ul style="list-style-type: none"><li>▪ More than 5 occupants.</li><li>▪ Any age.</li><li>▪ Receive custodial care for less than 24 hours a day.</li><li>▪ Occupants have ability to respond to emergency situations.</li><li>▪ May require limited verbal or physical assistance.</li></ul>	<ul style="list-style-type: none"><li>▪ Adult care facilities</li><li>▪ Child care facilities</li></ul>



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### Occupancy Classification— Institutional

**Group I-4 (Section 308.5.1)**

- **NOTE:** Child day care facilities are classified as Group E if all of the following apply:
  - More than 5 but not more than 100 children, **2½ years of age or less.**
  - Rooms where such children are located are on the level of exit discharge.
  - Each such room has an exit door directly to the outside.



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### Occupancy Classification— Mercantile

**Group M (Section 309.1)**

Characteristics	Examples
<ul style="list-style-type: none"><li>▪ Display, sell and stock merchandise.</li><li>▪ If merchandise is hazardous, see Table 414.2.5(1) for quantity limits.</li></ul>	<ul style="list-style-type: none"><li>▪ Retail stores</li><li>▪ Motor fuel-dispensing facilities</li></ul>



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### Occupancy Classification— Mercantile

- Motor vehicle service stations
  - Group M applies to buildings that provide fuel and/or retail facilities only, and not to areas having facilities for vehicle repair.
  - Structures with facilities for vehicle service and/or repair are to be classified as Group S-1 (Section 311.2).



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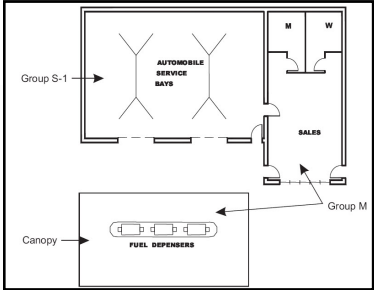
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### Occupancy Classification— Mercantile





Group S-1 → AUTOMOBILE SERVICE BAYS

Canopy → FUEL DISPENSERS → Group M

SALES

M W

Group M—Service Station with Group S-1 Repair Facility



2021 IBC Occupancy Classification 95

95

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### Occupancy Classification— Residential

- Residential occupancies fall into two categories:
  - Transient (Group R-1)
  - Nontransient (Group R-2)
  - Transient/Nontransient (Groups R-3 and R-4)

Transient—Occupancy of a dwelling unit or sleeping unit for not more than 30 days.

- In addition, residential occupancies are regulated as dwelling units and sleeping units



2021 IBC Occupancy Classification 96

96

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## Occupancy Classification—Residential



### Group R-1 (Section 310.2)

Characteristics

- Occupants are primarily transient.
- Includes sleeping units and/or dwelling units.

Examples

- Hotels
- Motels
- Boarding houses (transient)\*
- Bed and breakfast establishments\*



2021 IBC Occupancy Classification 97

97

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## Occupancy Classification—Residential

### Group R-1 (Section 310.2)

\* Congregate living facilities for transient occupants are classified as Group R-3 occupancies where the occupant load is 10 or less.



2021 IBC Occupancy Classification 98

98

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## Occupancy Classification Discussion Q&A

- What is the classification of a transient residential occupancy (hotel) composed of individual detached dwelling units, such as 20 cabins rented out on a per-night basis?



2021 IBC Occupancy Classification 99

99

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### Occupancy Classification—Residential



**Group R-2 (Section 310.3)**

**Characteristics**

- Occupants are primarily permanent.
- Consists of congregate living facilities or apartment buildings (3 or more dwelling units).

**Examples**

- Apartment houses
- Dormitories\*
- Fraternities and sororities\*
- Monasteries and convents\*



2021 IBC Occupancy Classification 100

100

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### Occupancy Classification—Residential

**Group R-2 (Section 310.3)**

\* Congregate living facilities (nontransient) with 16 or fewer occupants are classified as Group R-3 occupancies.



2021 IBC Occupancy Classification 101

101

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### Occupancy Classification—Residential



**Group R-3 (Section 310.4)**

**Characteristics**

- Occupants not transient in nature.
- Typically small occupant loads.

**Examples**

- One- and two-family dwellings outside the scope of the IRC.\*
- Smaller congregate living facilities.
- Adult care and child care facilities for 5 or fewer persons for less than 24 hours.



2021 IBC Occupancy Classification 102

102

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### Occupancy Classification— Residential

- **Group R-3 (Section 310.4)**

\*Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories in height with separate means of egress are typically regulated by the IRC, so the IBC is not applicable.



2021 IBC Occupancy Classification 103

103

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### Occupancy Classification— Residential Section 310.4

- Group R-3 occupancies also include:
  - Care facilities providing accommodations for 5 or fewer persons receiving care,
  - Congregate living facilities (transient) with 10 or fewer occupants,
  - Congregate living facilities (nontransient) with 16 or fewer occupants,
  - Lodging houses (such as bed-and-breakfasts) with 5 or fewer guest rooms and 10 or fewer occupants,
    - Owner-occupied lodging houses with 5 or fewer guest rooms and 10 or fewer total occupants permitted to be constructed per the IRC.



2021 IBC Occupancy Classification 104

104

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### Occupancy Classification— Residential

**Group R-4 (Section 310.5)**

Characteristics	Examples
▪ Care facilities having more than 5 but not more than 16 occupants, excluding staff.	▪ Residential care facilities
	▪ Assisted living facilities



2021 IBC Occupancy Classification 105

105

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### Occupancy Classification— Residential

**Group R-4 (Section 310.5)**

- Group R-4, Condition 1
  - All persons receiving custodial care are capable, without assistance, of responding to an emergency situation to complete building evacuation or relocation.
- Group R-4, Condition 2
  - Any persons receiving custodial care who require limited verbal or physical assistance while responding to an emergency situation to complete building evacuation or relocation.



2021 IBC Occupancy Classification 106

106

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### Occupancy Classification— Residential Section 310.5

- Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided.



2021 IBC Occupancy Classification 107

107

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### Occupancy Classification— Storage

- Group S classifications are similar to those in the Group F categories.
  - Classification as Group H required where determined by Section 307.
- Those storage occupancies classified as Group S-1 typically contain some degree of combustible materials.
- No storage of combustible materials is anticipated in Group S-2 occupancies.



2021 IBC Occupancy Classification 108

108

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### Occupancy Classification—Storage

- Room or space used for storage purposes that is accessory to another occupancy shall be classified as part of that occupancy. (Section 311.1)
  - No limits on floor area
  - Application based upon how “accessory” is defined



2021 IBC Occupancy Classification 109

109

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### Occupancy Classification—Storage

**Group S-1, Moderate Hazard (Section 311.2)**

Characteristics	Examples
▪ Storage of primarily combustible materials that do not qualify as hazardous materials beyond the exempt amount permitted (see Section 307).	▪ Clothing, woolen wearing apparel, silks
	▪ Furniture storage
	▪ Motor vehicle repair garages
	▪ Paper products
	▪ Tires, bulk storage



2021 IBC Occupancy Classification 110

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### Occupancy Classification—Storage

**Group S-2, Low Hazard (Section 311.3)**

Characteristics	Examples
▪ Storage of noncombustibles, with a minimal amount of combustibles present such as plastic knobs, wood pallets, and some paper or cardboard boxing.	▪ Food product storage
	▪ Glass storage
	▪ Metal storage
	▪ Parking garages
	▪ Pottery storage



2021 IBC Occupancy Classification 111

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### Occupancy Classification—Utility and Miscellaneous

- Group U occupancies include buildings of an accessory character and miscellaneous structures not classified in any other specific occupancy.
  - Limited regulations established due to anticipation of limited fire and life hazards
  - Includes non-occupiable structures that may need to be regulated for structural purposes, location on lot, etc.



2021 IBC Occupancy Classification 112

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### Occupancy Classification—Utility and Miscellaneous

**Group U (Section 312.1)**

Characteristics	Examples
▪ No public occupancy	▪ Agricultural buildings
▪ Limited or no occupant load	▪ Barns
▪ Limited floor area	▪ Carports
▪ Little fire hazard	▪ Tanks and towers
	▪ Livestock shelters
	▪ Private garages
	▪ Stables



2021 IBC Occupancy Classification 113

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### Occupancy Classification—Greenhouses

- Greenhouses not classified as another occupancy to be classified as Group U occupancies.(Section 312.1.1).



2021 IBC Occupancy Classification 114

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### Occupancy Classification—Q&A

- What is the classification of an agricultural building that has occasional public use, such as a livestock show or equestrian lessons?
- What about a greenhouse that is a portion of a home improvement center?



2021 IBC Occupancy Classification 115

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### Occupancy Classification—Summary

- Once the occupancy classification(s) determination is complete, it is now possible to begin application of the remainder of the code.



2021 IBC Occupancy Classification 116

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### Summary/Q&A



2021 IBC Occupancy Classification 117

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### Final Reflection

This slide will help the learner to reflect on the day and what they will take back to the job and apply.

- **What?** What happened and what was observed in the training?
- **So what?** What did you learn? What difference did this training make?
- **Now what?** How will you do things differently back on the job as a result of this training?



2021 IBC Occupancy Classification 118

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2021 IBC Occupancy Classification 119

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2021 IBC Occupancy Classification 120

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2021 IBC Occupancy Classification

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