Course Description

• This seminar addresses the key issues of the 2018 International Building Code® (IBC®) regarding the proper classification of buildings.
• The process for correctly evaluating a building for code compliance relies on a systematic approach to the determination of occupancy classification and construction type.

Course Description

• Everything starts with the correct building classification!

• A clear understanding of the classification process provides the groundwork for the proper application of many other important code provisions.
**Goal**

- Participants will be able to assign the appropriate occupancy classification(s) based on Chapter 3, use Table 601 to help determine type of construction classification, and gain an understanding of the varied provisions of Chapter 5 regarding allowable building heights and areas.

**Objectives**

Upon completion, participants will be better able to:

1. Identify and describe the 26 specific occupancy groups established in the 2018 IBC.

2. Identify the characteristics of the nine types of construction set forth in the 2018 IBC.

3. Determine the allowable height and area of a building based upon its occupancy classification, type of construction and special features.

4. Apply the special provisions applicable to mixed-occupancy and unlimited area buildings.
### Occupancy Classification-General

#### Requirements (Section 302.1)

<table>
<thead>
<tr>
<th>Types of Use</th>
<th>General Occupancy Group</th>
<th>Occupancy Sub-Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business</td>
<td>Group B</td>
<td>None</td>
</tr>
<tr>
<td>Educational</td>
<td>Group E</td>
<td>None</td>
</tr>
<tr>
<td>Factory and Industrial</td>
<td>Group F</td>
<td>F-1, F-2</td>
</tr>
<tr>
<td>High Hazard</td>
<td>Group H</td>
<td>H-1, H-2, H-3, H-4, H-5</td>
</tr>
<tr>
<td>Institutional</td>
<td>Group I</td>
<td>I-1, I-2, I-3, I-4</td>
</tr>
<tr>
<td>Mercantile</td>
<td>Group M</td>
<td>None</td>
</tr>
<tr>
<td>Residential</td>
<td>Group R</td>
<td>R-1, R-2, R-3, R-4</td>
</tr>
<tr>
<td>Storage</td>
<td>Group S</td>
<td>S-1, S-2</td>
</tr>
<tr>
<td>Utility</td>
<td>Group U</td>
<td>None</td>
</tr>
</tbody>
</table>

### 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.
### Occupancy Classification—Assembly

#### Group A-1 (Section 303.2)

**Characteristics**
- High occupant density
- Usually fixed seating
- Foyers/lobbies
- Stages, platforms or Projection screen
- Low-light conditions
- Sizable occupant loads

**Examples**
- Motion picture theaters
- Symphony/concert halls
- Television/radio studios
- Performance theaters

#### Group A-2 (Section 303.3)

**Characteristics**
- Consumption of food and/or drink (primary characteristic)
- Moderate occupant density
- Variable lighting levels
- Aisles not clearly defined
- Movable furnishings

**Examples**
- Banquet halls
- Night clubs
- Restaurants
- Taverns and bars
- Casino gaming areas

#### Group A-3 (Section 303.4)

**Characteristics**
- Moderate occupant density
- Adequate lighting levels
- Moderate fire loading

**Examples**
- Art galleries
- Exhibition halls
- Libraries
- Museums
- Places of religious worship
Occupancy Classification—
Assembly

Group A-4 (Sec. 303.5)
Characteristics
- Lighting levels can fluctuate
- Some food or drink consumption
- Spectator seating typically fixed
- Medium to high density

Examples
- Arenas
- Skating rinks
- Gymnasiums

Group A-5 (Sec. 303.6)
Characteristics
- No enclosure to contain smoke, although spectator might be protected from rain and sun
- Limited or no conditioned air
- Most seating is fixed

Examples
- Amusement park structures
- Bleachers and reviewing stands
- Grandstands
- Stadiums

Occupancy Classification—
Business

Group B (Section 304.1)
Characteristics
- Many occupants are familiar with the premises
- Most occupants are adults capable of recognizing and effectively responding to “emergency situations”
- Moderate fire load

Examples
- Ambulatory care facilities
- Banks
- Barber/beauty shops
- Office areas
- Outpatient clinics
- Post offices
- Training and skill development
Occupancy Classification—Educational

Group E (Sections 305.1, 305.2)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Six or more occupants at a time</td>
<td>High schools (through 12th grade)</td>
</tr>
<tr>
<td>Students younger than college age</td>
<td>Middle schools</td>
</tr>
<tr>
<td>2 1/2 years to the 12th grade is the general default age for this classification</td>
<td>Elementary schools</td>
</tr>
<tr>
<td></td>
<td>Preschools</td>
</tr>
<tr>
<td></td>
<td>Day care facilities (more than 5 children, older than 2 1/2 years)</td>
</tr>
</tbody>
</table>

Occupancy Classification—Factory/Industrial

Group F occupancies (Sec. 306.1) 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.

Occupancy Classification—High Hazard

Group H occupancies (307.1):

- 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).
Occupancy Classification—High Hazard

Conditions not considered as Group H: There are 17 conditions (Section 307.1.1) where a classification of Group H is not to be assigned. Even if the structure meets one of these conditions, the provisions of Section 414 and the International Fire Code® (IFC®) for such materials are still applicable.

Maximum Allowable Quantities—Physical hazards

| Maximum Allowable Quantity per Fire Area | Uses of Groups A, B, C, D, E, F, and G in Building or Structure |....|
### Maximum Allowable Quantities—Health hazards

**Table 5.10.1.2**

<table>
<thead>
<tr>
<th>Story</th>
<th>Maximum Allowable Quantity (lb)</th>
<th>Height Limit (ft)</th>
<th>Preexposed Surface (ft²)</th>
<th>Preexposed Surface (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High 1</td>
<td>25</td>
<td>25</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>High 2</td>
<td>50</td>
<td>25</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>25</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>150</td>
<td>25</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>200</td>
<td>25</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>250</td>
<td>25</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

*Notes:
1. The maximum quantity shall be one that would not exceed the quantity legally limited by law.
2. All maximum quantities shall be calculated in accordance with the applicable International Code.
3. The height limit shall be determined by the building code or building's occupancy classification.
4. The preexposed surface shall be calculated in accordance with the applicable International Code.
5. The preexposed surface shall be calculated in accordance with the applicable International Code.

### Occupancy Classification—High Hazard (Higher Educ. Labs)

**Table 5.10.2.3**

<table>
<thead>
<tr>
<th>Story</th>
<th>Maximum Allowable Quantity (lb)</th>
<th>Height Limit (ft)</th>
<th>Preexposed Surface (ft²)</th>
<th>Preexposed Surface (ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High 1</td>
<td>25</td>
<td>25</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>High 2</td>
<td>50</td>
<td>25</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>25</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>150</td>
<td>25</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>200</td>
<td>25</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>250</td>
<td>25</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

*Notes:
1. The maximum quantity shall be one that would not exceed the quantity legally limited by law.
2. All maximum quantities shall be calculated in accordance with the applicable International Code.
3. The height limit shall be determined by the building code or building's occupancy classification.
4. The preexposed surface shall be calculated in accordance with the applicable International Code.
5. The preexposed surface shall be calculated in accordance with the applicable International Code.

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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

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
- Oxidizers, Class 2
- Oxidizing gases
- Unstable (reactive) materials, Class 2
- Water-reactive materials, Class 2
- Cryogenic fluids, oxidizing
- Consumer fireworks, 1.4G (Class C, Common)
Occupancy Classification—High Hazard

Types of Materials by Group

Group H-4 (Section 307.6)
- Corrosives
- Toxic materials
- Highly toxic materials

Group H-5 (Section 307.7)
- Semiconductor fabrication facilities and comparable research and development areas

Occupancy Classification—Institutional

Group I-1 (Section 308.2)
Characteristics
- More than 16 occupants (not including staff).
- Residents—require assistance with day-to-day living tasks.
- Housed on a 24-hour basis.
- Custodial care includes persons who evacuate at a slower rate.
- Residents may have mental and psychiatric complications.

Examples
- Group homes
- Rehabilitation facilities
- Halfway houses
- Assisted living facilities

Cond. 1: Capable of Self Preservation
Cond. 2: Ltd. Verbal/Physical Assistance

Group I-2 (Section 308.3)
Characteristics
- Used for medical care activities for six or more persons.
- Receive 24-hour care.
- May be semi-aware or semi-ambulatory, but not capable of self-preservation.

Examples
- Hospitals
- Detoxification facilities
- Nursing homes
- 24-hour infant/toddler care facilities (foster care facilities)

Cond. 1: Nursing homes—No emergency care.
Cond. 2: Hospital—Emergency care.
**Occupancy Classification—Institutional**

**Group I-3 (Section 308.4)**
Characteristics
- More than 5 occupants (not including staff).
- Supervised.
- Physically restricted from evacuating the building.
- Further classified into 5 occupancy conditions based on capability of free movement within facility.

Examples
- Detention centers
- Jails
- Prerelease centers
- Prisons

**Group I-4 (Section 308.5)**
Characteristics
- More than 5 occupants.
- Any age.
- Receive custodial care for less than 24 hours a day.
- Occupants incapable of self preservation.

Examples
- Adult care facilities
- Child care facilities

**Occupancy Classification—Mercantile**

**Group M (Section 309.1)**
Characteristics
- Display, sell and stock merchandise.
- If merchandise is hazardous, see Table 414.2.5(1) for quantity limits.

Examples
- Retail stores
- Motor fuel-dispensing facilities
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.

Occupancy Classification—Residential

Group R-4 (Section 310.5)

Characteristics
- Care facilities having more than 5 but not more than 16 occupants, excluding staff.

Examples
- Residential care facilities
- Assisted living facilities

Cond. 1: Capable of Self Preservation
Cond. 2: Ltd. Verbal/Physical Asst.

Occupancy Classification—Storage

- Group S classifications are similar to those in the Group F categories.
- 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.
Occupancy Classification—Utility and Miscellaneous

Group U (Section 312.1)

Characteristics
- No public occupancy
- Limited or no occupant load
- Limited floor area
- Little fire hazard

Examples
- Agricultural buildings
- Barns
- Carports
- Tanks and towers
- Livestock shelters
- Private garages
- Stables

Incidental Uses

Incidental Uses-509
Type of Construction

Type of Construction—
General Provisions (Section 602)

<table>
<thead>
<tr>
<th>Type of Construction</th>
<th>Materials of construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Exterior and interior walls, floors, roof and vertical elements to be of non-combustible materials.</td>
</tr>
<tr>
<td>II</td>
<td>Exterior walls to be of non-combustible materials.</td>
</tr>
<tr>
<td>III</td>
<td>Interior elements permitted to be of combustible materials.</td>
</tr>
<tr>
<td>IV</td>
<td>Exposed interior elements permitted throughout.</td>
</tr>
</tbody>
</table>

NOTE: The classification of the building for construction type is based on the elements of the building itself and not on what minimum type of construction is permitted because of its height and area.

Type of Construction—Table 601
### Allowable Height in Feet Above Grade Plane (Table 504.3)

<table>
<thead>
<tr>
<th>Occupancy Classification</th>
<th>See Footnote</th>
<th>Type I</th>
<th>Type II</th>
<th>Type III</th>
<th>Type IV</th>
<th>Type V</th>
</tr>
</thead>
<tbody>
<tr>
<td>A; B; C; D; E; F; G; H; I</td>
<td>1, 5</td>
<td>45</td>
<td>30</td>
<td>24</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>A1; A2; A3; A4; A5; A6; A7; A8; A9; A10</td>
<td>2, 4, 6</td>
<td>30</td>
<td>24</td>
<td>18</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>A11; A12; A13; A14; A15</td>
<td>3, 4</td>
<td>24</td>
<td>18</td>
<td>15</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>A16; A17; A18; A19; A20</td>
<td>4, 6</td>
<td>18</td>
<td>15</td>
<td>12</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>A21; A22; A23; A24</td>
<td>5, 6</td>
<td>15</td>
<td>12</td>
<td>10</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>A25; A26; A27; A28</td>
<td>6, 8</td>
<td>12</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

*Note: 1 = Varied; 2 = Varied; 3 = Buildings not equipped throughout with an automatic sprinkler system; 4 = Building equipped throughout with an automatic sprinkler system; 5 = Building equipped throughout with an automatic sprinkler system as well as an automatic double sprinkler system (as defined in accordance with Section 903.3.1; 6 = Only a portion of Table 504.3 is shown above.*

### Allowable Height in Stories Above Grade Plane (Table 504.4)

<table>
<thead>
<tr>
<th>Occupancy Classification</th>
<th>See Footnote</th>
<th>Type I</th>
<th>Type II</th>
<th>Type III</th>
<th>Type IV</th>
<th>Type V</th>
</tr>
</thead>
<tbody>
<tr>
<td>A; B; C; D; E; F; G; H; I</td>
<td>1, 5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>A1; A2; A3; A4; A5; A6; A7; A8; A9; A10</td>
<td>2, 4, 6</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>A11; A12; A13; A14; A15</td>
<td>3, 4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>A16; A17; A18; A19; A20</td>
<td>4, 6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>A21; A22; A23; A24</td>
<td>5, 6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>A25; A26; A27; A28</td>
<td>6, 8</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

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### Allowable Area Factor in Square Feet (Table 506.2)

<table>
<thead>
<tr>
<th>Occupancy Classification</th>
<th>See Footnote</th>
<th>Type I</th>
<th>Type II</th>
<th>Type III</th>
<th>Type IV</th>
<th>Type V</th>
</tr>
</thead>
<tbody>
<tr>
<td>A; B; C; D; E; F; G; H; I</td>
<td>1, 5</td>
<td>0.30</td>
<td>0.25</td>
<td>0.20</td>
<td>0.15</td>
<td>0.12</td>
</tr>
<tr>
<td>A1; A2; A3; A4; A5; A6; A7; A8; A9; A10</td>
<td>2, 4, 6</td>
<td>0.25</td>
<td>0.20</td>
<td>0.15</td>
<td>0.12</td>
<td>0.10</td>
</tr>
<tr>
<td>A11; A12; A13; A14; A15</td>
<td>3, 4</td>
<td>0.20</td>
<td>0.15</td>
<td>0.12</td>
<td>0.10</td>
<td>0.08</td>
</tr>
<tr>
<td>A16; A17; A18; A19; A20</td>
<td>4, 6</td>
<td>0.15</td>
<td>0.12</td>
<td>0.10</td>
<td>0.08</td>
<td>0.06</td>
</tr>
<tr>
<td>A21; A22; A23; A24</td>
<td>5, 6</td>
<td>0.12</td>
<td>0.10</td>
<td>0.08</td>
<td>0.06</td>
<td>0.04</td>
</tr>
<tr>
<td>A25; A26; A27; A28</td>
<td>6, 8</td>
<td>0.10</td>
<td>0.08</td>
<td>0.06</td>
<td>0.04</td>
<td>0.03</td>
</tr>
</tbody>
</table>

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Buildings on the Same Lot (Section 503.1.2)

Assumed Imaginary Line Between Two Buildings on the Same Lot

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Buildings on the Same Lot (Section 503.1.2)

Occupied Roofs (Section 503.1.4)

Example:
Building of Type IV construction.
Group I-3 4 stories max. (6).

Exception applies shall be provided per Section 905.

A-1 or A-2

B

B

B

A-1 or A-2

B

B

B

B

Except for roofing membranes, roof areas limited to all roof above roof surface.

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Mezzanines (Section 505)

Mezzanine Limitations

Frontage Increase (Section 506.3.3)

- Formula to calculate the frontage increase ($I_r$) for allowable area purposes:

$$I_r = [F/P - 0.25] \frac{W}{30}$$

- $I_r$: Area factor increase due to frontage
- $F$: Building perimeter that fronts on a public way or open space having 20 feet open minimum distance
- $P$: Perimeter of entire building
- $W$: Width of public way or open space per Section 506.3.2

The value of $W$ must be a minimum of 20 feet. Where $W$ exceeds 30 feet, a value of 30 feet is to be used. (Section 506.3.2)

Frontage Increase Example

- **Given:** Yards as shown, and two 60-foot streets.
- **Determine:** Percentage of frontage increase for allowable area.
**Frontage Increase Example**

- **Solution:**

  ![Diagram](image)

  

  \[ F = \frac{30}{60} \times 120 = 60 \text{ feet} \]

  \[ W = \frac{60}{30} = 2 \text{ feet} \]

  *Value of 30' to be used in all yards > 20' are also > 30'.

**Width Limits (Section 506.3.2)**

- Formula to calculate “weighted average” (W) for frontage increase purposes:

  \[ W = \frac{L_1 \times w_1 + L_2 \times w_2 + L_3 \times w_3 \ldots}{F} \]

  - **W** = (Width: weighted average) + Calculated width of open space
  - **L** = Length of a portion of the exterior perimeter wall
  - **w** = Width of open space associated with that portion of the exterior perimeter wall
  - **F** = Building perimeter that fronts on a public way or open space having a width of 20 feet or more

  The value of \( w \) cannot exceed 30 feet.

**Open Space Limits (Section 506.3.1)**

![Diagram](image)
Open Space Availability (Section 506.3.1)

Allowable Area Determination
Single-Occupancy, Multistory (Section 506.2.3)

• No individual story shall exceed the allowable area \(A_a\) as determined by the equation:

\[
A_a = [A_t + (NS \times I_f)] \times S_a
\]

• Using the value of \(S_a = 1\)

Allowable Area Determination
Single-Occupancy, Multistory (Section 506.2.3)

• The allowable area of a single-occupancy building with more than one story above grade plane shall be determined by the following equation:

\[
A_a = [A_t + (NS \times I_f)] \times S_a
\]

\(A_a\) = Allowable building area
\(A_t\) = Tabular allowable area factor (NS, S1, or S13R value, as applicable)
\(I_f\) = Area factor increase due to frontage in accordance with Section 506.3
\(NS\) = Tabular allowable area factor in accordance with Table 506.2 for non-sprinklered building (regardless of whether building is sprinklered)
\(S_a\) = Actual number of building stories above grade plane, not to exceed three (not to exceed four for 13R sprinklered buildings)
Allowable Area Determination
Mixed Occupancy, Separated Multistory (506.2.4)

Allowable area Separated Occupancies (Section 508.4)
The formula is: \[ \frac{a_1}{A_1} + \frac{a_2}{A_2} + \frac{a_3}{A_3} + \ldots \leq 1.0 \]

Where \(a_1\), \(a_2\), and \(a_3\) represent the actual floor areas of the individual occupancies, and \(A_1\), \(A_2\), and \(A_3\) represent the maximum allowable floor areas.

Unlimited Area Buildings

Unlimited Area Buildings (Section 507.1)
- Use of Section 507 is limited to the occupancies and configurations specified within the provisions.
- Basements are permitted where not more than one story below grade plane.
- Allowance is made for other occupancies provided they comply with the provisions of Section 508.1.1 for accessory occupancies.
One- and Two-story Sprinklered Buildings (Sections 507.4, 507.5)

Unlimited Area Buildings—Reduced Open Space (Section 507.2.1)

- The allowance for reducing the required open space from 60 feet (18 288 mm) to 40 feet (12 192 mm) is only permitted for the following unlimited area buildings:
  - One-story nonsprinklered Groups F-2 and S-2 (Section 507.3).
  - One-story sprinklered Groups B, F, M and A-4 (Section 507.4).

Unlimited Area Buildings—Reduced Open Space (Section 507.2.1)

- Two-story sprinklered Groups B, F, M and S (Section 507.5).
- One-story sprinklered Group A-3 (Sections 507.6 and 507.7).
- One-story sprinklered motion picture theaters (Section 507.12).
Unlimited Area Buildings—
Group H Occupancies (Section 507.8)

- Aggregate floor area of Group H occupancies located at the building’s perimeter limited to 10 percent of the actual building area or Group H allowable area per Section 506 with any applicable frontage increase.
- Aggregate floor area of Group H occupancies not located on perimeter of building limited to 25 percent of Group H area limits in Section 506.

Group H in Unlimited Area Buildings—Example

- SOLUTION:
  Aggregate area of Group H to be lesser of:
  - Maximum 10% of area of building: 13,000 sf
  - Area limitations of Table 506.2 as modified: 17,500 sf
  (Based on 14,000 + 3,500 frontage increase)
  Total Group H permitted: 18,000 sf

Aggregate area not located at perimeter:
- Limited to 25% of Group H limits of Table 506.2: 3,500 sf
- Remainder must be located at perimeter: 9,500 sf
Mixed Occupancies

Three methods established in Section 508 address mixed-occupancy conditions:
- Accessory Occupancies.
- Nonseparated Occupancies.
- Separated Occupancies.

Construction cost and design flexibility are contributing factors to the preference of one method over another.

Accessory Occupancies (Section 508.2)
Nonseparated Occupancies (Section 508.3)

Example: Building is to be multifamily, fully sprinklered, and of Type VB construction. Frontage increase of 30% available. 1st story contains Group M and A-2 occupancies as shown with Group B occupancy above.

Group M
Sales Tenant

Regulated as
Nonseparated Occupancies

Allowable Height and Area of Nonseparated Occupancies

Group A-2
Restaurant

Nonseparated Occupancies (Section 508.3.2)

<table>
<thead>
<tr>
<th></th>
<th>Group M</th>
<th>Group A-2</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allowable Area (square feet)</td>
<td>20,000</td>
<td>19,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Maximum Number of Stories</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Using the nonseparated occupancies method, the maximum allowable area is 19,800 square feet per story with a maximum of two stories in the building.

The most restrictive fire protection requirements (typically sprinkler and alarm systems) for each occupancy to be applied to entire building.

Mixed Use and Occupancy—Example
Mixed Use and Occupancy—Example

- SOLUTION:

\[ A_1 = 92,000 + 0.25(23,000) = 97,750 \]
\[ A_2 = 50,000 + 0.25(12,500) = 53,125 \]
\[ A_3 = 38,000 + 0.25(9,500) = 40,375 \]

Separated Occupancies (Section 508.4)

Special Provisions
Horizontal Building Separation Allowance (Section 510.2)

- Type I construction

Special Provisions—Parking Beneath Group R (Section 510.4)

- Group R
- Group B
- Group M

Group B or M with an Open Parking Garage Above (Section 510.8)

- Parking garage
Multiple Buildings Above Group S-2
Parking Garages (Section 510.9)

Summary/Q&A

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