2

Chicago Construction Codes Overview

- Development
- Orientation
- Definitions
- Administrative Provisions

3

3

Development

Pre-2019 Code

2019 Code Modernization Ordinance

Continuous code development

4

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Pre-2019 Chicago Code

- Last major “homegrown” code in the United States
- Last comprehensive revision in 1949

5

5

2019 Ordinance

- 100+ industry stakeholders
- Oversight committee and 6 technical committees
- Adopted April 2019

6

6

Code Development

Mechanical Code

Conveyance Device Code

Electrical Code

Building Code

Rehab Code

Fire Prevention Code

Energy Code

Plumbing Code

7

7

Orientation

Finding the current codes

Organization of the construction codes

Supplements

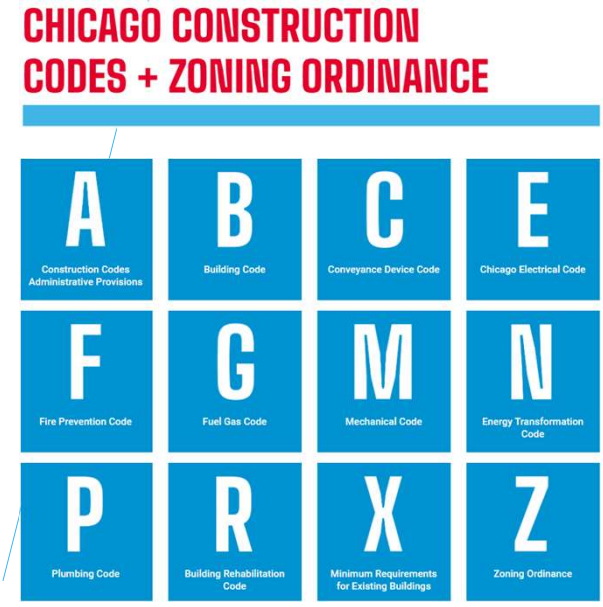
8

8

Finding the Chicago Construction Codes

Chicago.gov/permit

- Links to most recent complied codes
- Recent amendment tracking



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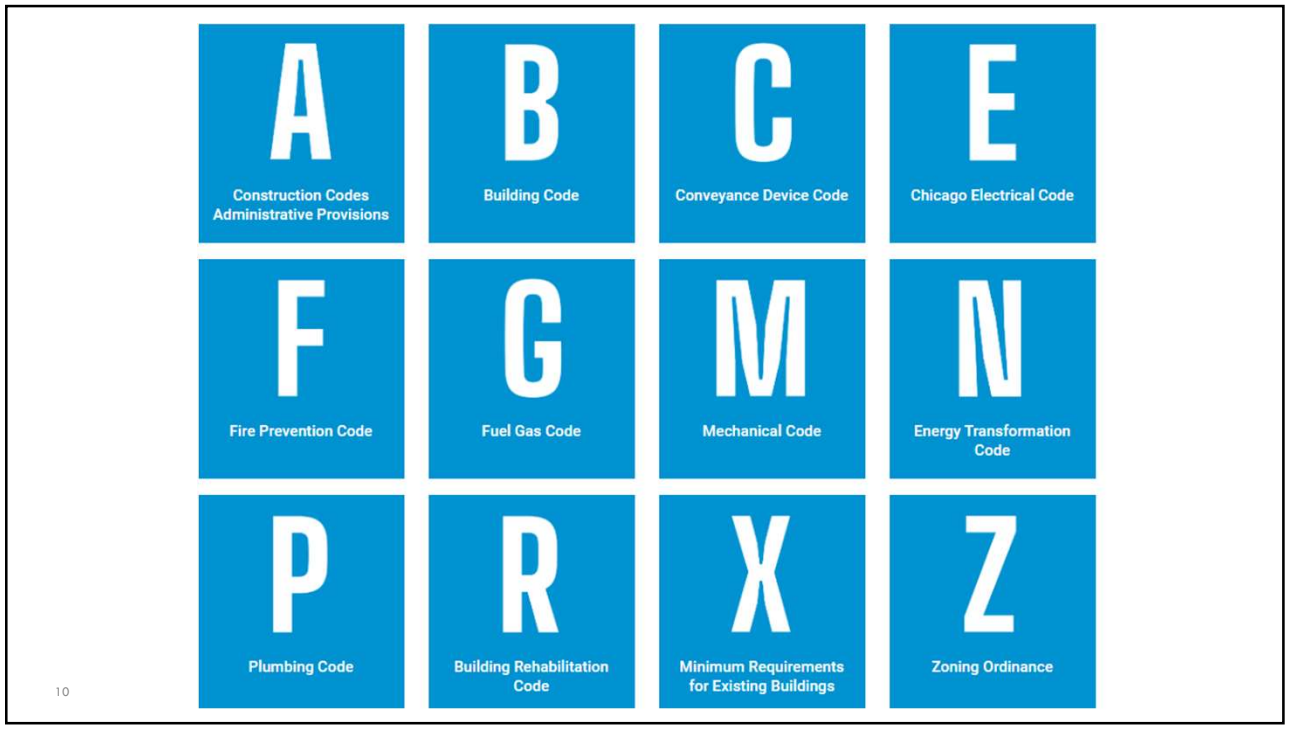
A
Construction Codes Administrative Provisions
B
Building Code
C
Conveyance Device Code
E
Chicago Electrical Code
F
Fire Prevention Code
G
Fuel Gas Code
M
Mechanical Code
N
Energy Transformation Code
P
Plumbing Code
R
Building Rehabilitation Code
X
Minimum Requirements for Existing Buildings
Z
Zoning Ordinance
10

10


Chicago Construction Codes 2019
Title 14 A
CHICAGO CONSTRUCTION CODES ADMINISTRATIVE PROVISIONS
Chicago Construction Codes 2019
Title 14 B
CHICAGO BUILDING CODE
Chicago Construction Codes 2019
Title 14 N
CHICAGO ENERGY CONSERVATION CODE
Chicago Construction Codes 2019
Title 14 R
CHICAGO BUILDING REHABILITATION CODE
Chicago Construction Codes 2019
Title 14 X
CHICAGO MINIMUM REQUIREMENTS FOR EXISTING BUILDINGS
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Chicago.gov/permit

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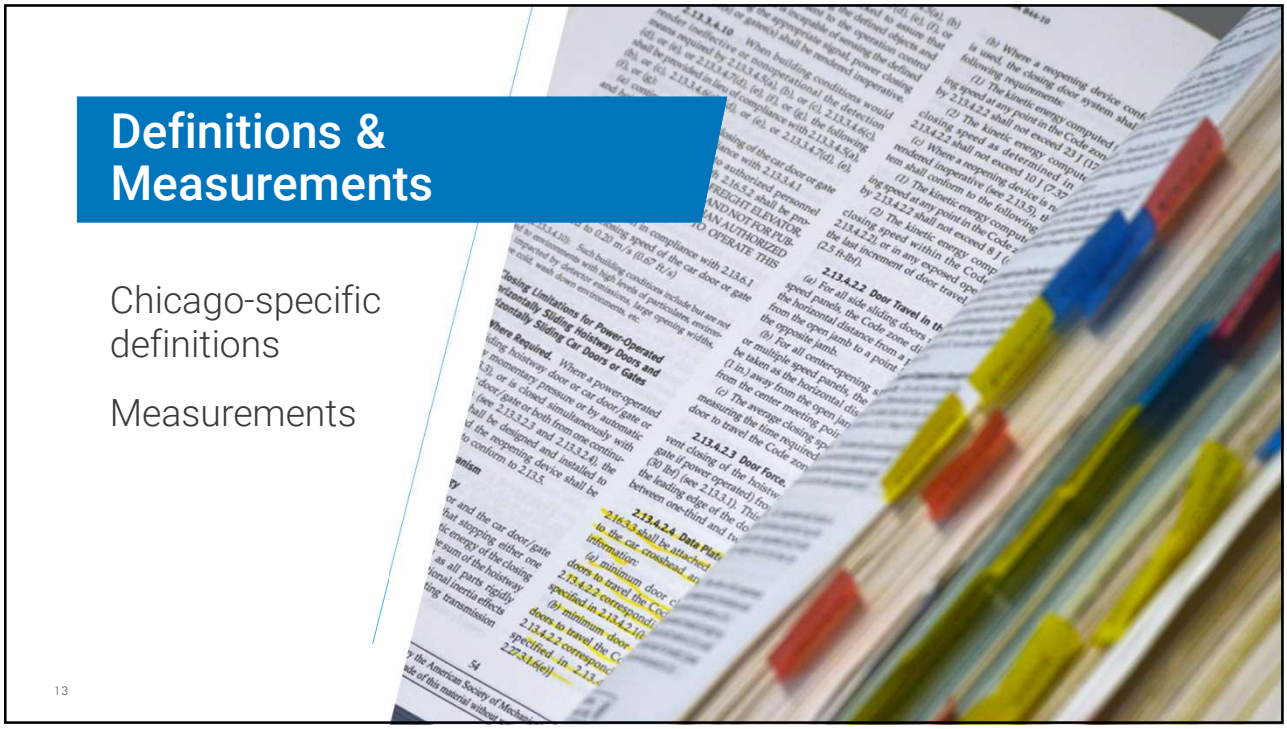

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Approved	**Building Official**	**Deck**, **Exterior Balcony**, and **Porch**
Fire Separation Distance	**Occupiable Rooftop**	**Telecommunications Equipment Area**

14

14

Grade Plane	**Building Height**
Building Area	**Floor Area** Gross Floor Area Net Floor Area

15

15

Administrative Provisions

Organization

16

16

Title 14A	**1** Scope and Administration	**2** Definitions
3 Enforcement	**4** Permits	**5** Inspection and Observation of Permitted Work
6 Inspection of Existing Structures and Systems	**7** Occupancy	**8** Posting Requirements
10 Approvals and Appeals	**11** Referenced Standards	**12** Schedules

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slido

Audience Q&A Session

ⓘ Start presenting to display the audience questions on this slide.

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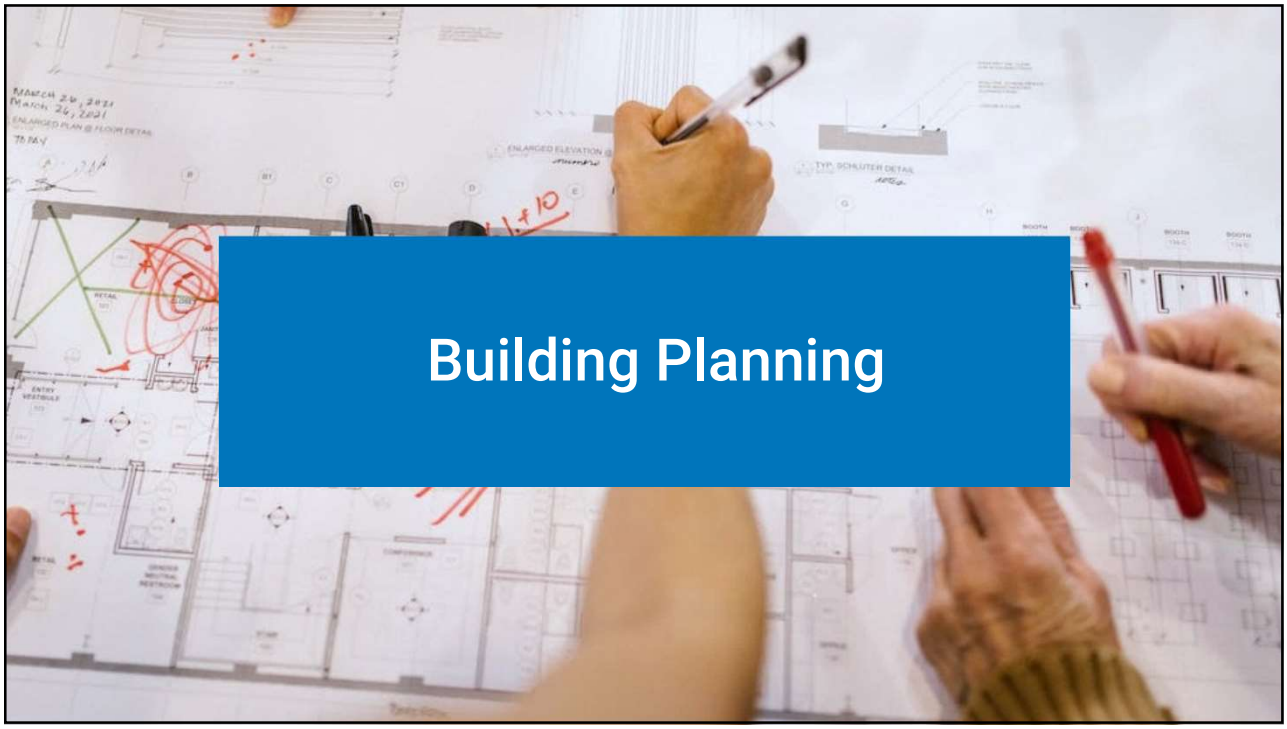

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Building Planning Overview

- Occupancy Classification
- Construction Type
- Building Height
- Building Area
- Height and Area Limits
- Special Features, Uses, and Occupancies

20

20

Occupancy Classification

- Concepts
- Occupancy groups
- Mixed occupancy
- Accessory occupancies
- Incidental uses

21

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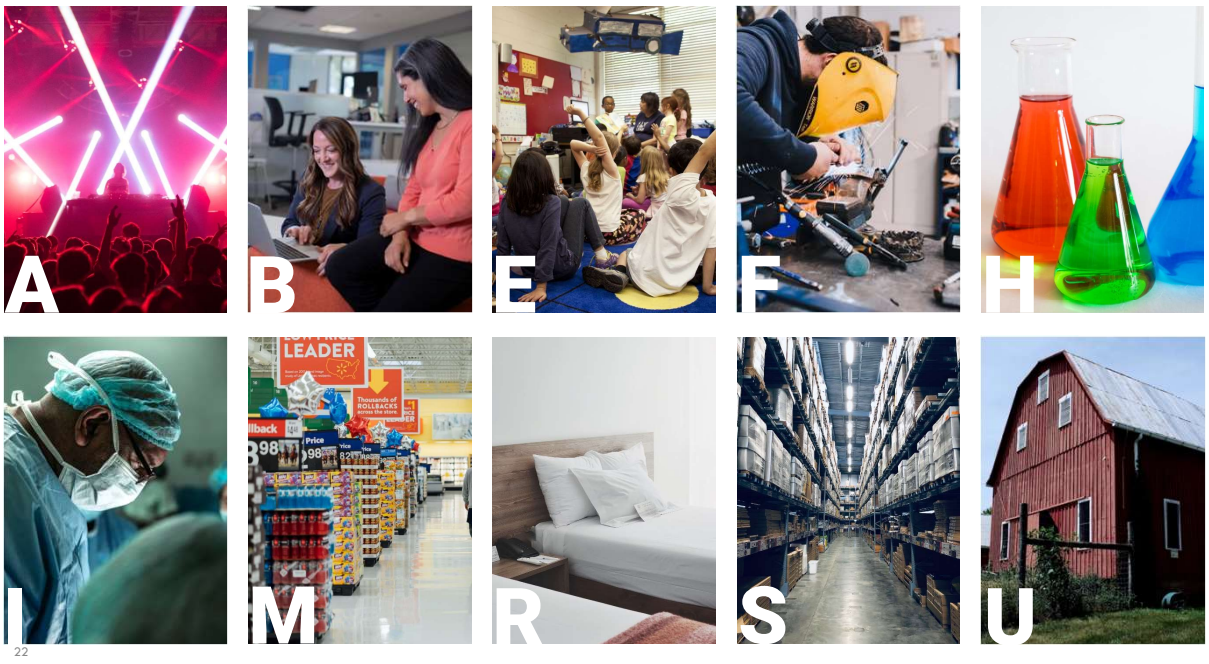

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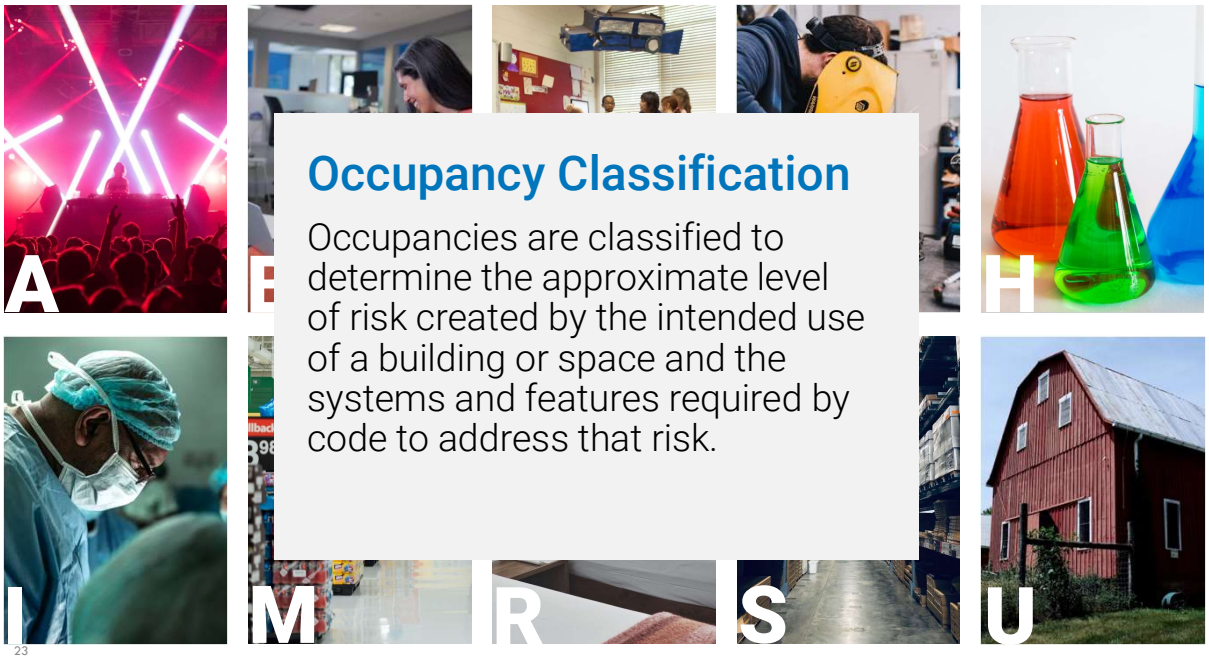

Occupancy Classification

Occupancies are classified to determine the approximate level of risk created by the intended use of a building or space and the systems and features required by code to address that risk.

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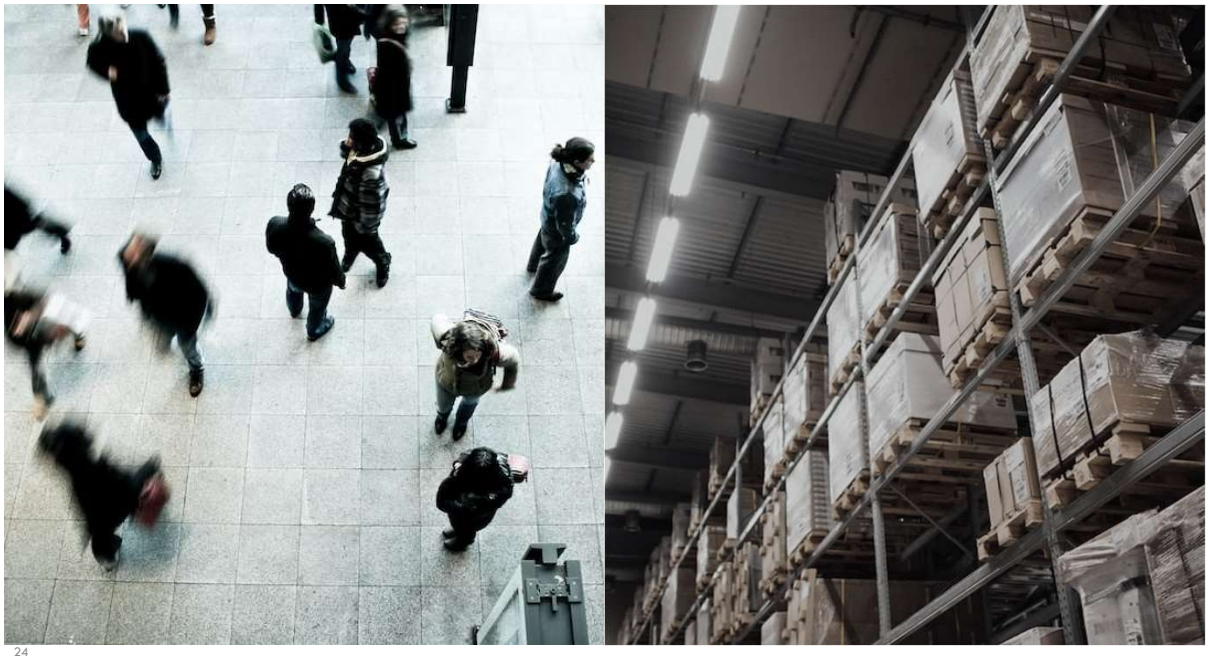

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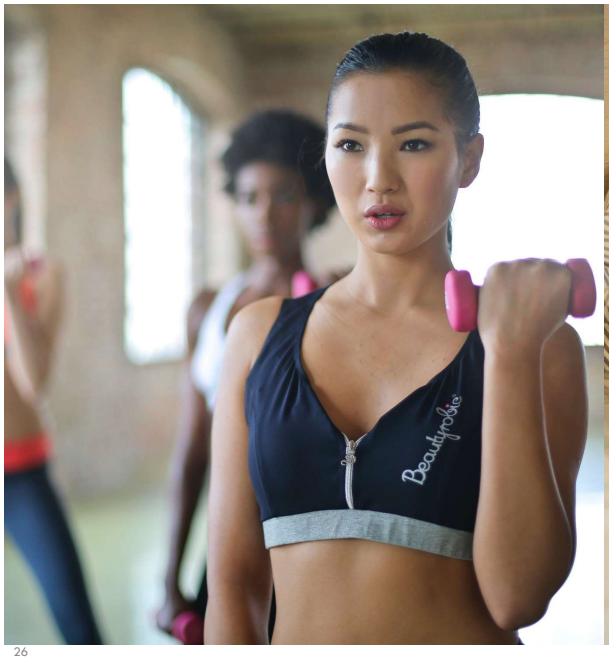
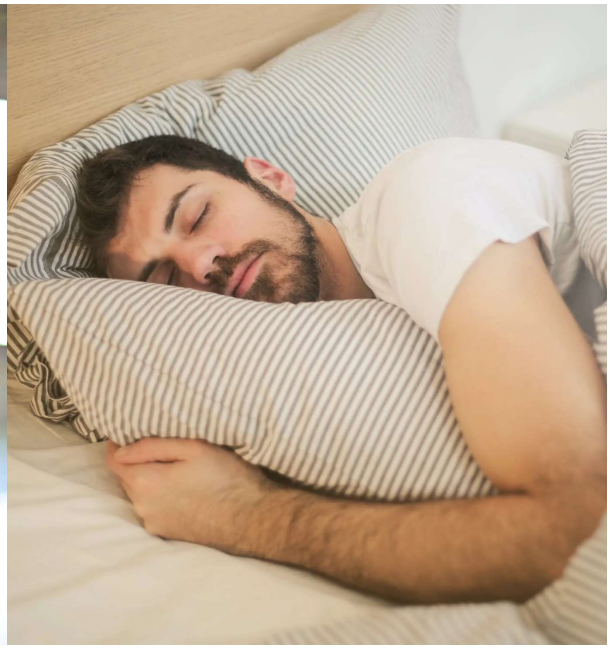

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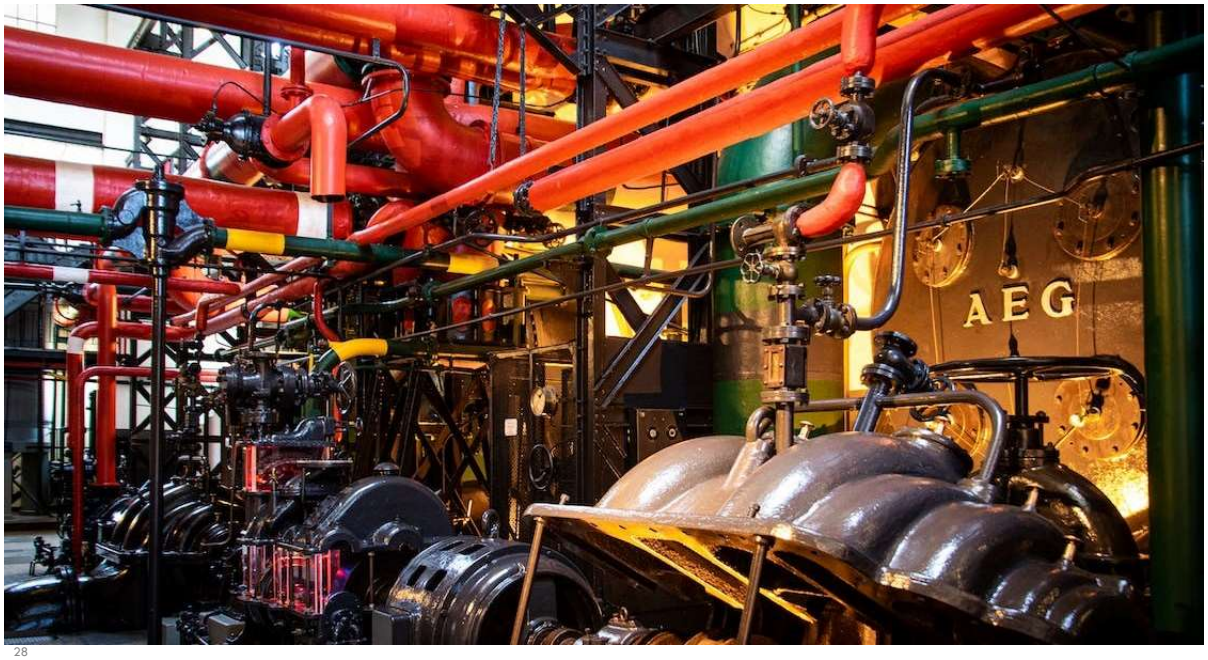

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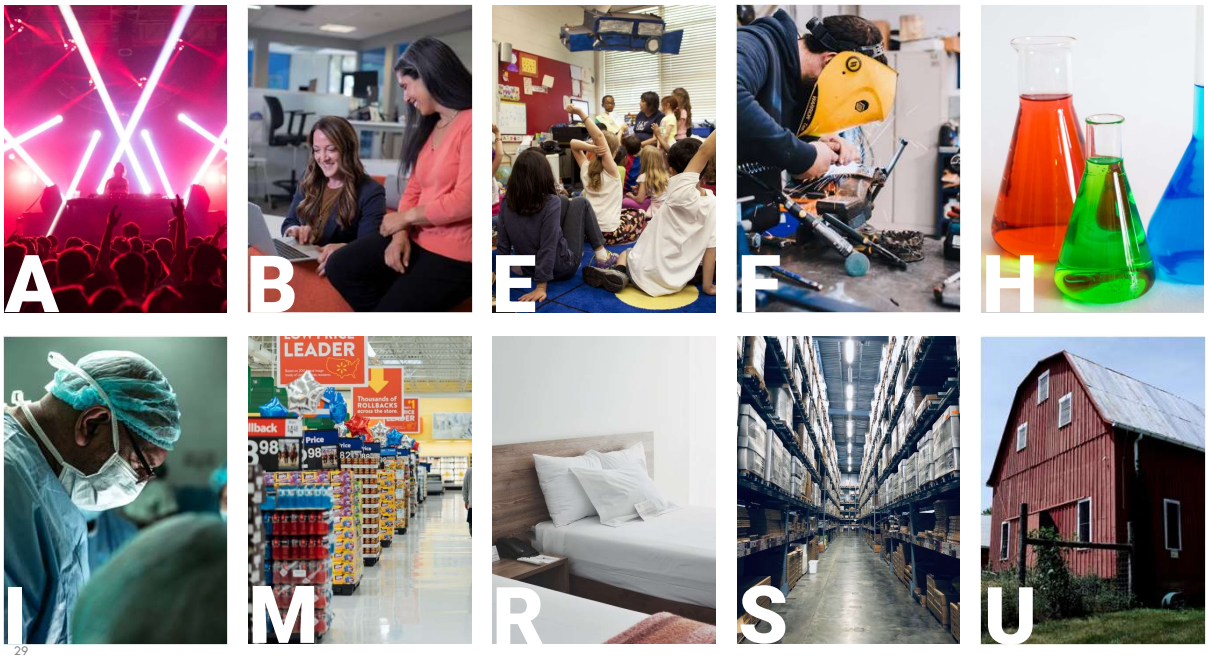

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Group A—Assembly

Group A occupancy includes the use of a building for the gathering of persons for purposes such as civic, social, or religious functions; recreation; food or drink consumption; or awaiting transportation.

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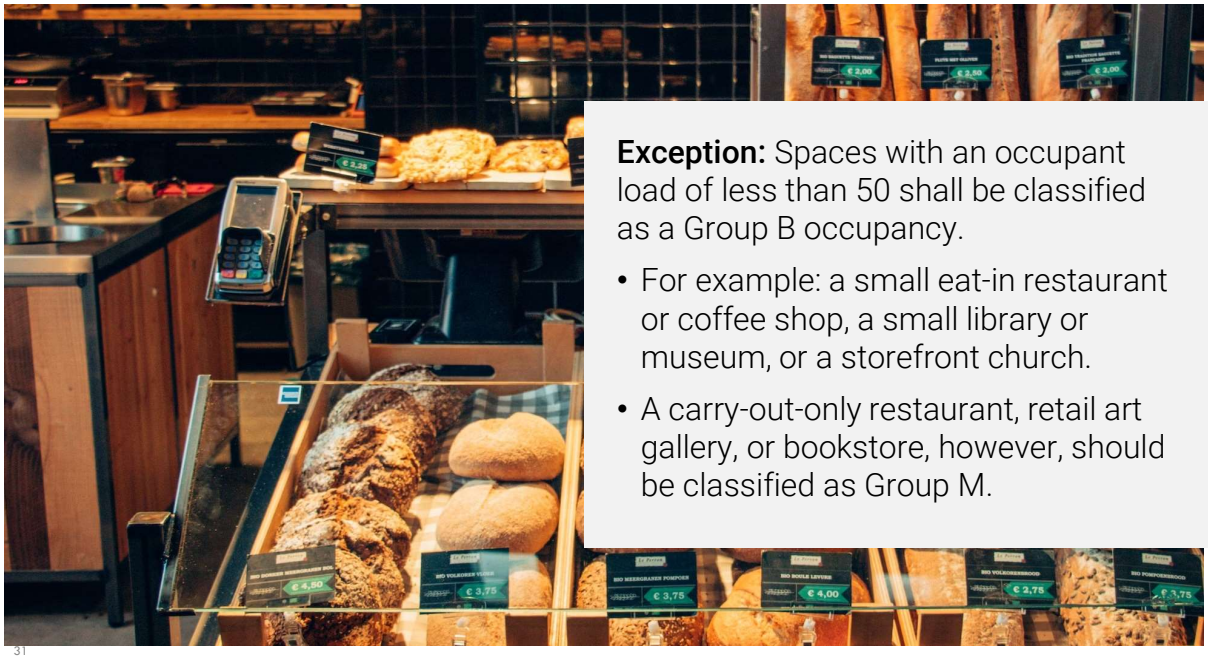

Exception: Spaces with an occupant load of less than 50 shall be classified as a Group B occupancy.

- For example: a small eat-in restaurant or coffee shop, a small library or museum, or a storefront church.
- A carry-out-only restaurant, retail art gallery, or bookstore, however, should be classified as Group M.

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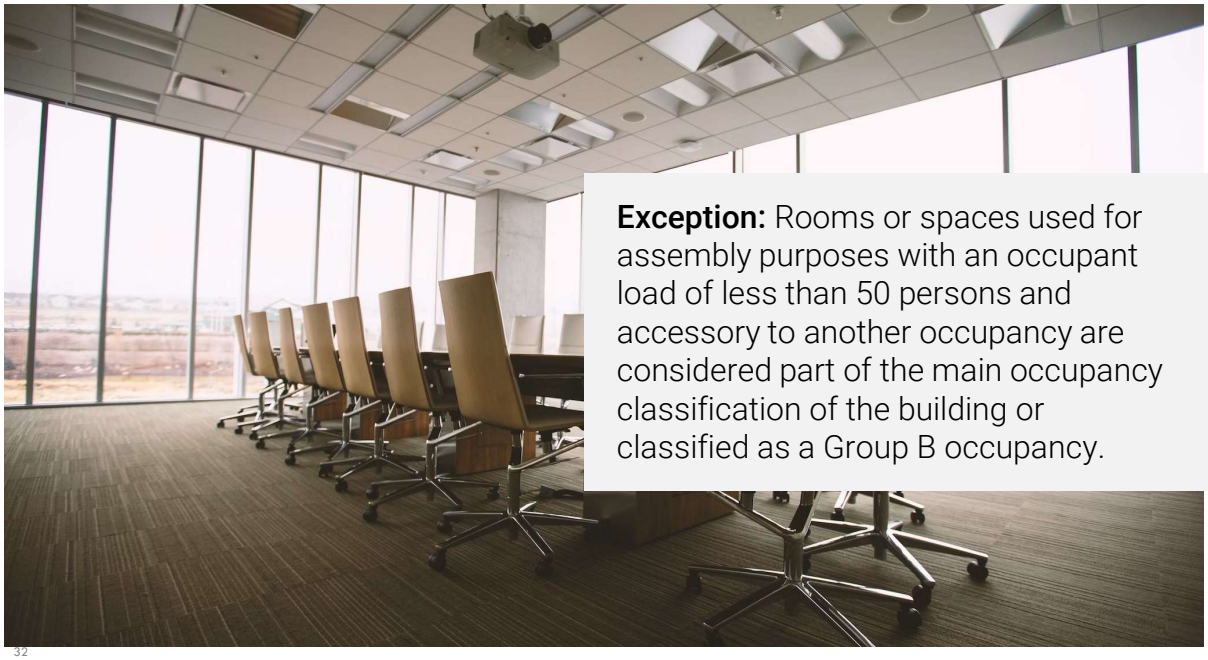

Exception: Rooms or spaces used for assembly purposes with an occupant load of less than 50 persons and accessory to another occupancy are considered part of the main occupancy classification of the building or classified as a Group B occupancy.

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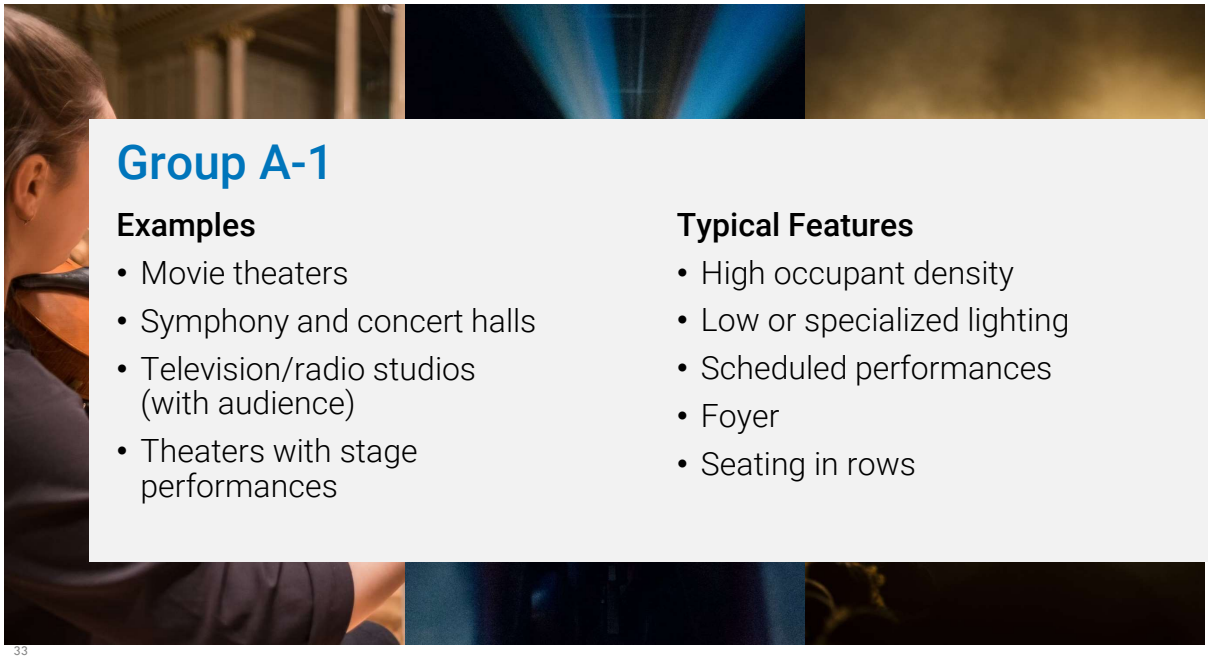

Group A-1

Examples

- Movie theaters
- Symphony and concert halls
- Television/radio studios (with audience)
- Theaters with stage performances

Typical Features

- High occupant density
- Low or specialized lighting
- Scheduled performances
- Foyer
- Seating in rows

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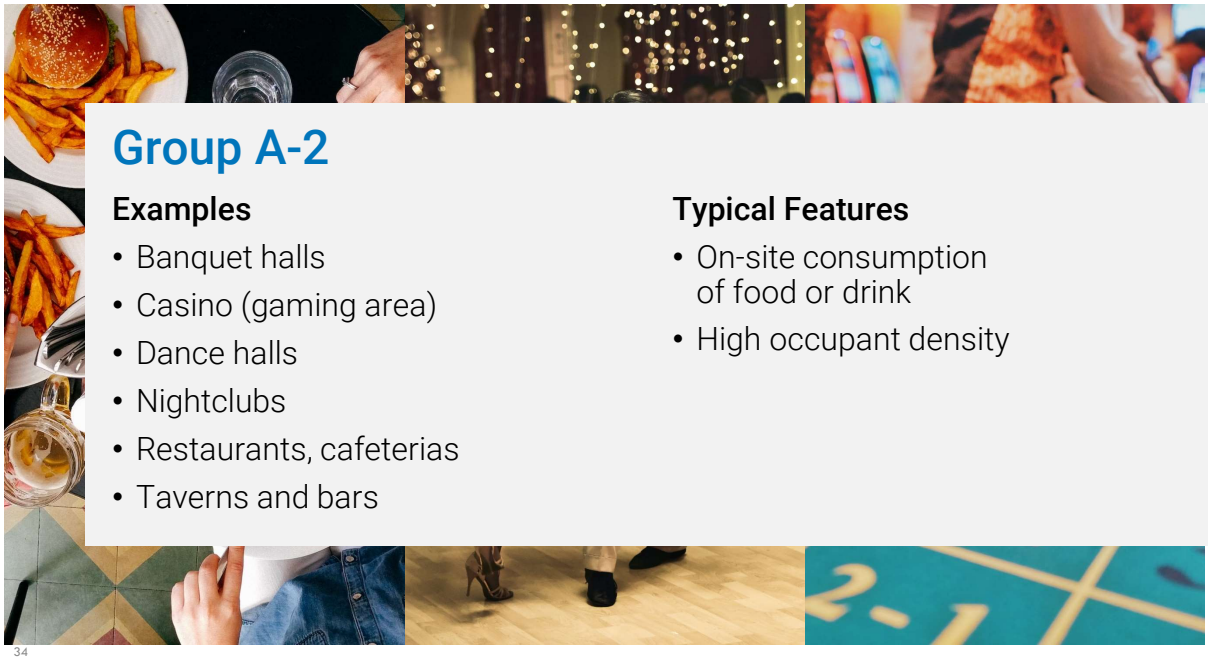

Group A-2

Examples

- Banquet halls
- Casino (gaming area)
- Dance halls
- Nightclubs
- Restaurants, cafeterias
- Taverns and bars

Typical Features

- On-site consumption of food or drink
- High occupant density

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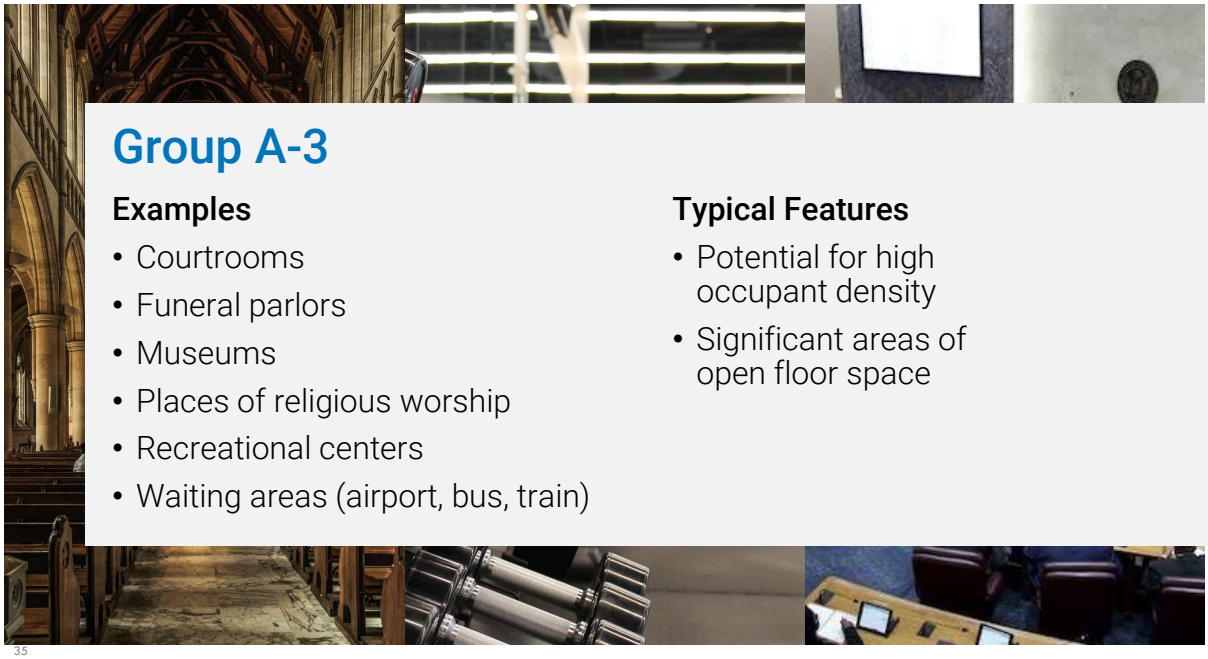

Group A-3

Examples

- Courtrooms
- Funeral parlors
- Museums
- Places of religious worship
- Recreational centers
- Waiting areas (airport, bus, train)

Typical Features

- Potential for high occupant density
- Significant areas of open floor space

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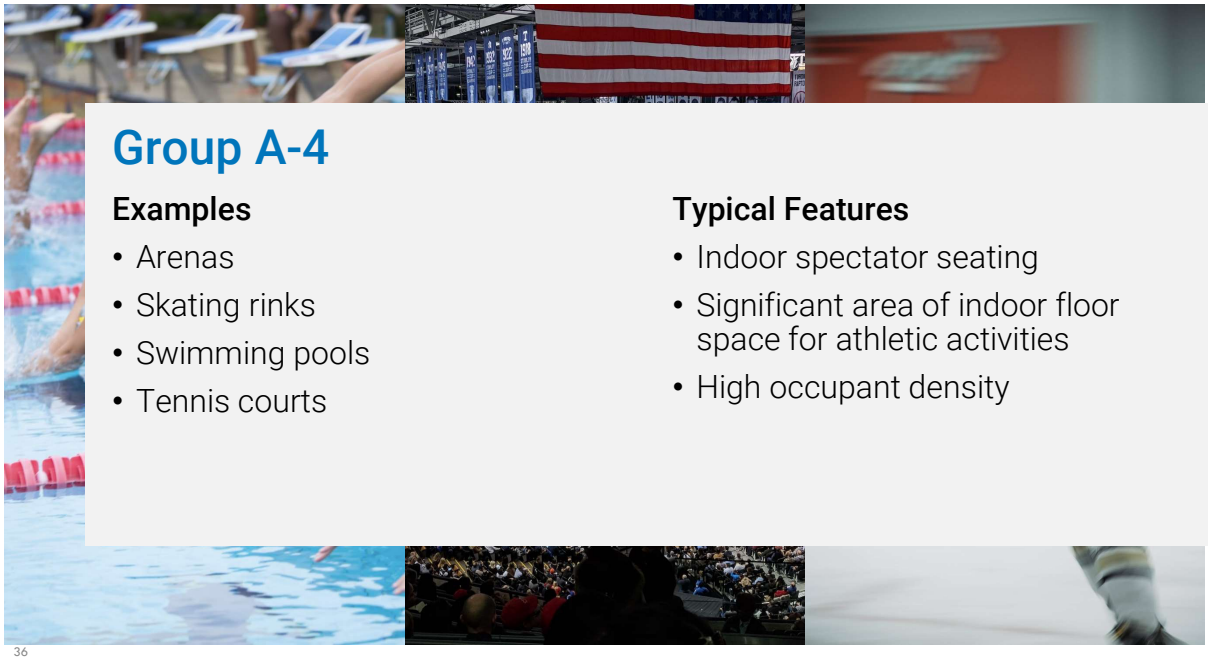

Group A-4

Examples

- Arenas
- Skating rinks
- Swimming pools
- Tennis courts

Typical Features

- Indoor spectator seating
- Significant area of indoor floor space for athletic activities
- High occupant density

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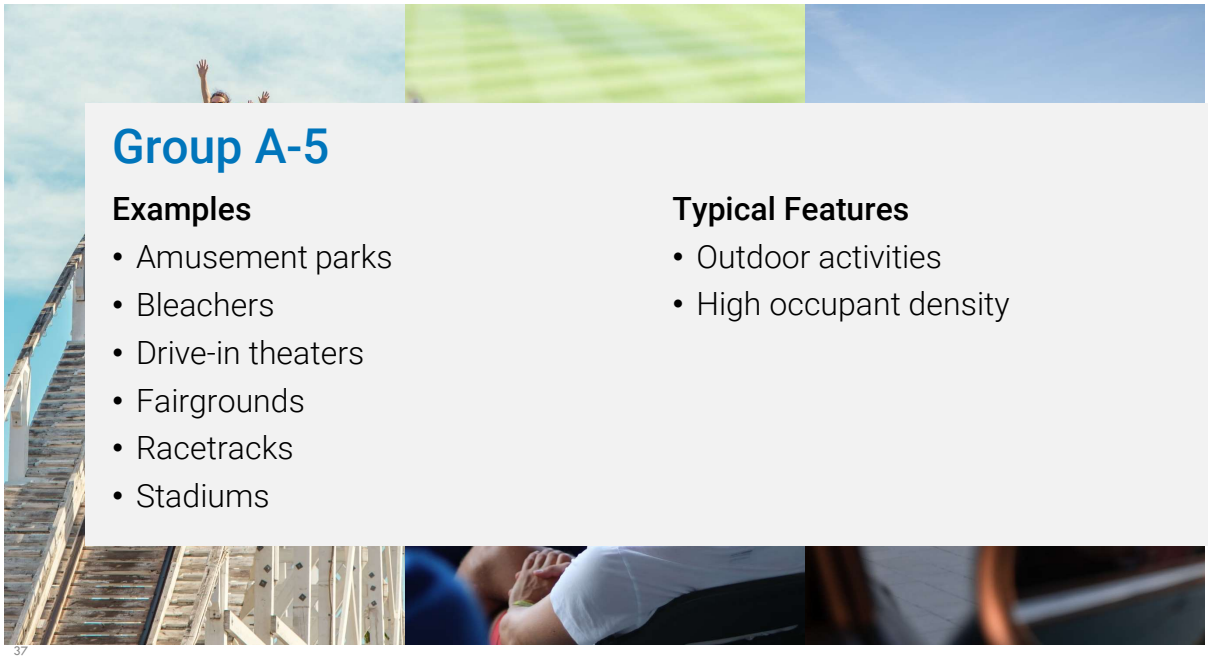

Group A-5

Examples

- Amusement parks
- Bleachers
- Drive-in theaters
- Fairgrounds
- Racetracks
- Stadiums

Typical Features

- Outdoor activities
- High occupant density

37

37

Group A

Self-Cert Eligible

- ✓ New buildings up to 2 stories, 10K ft^2
- ✓ Initial tenant buildout
- ✓ Repair or alteration
- ✓ Change of occupancy (from A, B, or M)
- ✓ Work in mixed-use building

Not Eligible

- × Addition
- × Occupant load of 300 or more
- × Work involving below-grade public area other than restroom
- × Wrigley-field-adjacent rooftop deck

This is a summary. For official guidance, review Tables C-1 and D in the Rules for the Self-Certified Permit Application Program.

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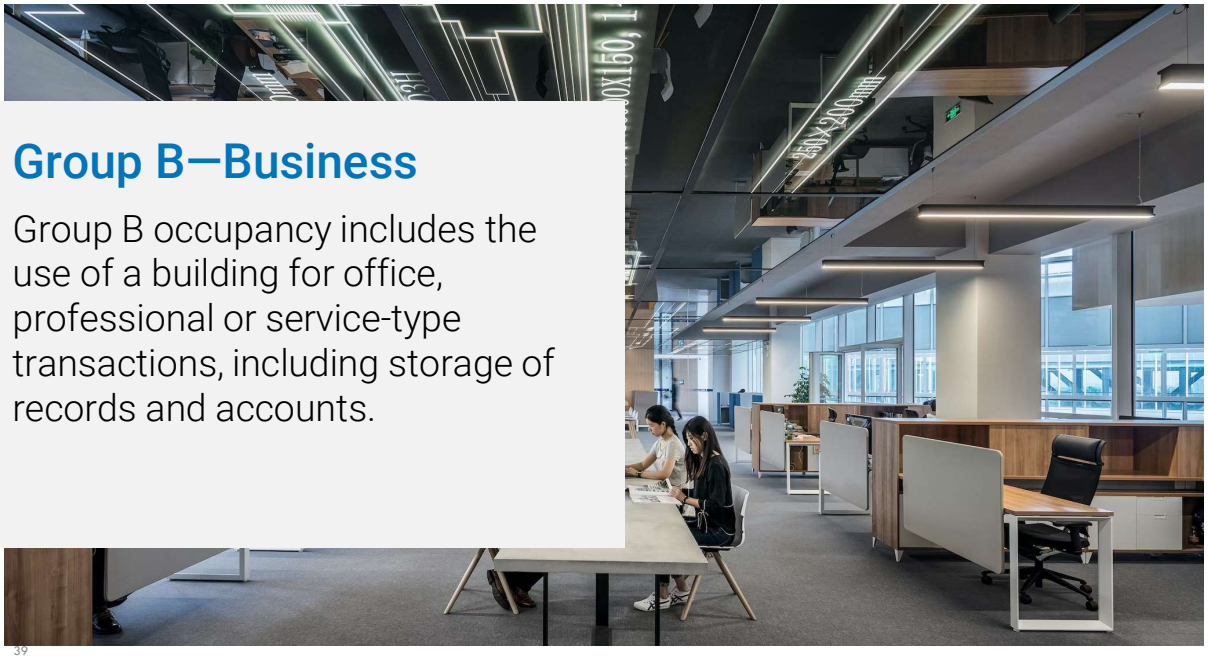

Group B—Business

Group B occupancy includes the use of a building for office, professional or service-type transactions, including storage of records and accounts.

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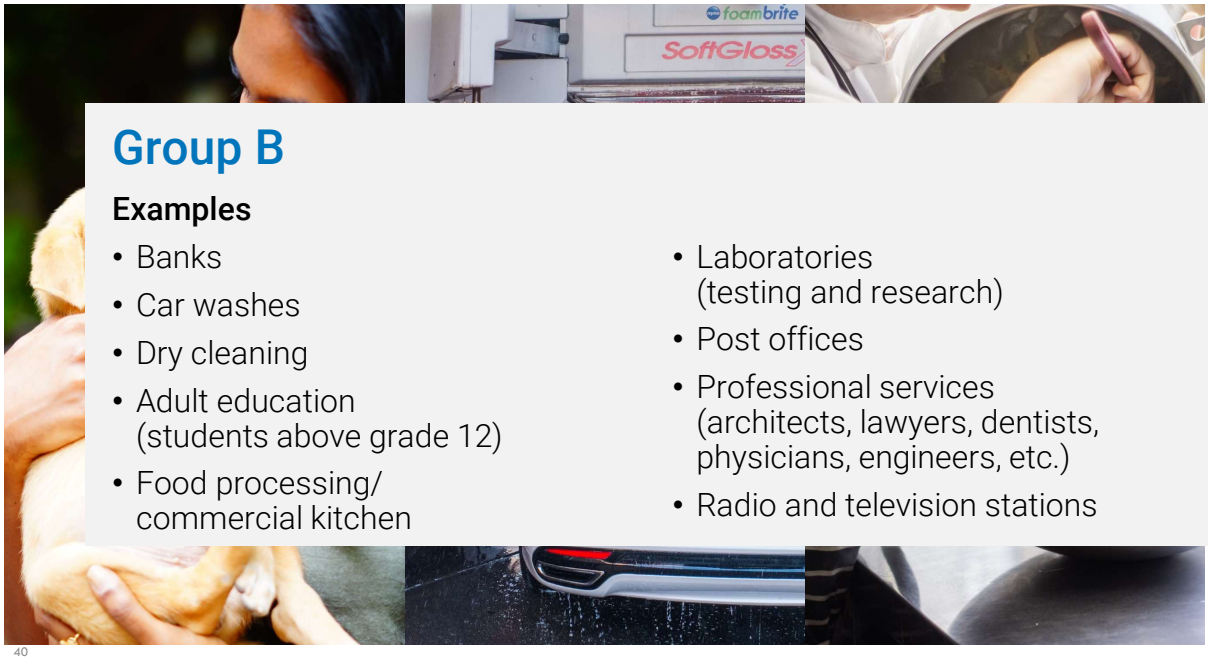

Group B

Examples

- Banks
- Car washes
- Dry cleaning
- Adult education (students above grade 12)
- Food processing/ commercial kitchen
- Laboratories (testing and research)
- Post offices
- Professional services (architects, lawyers, dentists, physicians, engineers, etc.)
- Radio and television stations

40

40

Telecommunications Equipment Area

An area or enclosed room within a building where electronic equipment used for the transmission of audio, video and data, power equipment (e.g., dc converters, inverters and batteries), technical support equipment (e.g., computers), and conductors dedicated solely to the operation of the equipment are located, including support rooms served by the same ventilation system.

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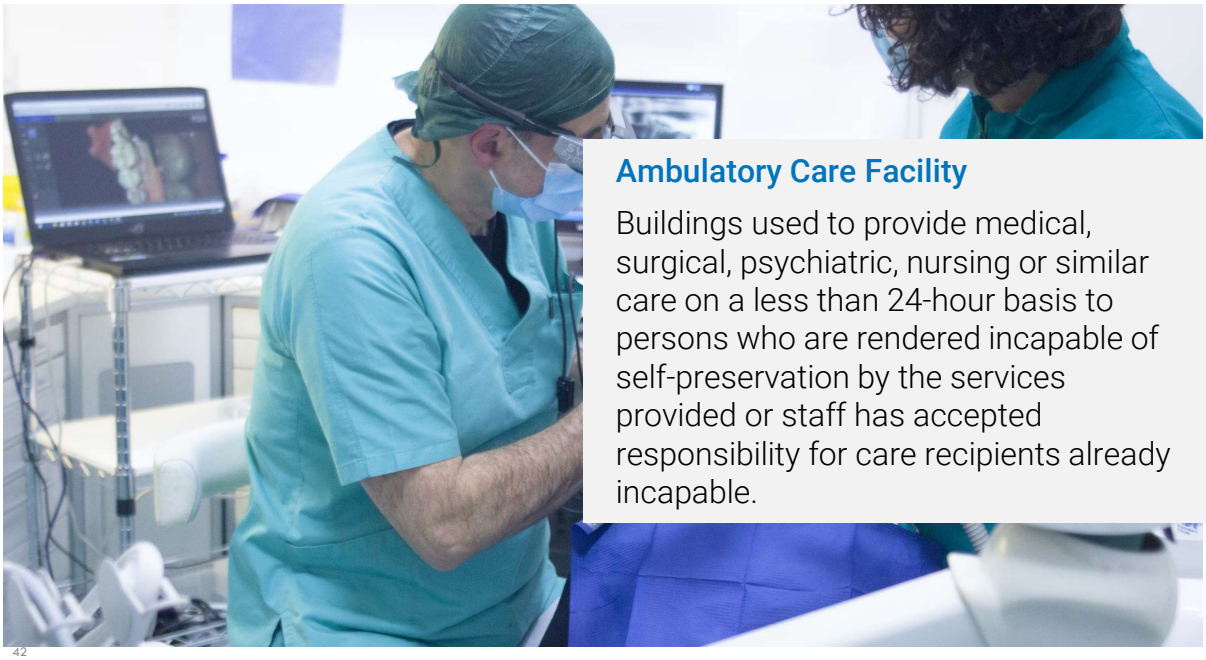

Ambulatory Care Facility

Buildings used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to persons who are rendered incapable of self-preservation by the services provided or staff has accepted responsibility for care recipients already incapable.

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Group B

Self-Cert Eligible	Not Eligible
✓ New buildings up to 4 stories, 30K ft^2	× Addition
✓ Initial tenant buildout	× Change of occupancy from other than A or M
✓ Repair or alteration	× Ambulatory care facility*
✓ Change of occupancy from A or M	× Telecommunication equipment area over 150 ft^2
✓ Work in mixed-use building	

This is a summary. For official guidance, review Tables C-1 and D in the Rules for the Self-Certified Permit Application Program.

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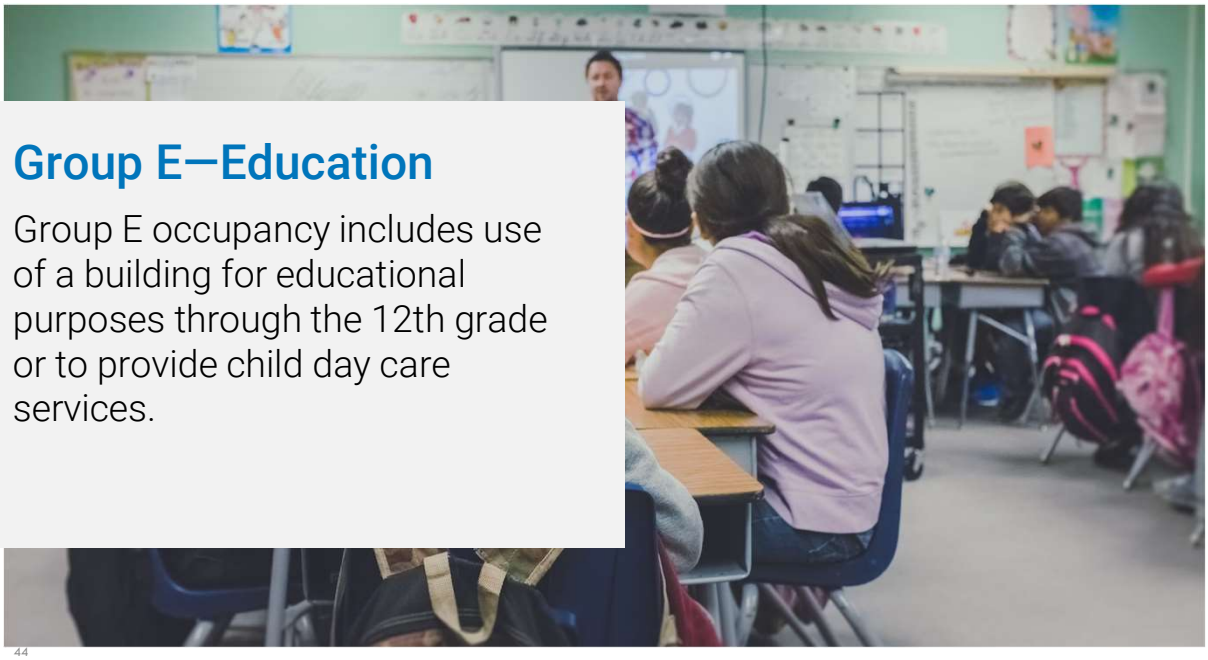

Group E—Education

Group E occupancy includes use of a building for educational purposes through the 12th grade or to provide child day care services.

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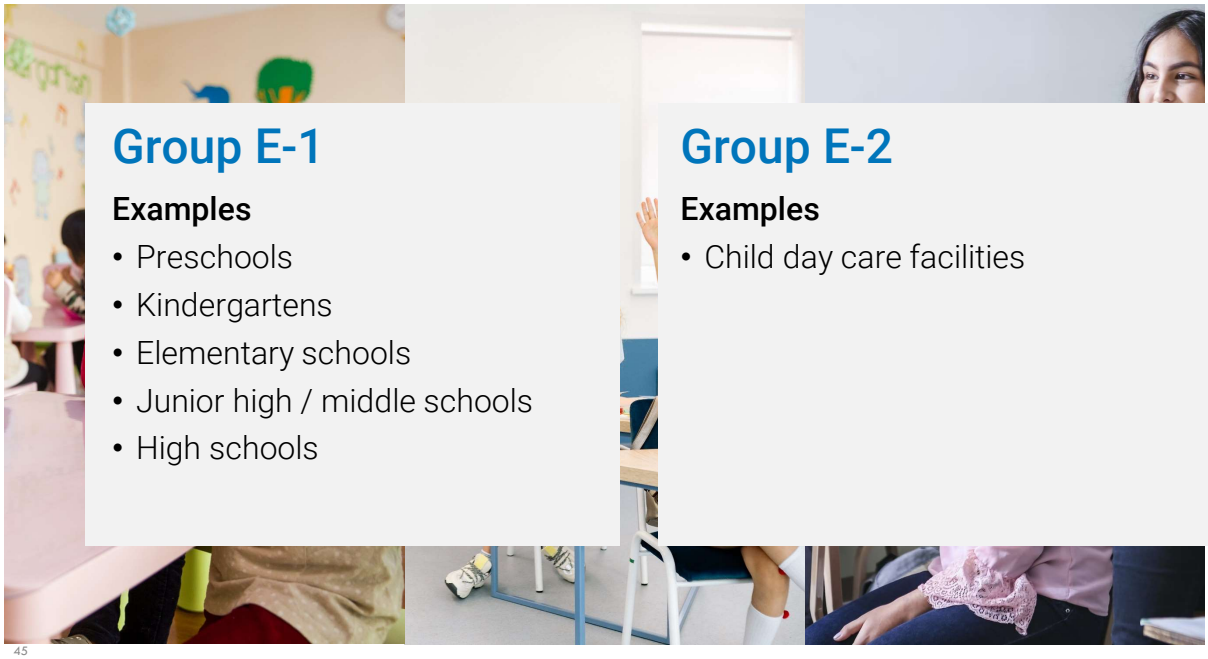

Group E-1

Examples

- Preschools
- Kindergartens
- Elementary schools
- Junior high / middle schools
- High schools

Group E-2

Examples

- Child day care facilities

45

45

Group E

Self-Cert Eligible	Not Eligible
✓ Group E-1 alteration or repair work	× Group E-2
✓ Up to 30K ft^2 of work	× New construction
	× Initial buildout
	× Addition
	× Change of occupancy

This is a summary. For official guidance, review Tables C-1 and D in the Rules for the Self-Certified Permit Application Program.

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Group F—Factory/Industrial

Group F occupancy includes use of a building for assembling, disassembling, fabricating, finishing, manufacturing, packaging, repair or processing operations that are not classified as a Group H or Group S occupancy.

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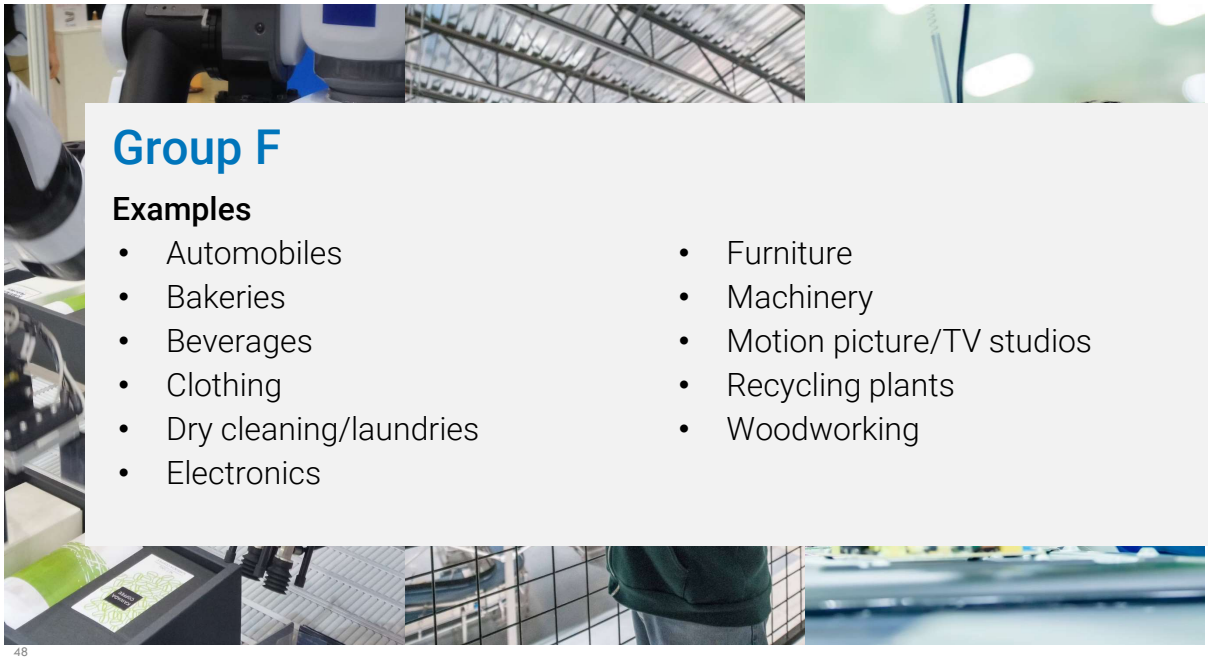

Group F

Examples

- Automobiles
- Bakeries
- Beverages
- Clothing
- Dry cleaning/laundries
- Electronics
- Furniture
- Machinery
- Motion picture/TV studios
- Recycling plants
- Woodworking

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Group F

Not Eligible

- ✗ Group F

This is a summary. For official guidance, review Tables C-1 and D in the Rules for the Self-Certified Permit Application Program.

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Group H—High-Hazard

Group H occupancy includes uses that involve the manufacturing, processing, generation or storage of materials that constitute a physical or health hazard in quantities in excess of those allowed in control areas complying with Section 414 based on maximum allowable quantities listed in Section 307.

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H-1 Detonation Hazard

H-2 Deflagration/Burning Hazard

H-3 Combustion/Physical Hazard

H-4 Health Hazard

H-5 Semiconductor Fabrication

51

Control Area

Control areas (sec. 414.2) with a 2-hour fire-resistance-rating may be used to isolate hazards and avoid classification as a Group H occupancy.

52

52

Group H

Not Eligible

- ✗ Group H
- ✗ Work involving use of more than one control area to avoid classification as Group H

This is a summary. For official guidance, review Tables C-1 and D in the Rules for the Self-Certified Permit Application Program.

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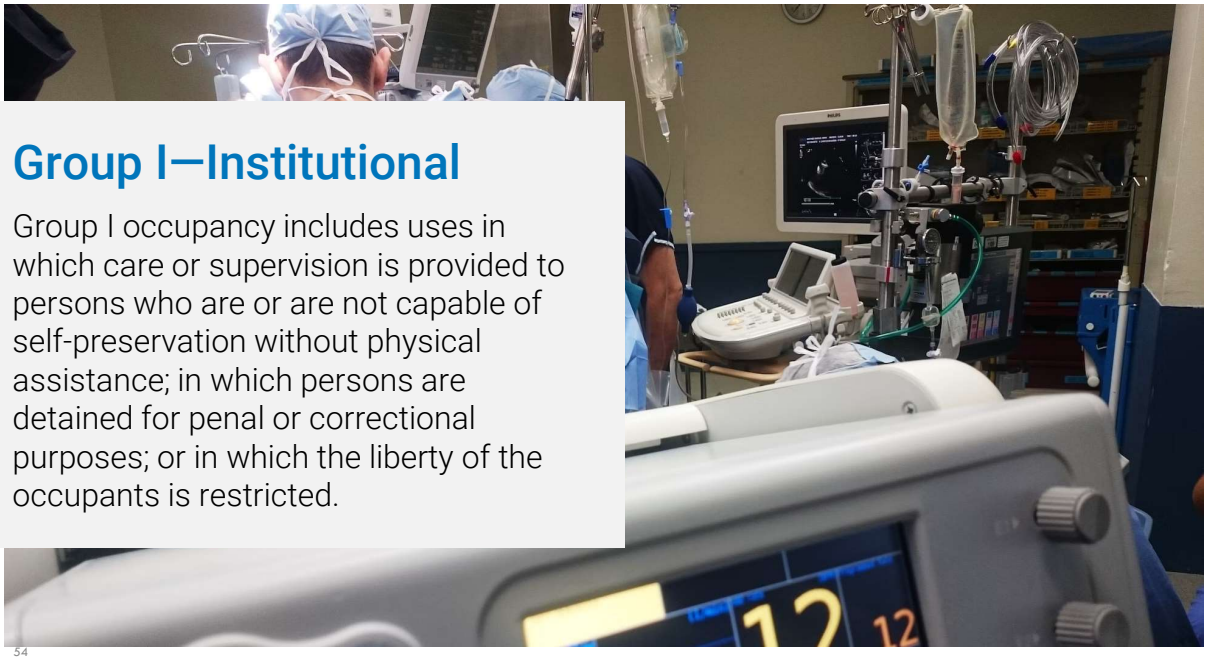

Group I—Institutional

Group I occupancy includes uses in which care or supervision is provided to persons who are or are not capable of self-preservation without physical assistance; in which persons are detained for penal or correctional purposes; or in which the liberty of the occupants is restricted.

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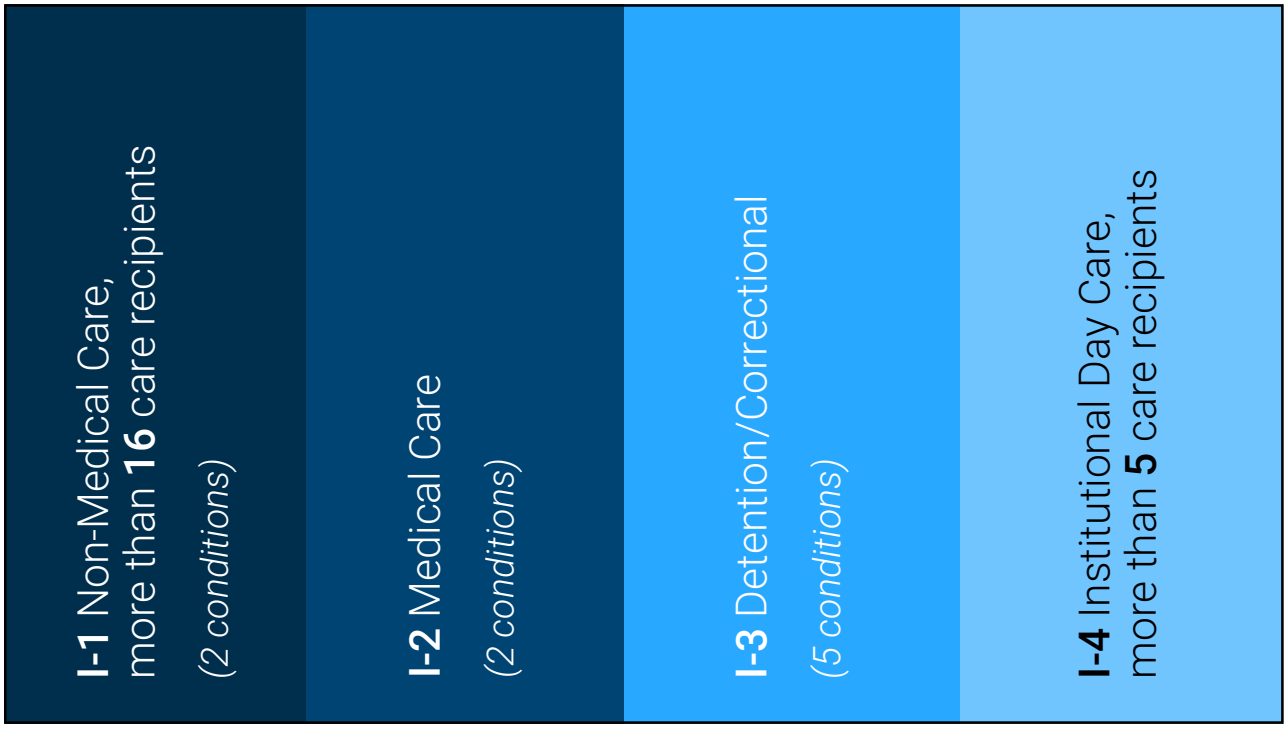

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Group I

Self-Cert Eligible	Not Eligible
✓ Group I-1 or I-2 alteration or repair work	× Group I-3 or Group I-4
✓ Up to 30K ft^2 of work	× New construction
	× Initial buildout
	× Addition
	× Change of occupancy

This is a summary. For official guidance, review Tables C-1 and D in the Rules for the Self-Certified Permit Application Program.

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Group M—Mercantile

Group M occupancy includes use of a building for the display and sale of merchandise and involves stocks of goods, wares, or merchandise incidental to such purposes and accessible to the public.

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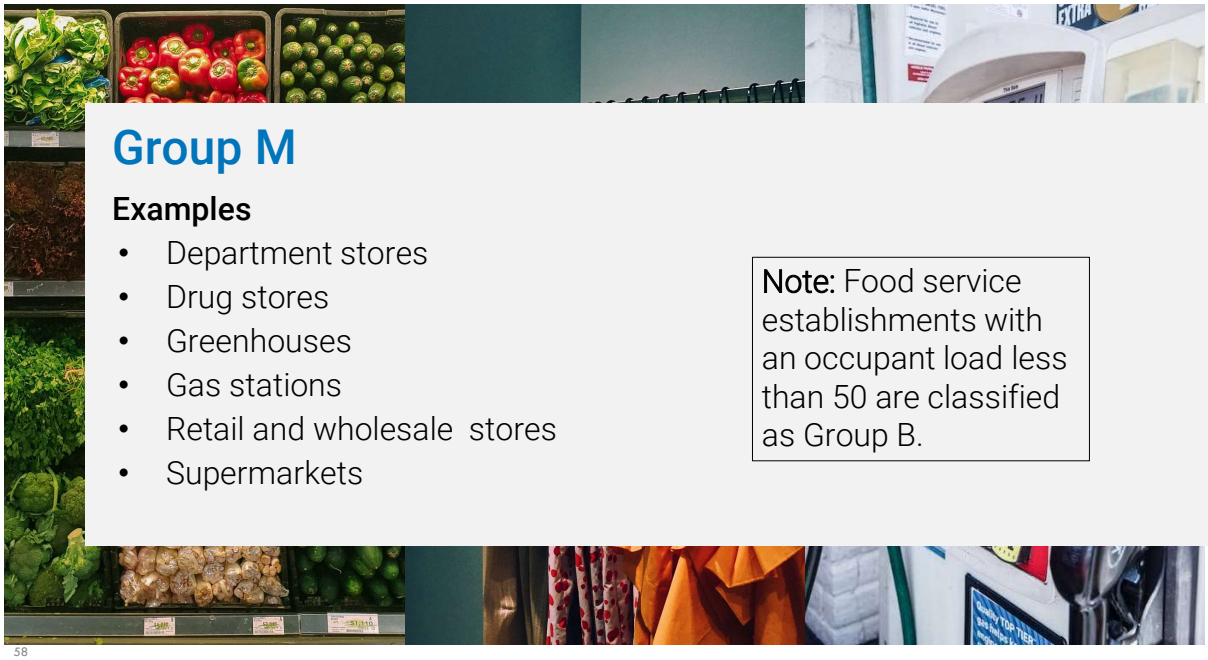

Group M

Examples

- Department stores
- Drug stores
- Greenhouses
- Gas stations
- Retail and wholesale stores
- Supermarkets

Note: Food service establishments with an occupant load less than 50 are classified as Group B.

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58

Group M

Self-Cert Eligible	Not Eligible
✓ New buildings up to 4 stories, 30K ft^2	× Addition
✓ Initial tenant buildout	× Change of occupancy from other than A or B
✓ Repair or alteration	× Below-grade public areas other than restrooms
✓ Change of occupancy from A or B)	
✓ Work in mixed-use building	

This is a summary. For official guidance, review Tables C-1 and D in the Rules for the Self-Certified Permit Application Program.

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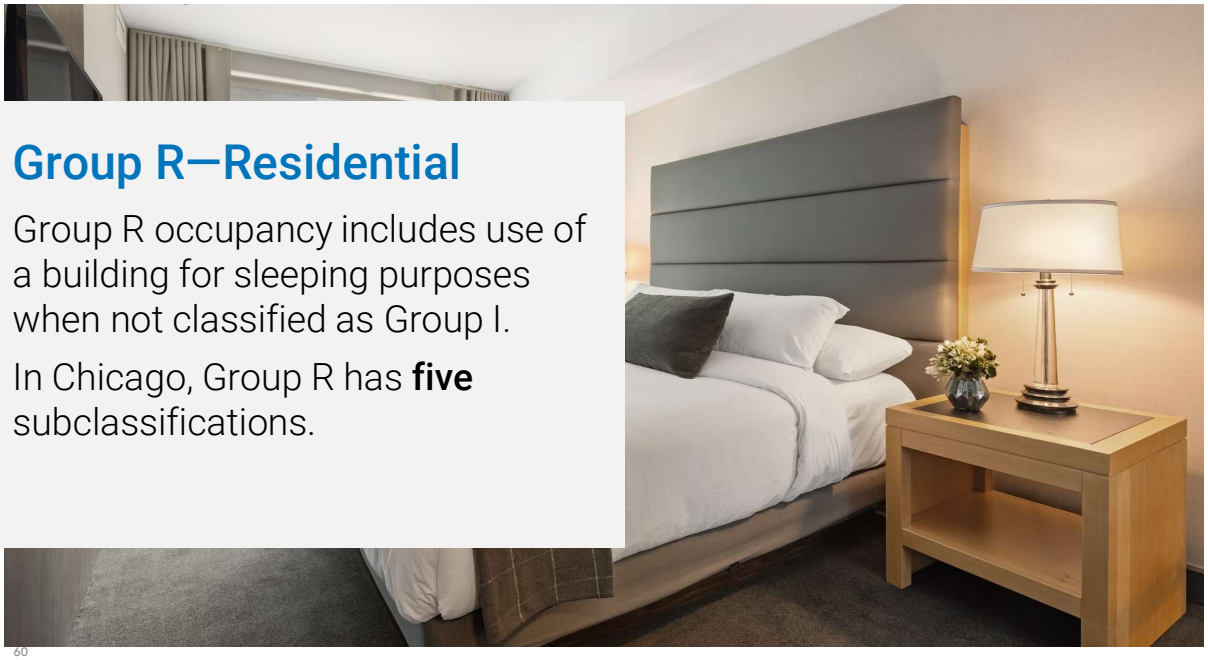

Group R—Residential

Group R occupancy includes use of a building for sleeping purposes when not classified as Group I.

In Chicago, Group R has **five** subclassifications.

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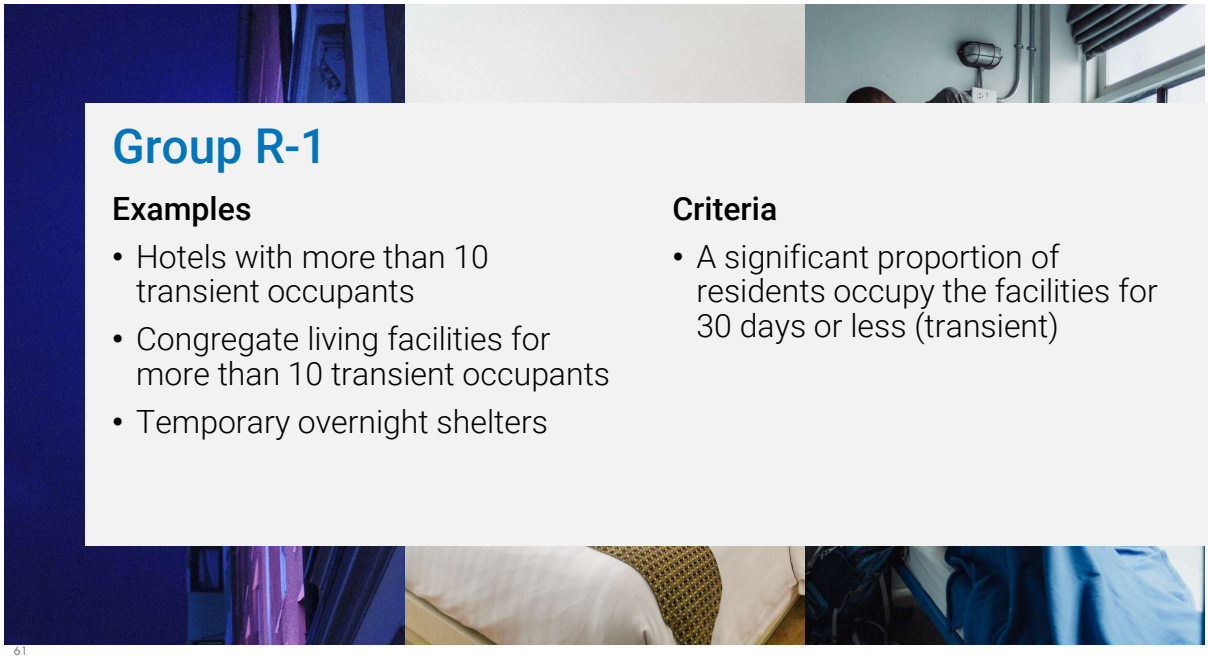

Group R-1

Examples

- Hotels with more than 10 transient occupants
- Congregate living facilities for more than 10 transient occupants
- Temporary overnight shelters

Criteria

- A significant proportion of residents occupy the facilities for 30 days or less (transient)

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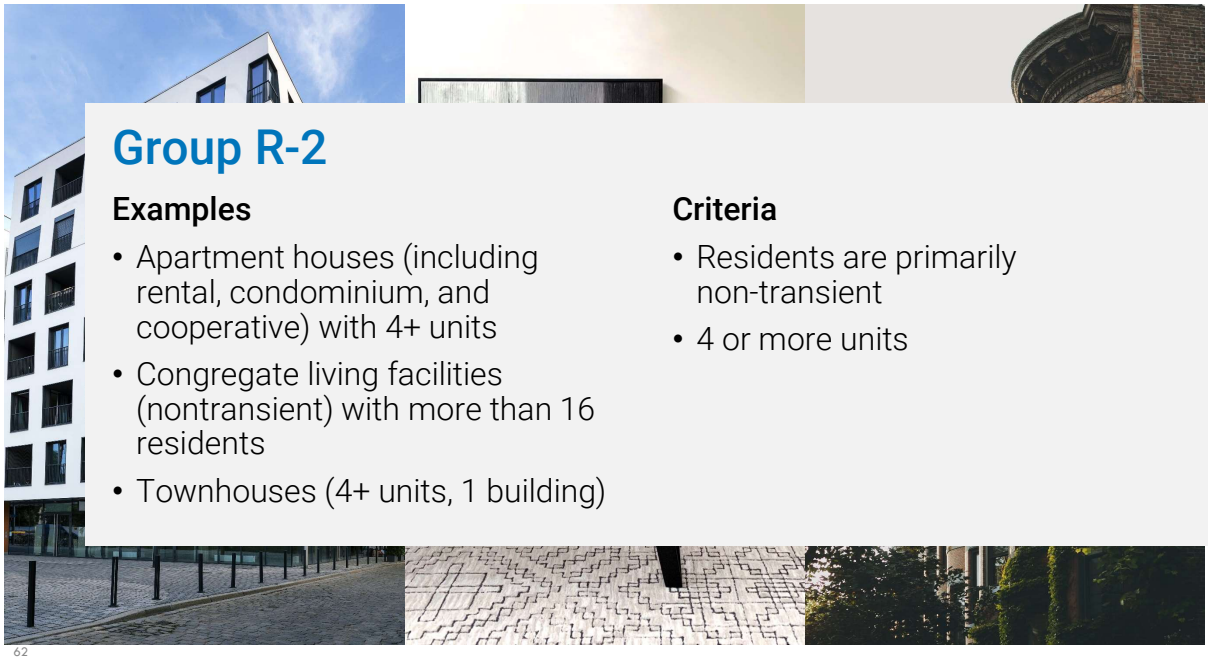

Group R-2

Examples

- Apartment houses (including rental, condominium, and cooperative) with 4+ units
- Congregate living facilities (nontransient) with more than 16 residents
- Townhouses (4+ units, 1 building)

Criteria

- Residents are primarily non-transient
- 4 or more units

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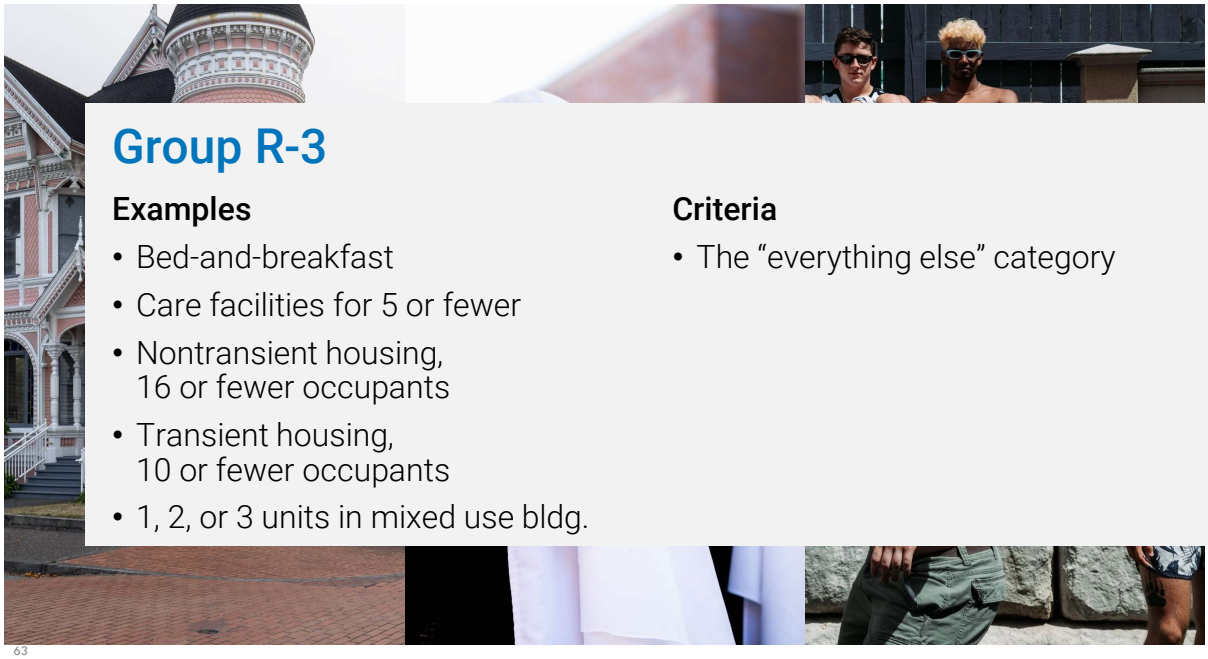

Group R-3

Examples

- Bed-and-breakfast
- Care facilities for 5 or fewer
- Nontransient housing, 16 or fewer occupants
- Transient housing, 10 or fewer occupants
- 1, 2, or 3 units in mixed use bldg.

Criteria

- The “everything else” category

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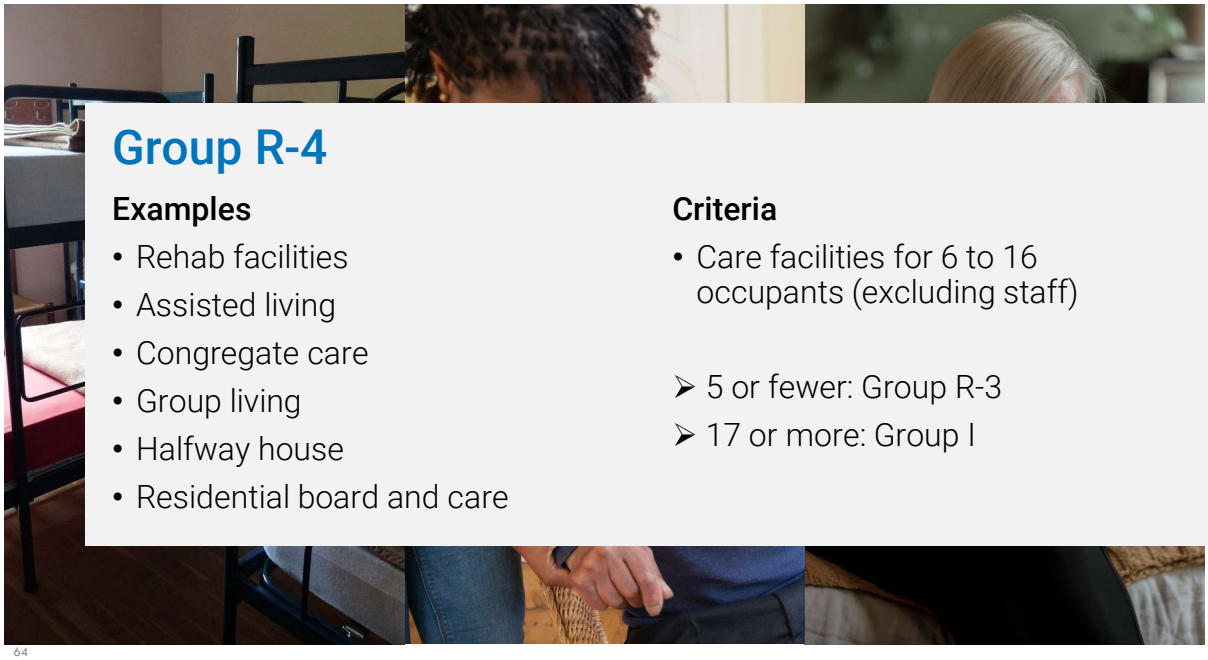

Group R-4

Examples

- Rehab facilities
- Assisted living
- Congregate care
- Group living
- Halfway house
- Residential board and care

Criteria

- Care facilities for 6 to 16 occupants (excluding staff)

➢ 5 or fewer: Group R-3

➢ 17 or more: Group I

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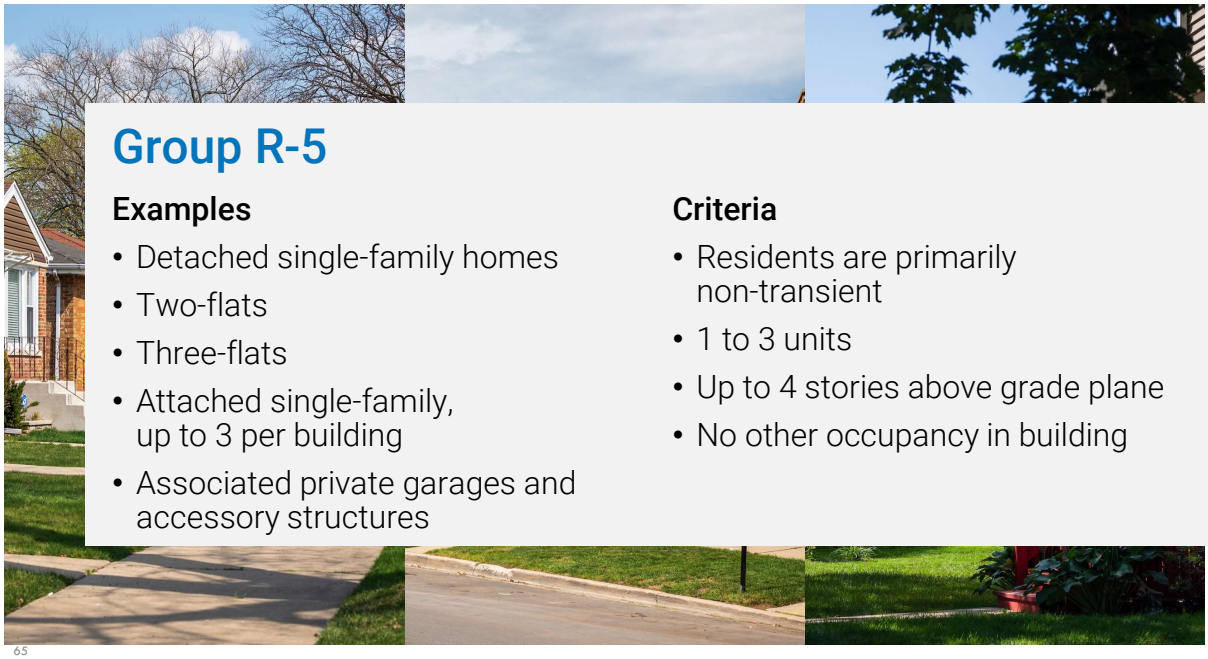

Group R-5

Examples

- Detached single-family homes
- Two-flats
- Three-flats
- Attached single-family, up to 3 per building
- Associated private garages and accessory structures

Criteria

- Residents are primarily non-transient
- 1 to 3 units
- Up to 4 stories above grade plane
- No other occupancy in building

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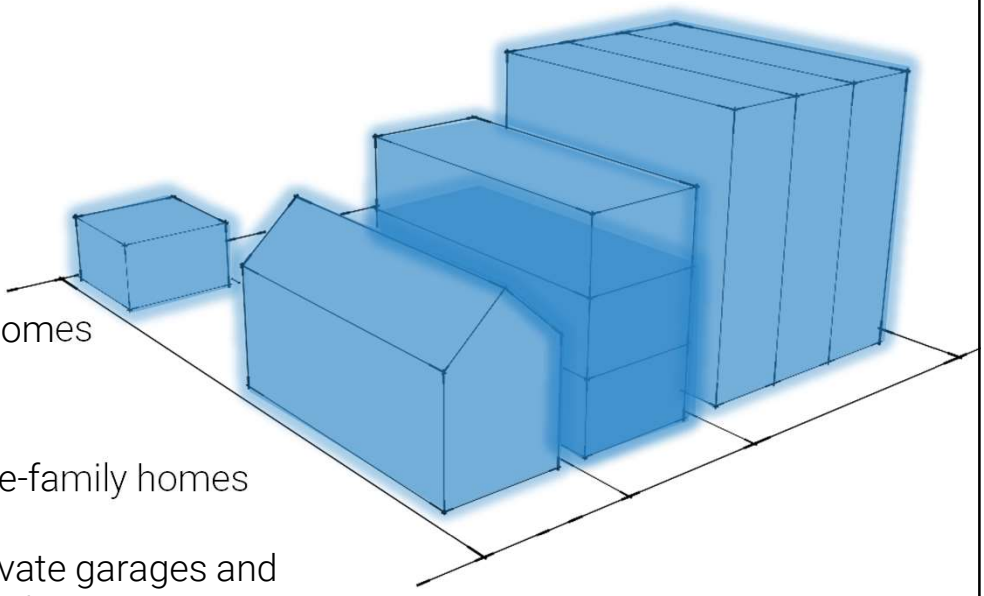
Group R-5

- Detached single-family homes
- Two-flats
- Three-flats
- Attached single-family homes (up to 3)
- Associated private garages and accessory structures



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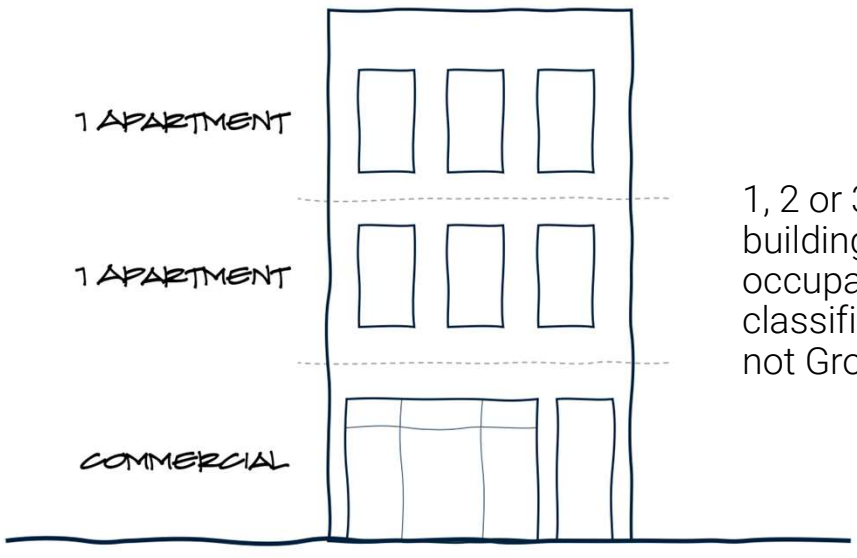

1, 2 or 3 dwelling units in a building with non-residential occupancy must be classified as **Group R-3**, not Group R-5

67

67

Group R New Construction

Self-Cert Eligible	Not Eligible
✓ Up to 8 residential units in building	× More than 8 residential units in building
✓ Up to 4 stories above grade plane	× More than 4 stories above grade plane in building
✓ Occupiable rooftop (above 4th story above grade plane)	*(except individual unit buildout)*
✓ 1 or 2-story accessory structures	

This is a summary. For official guidance, review Tables C-1 and D in the Rules for the Self-Certified Permit Application Program.

68

68

Group R Rehabilitation

Self-Cert Eligible	Not Eligible
✓ Work on multiple units in buildings up to 4 stories above grade plane	× Increase number of residential units
✓ Work in single units in larger buildings	× Change of occupancy to/from residential
✓ Exterior/porch work, buildings up to 4 stories	
✓ Deconversion	

This is a summary. For official guidance, review Tables C-1 and D in the Rules for the Self-Certified Permit Application Program.

69

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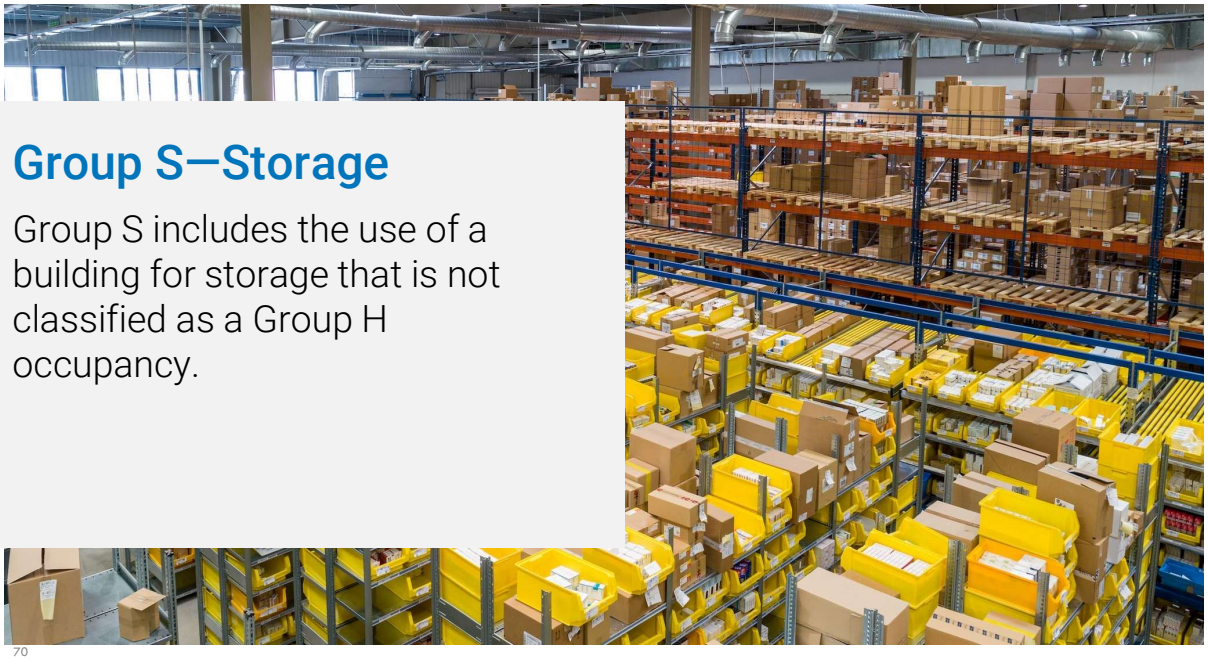

Group S—Storage

Group S includes the use of a building for storage that is not classified as a Group H occupancy.

70

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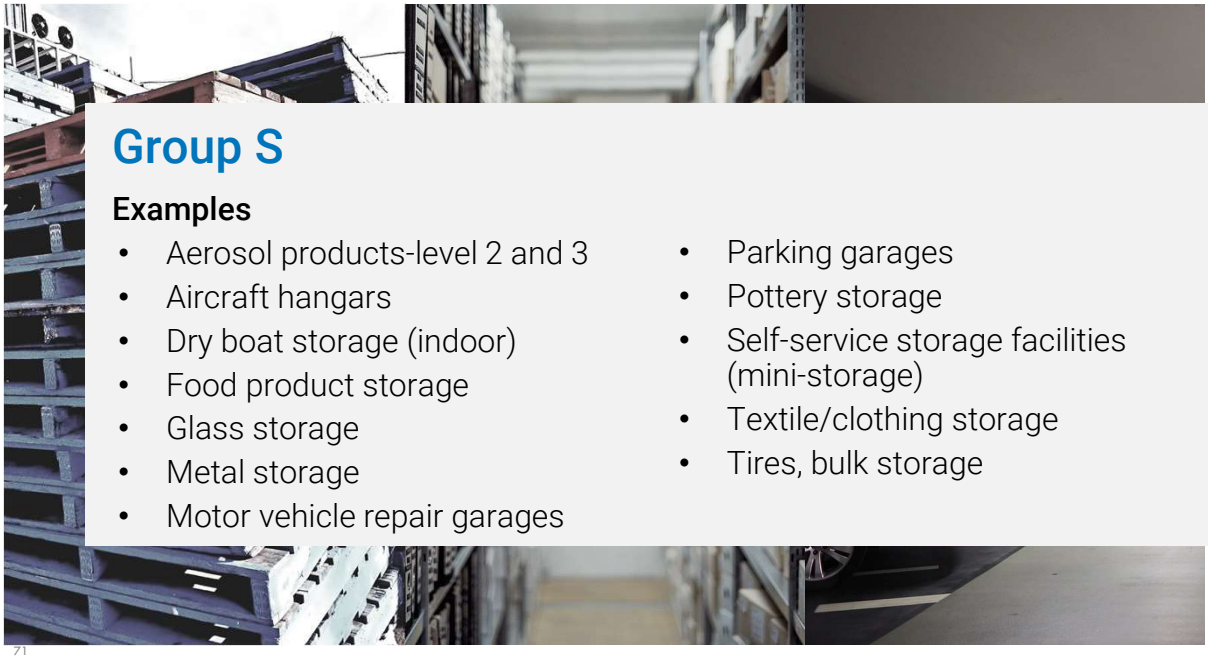

Group S

Examples

- Aerosol products-level 2 and 3
- Aircraft hangars
- Dry boat storage (indoor)
- Food product storage
- Glass storage
- Metal storage
- Motor vehicle repair garages
- Parking garages
- Pottery storage
- Self-service storage facilities (mini-storage)
- Textile/clothing storage
- Tires, bulk storage

71

71

Group S

Self-Cert Eligible	Not Eligible
✓ Group S-2 parking garage on first story above or below grade plane in a mixed-occupancy building	× Group S-1 × Group S-2 other than a garage × Freestanding Group S-2 parking garage × Group S-2 parking garage on level other than first story above or below grade

This is a summary. For official guidance, review Tables C-1 and D in the Rules for the Self-Certified Permit Application Program.

72

72

Group U—Utility/Misc.

Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped, and maintained to conform to code requirements commensurate with the fire and life-safety hazard incidental to their use and occupancy.

73

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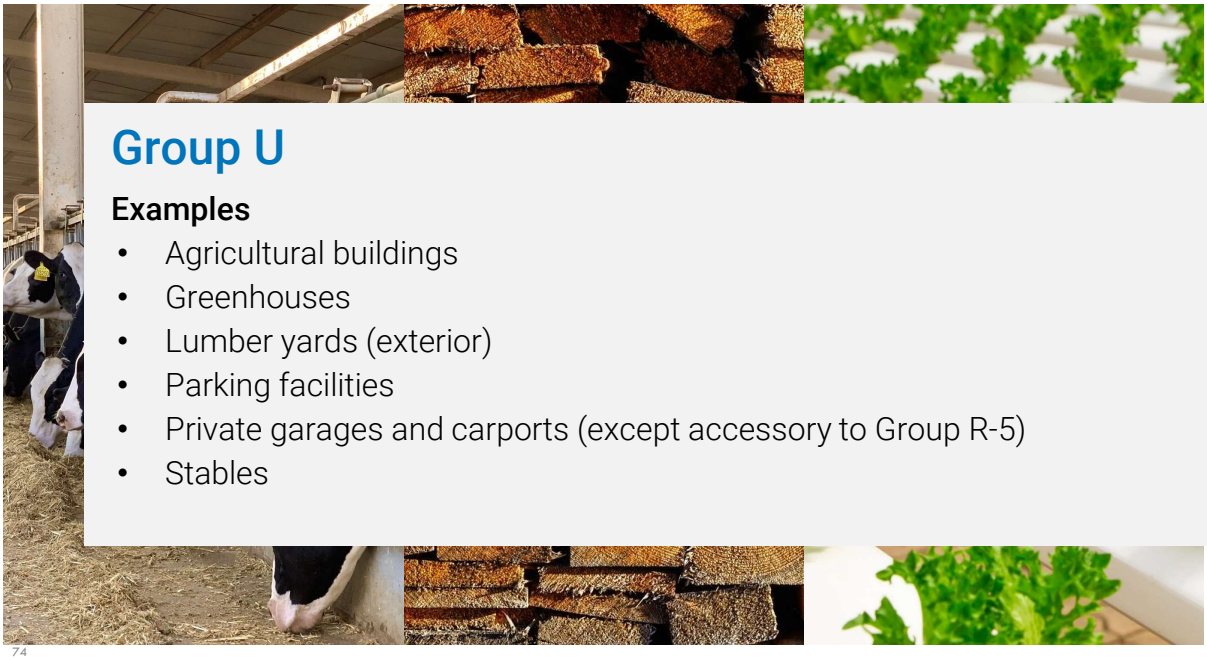

Group U

Examples

- Agricultural buildings
- Greenhouses
- Lumber yards (exterior)
- Parking facilities
- Private garages and carports (except accessory to Group R-5)
- Stables

74

74

Group U

Self-Cert Eligible	Not Eligible
✓ Fences ✓ Sheds ✓ Carports ✓ Private garages ✓ Temporary structures	× Any other permanent Group U without written preapproval

This is a summary. For official guidance, review Tables C-1 and D in the Rules for the Self-Certified Permit Application Program.

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Occupancy Classification Activity

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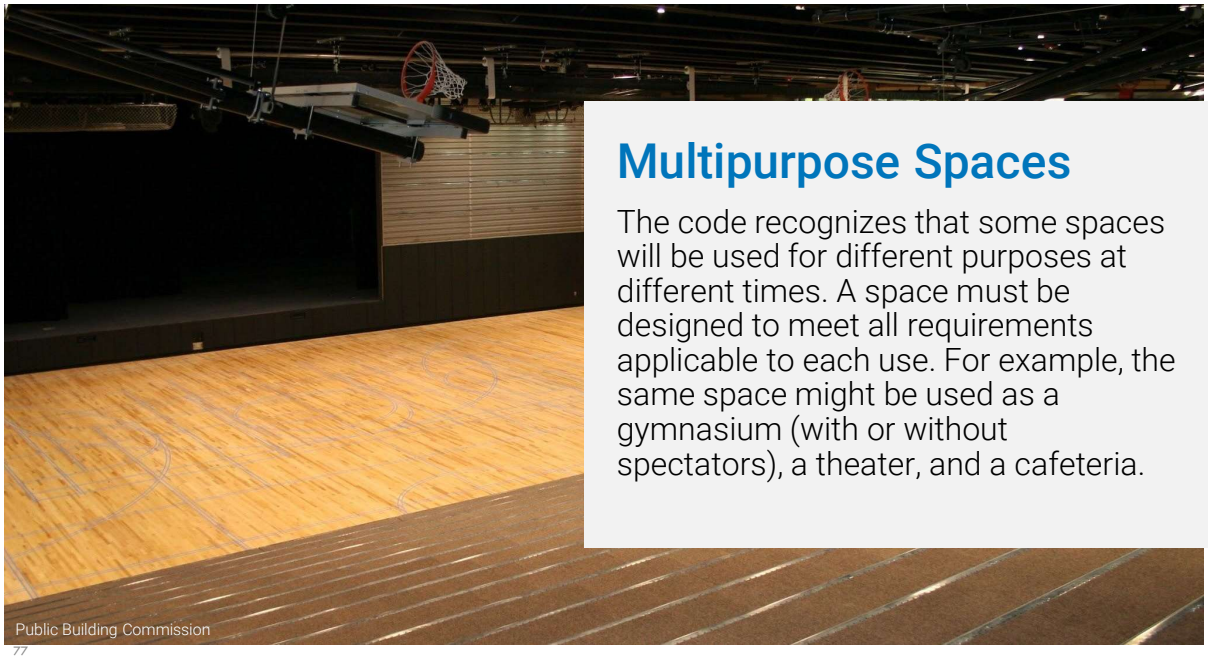

Multipurpose Spaces

The code recognizes that some spaces will be used for different purposes at different times. A space must be designed to meet all requirements applicable to each use. For example, the same space might be used as a gymnasium (with or without spectators), a theater, and a cafeteria.

77

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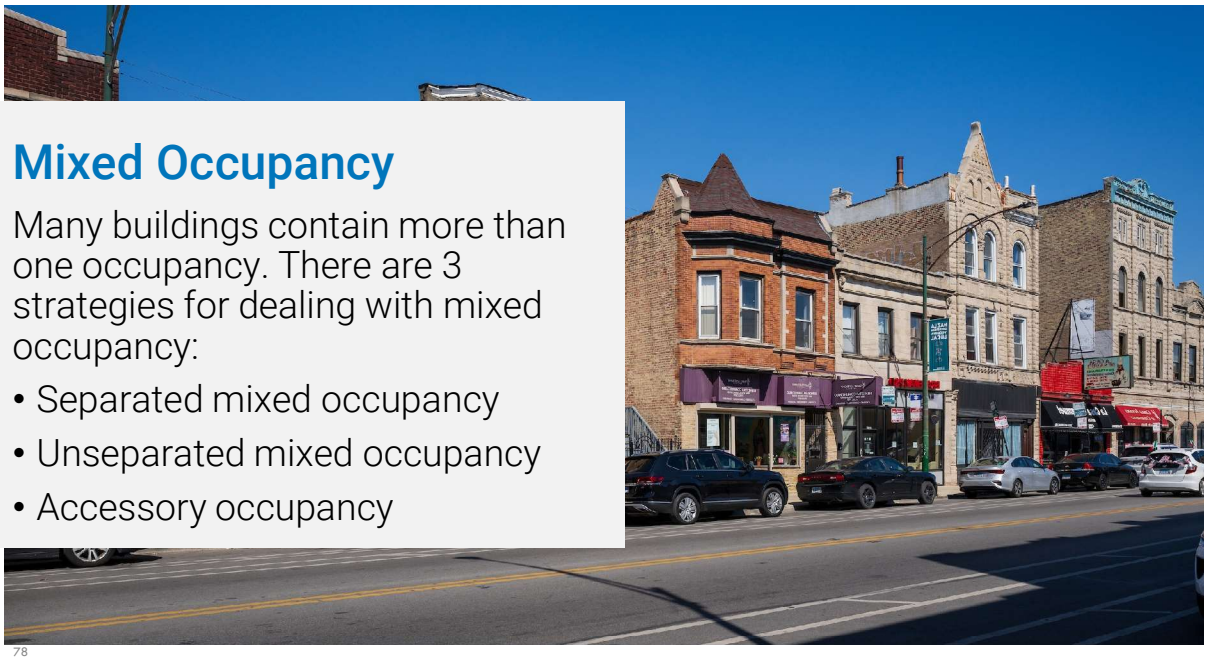

Mixed Occupancy

Many buildings contain more than one occupancy. There are 3 strategies for dealing with mixed occupancy:

- Separated mixed occupancy
- Unseparated mixed occupancy
- Accessory occupancy

78

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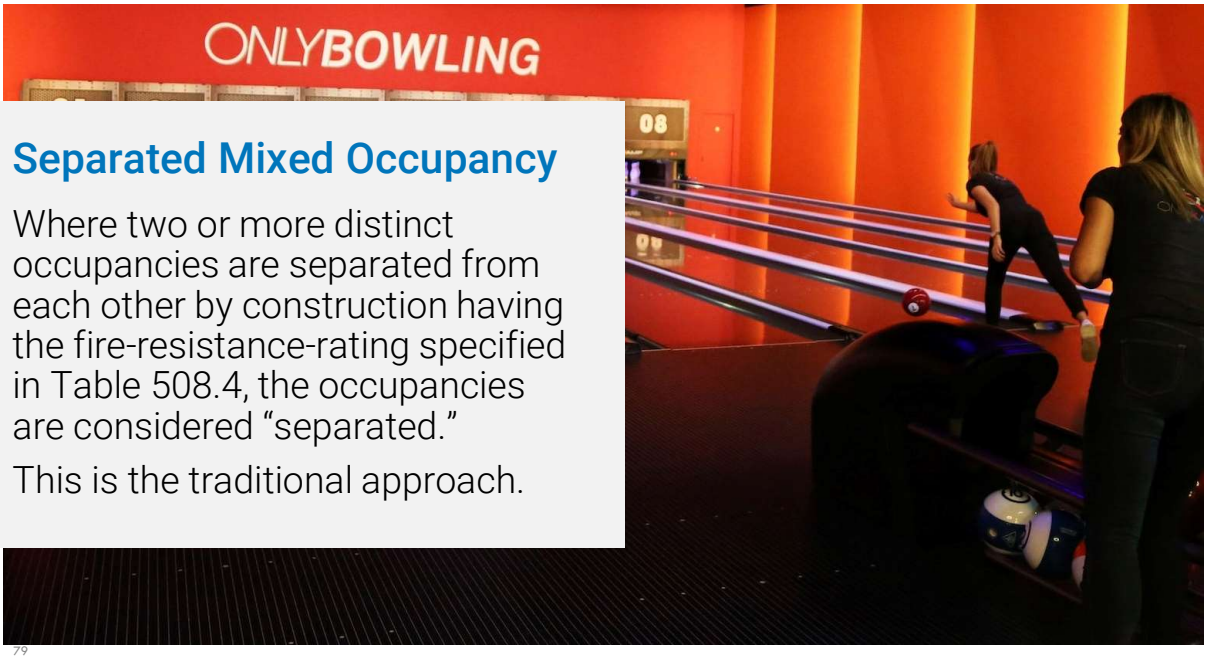

Separated Mixed Occupancy

Where two or more distinct occupancies are separated from each other by construction having the fire-resistance-rating specified in Table 508.4, the occupancies are considered "separated."

This is the traditional approach.

79

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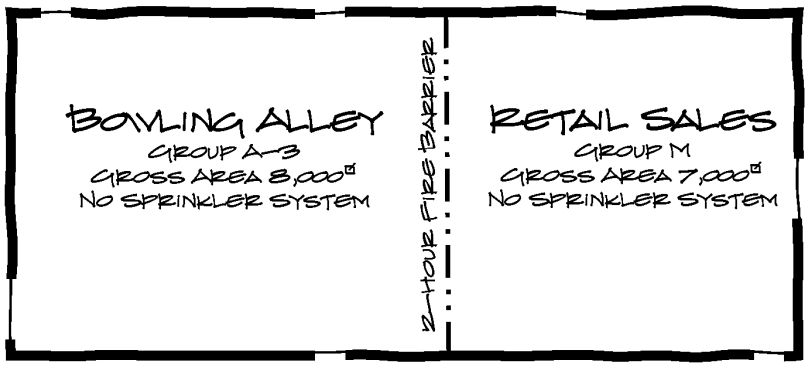

80 Figure 29

80

81 Figure 29 (modified)

81

82

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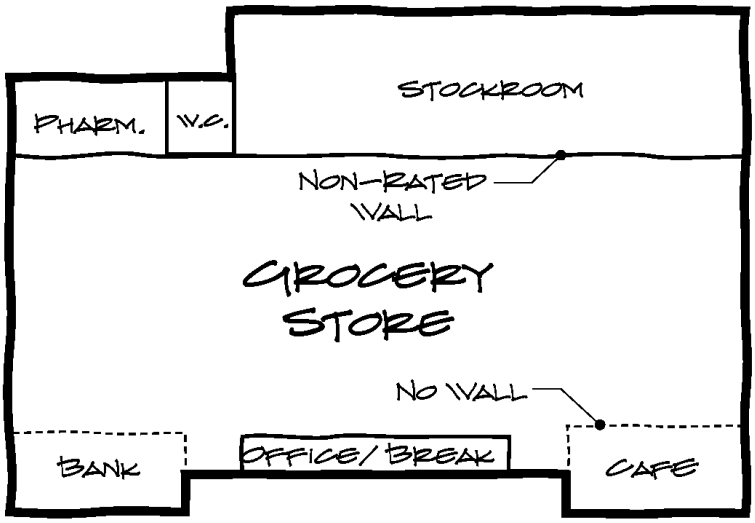


83

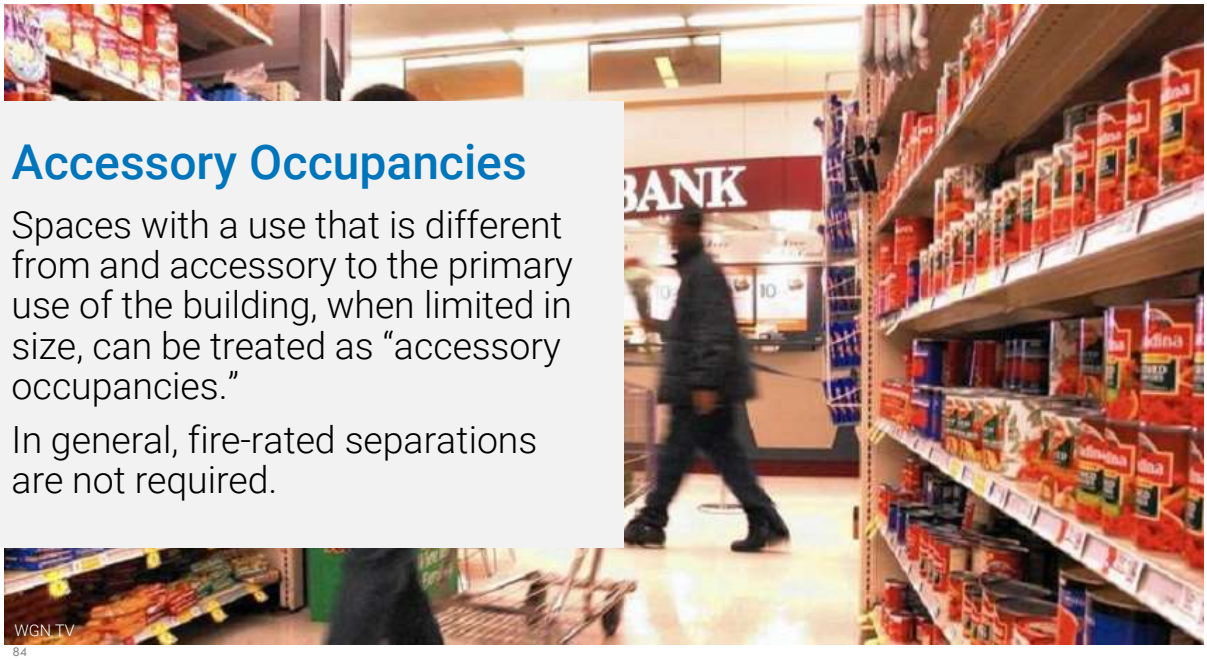
Figure 25

83

Accessory Occupancies

Spaces with a use that is different from and accessory to the primary use of the building, when limited in size, can be treated as "accessory occupancies."

In general, fire-rated separations are not required.



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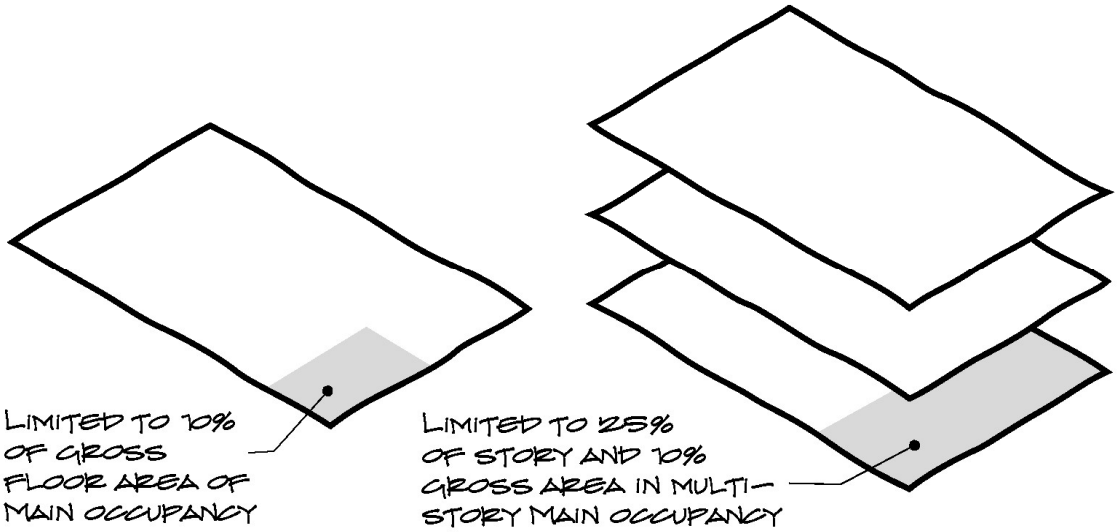
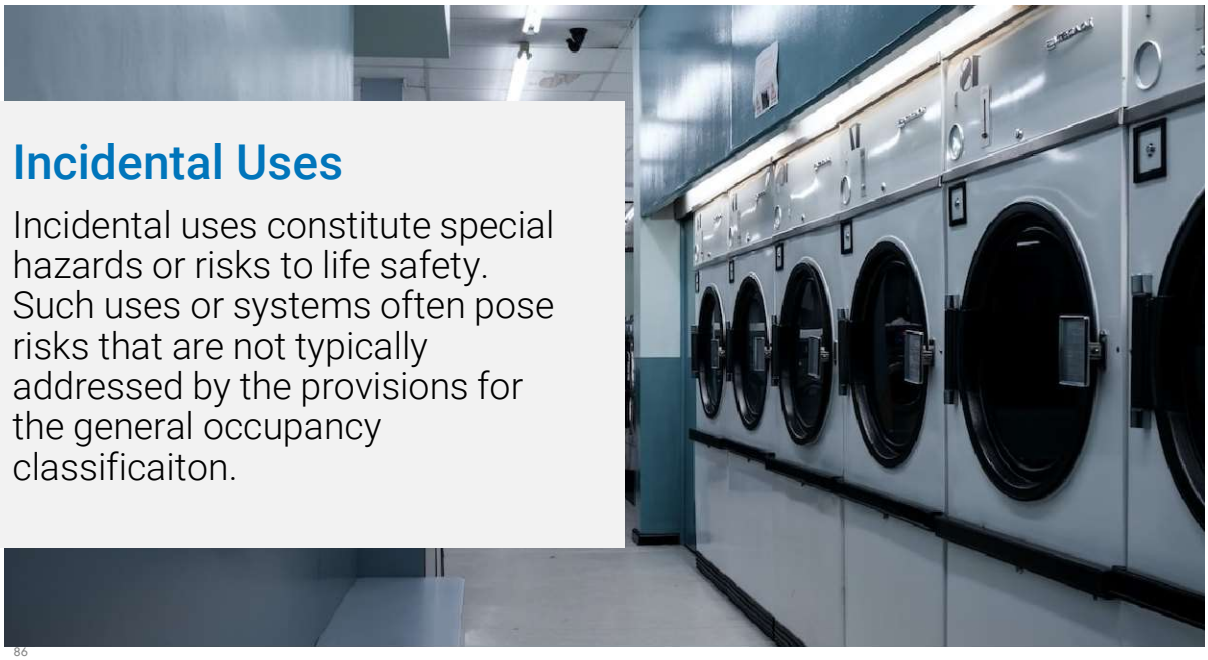


85 Figure 5

85

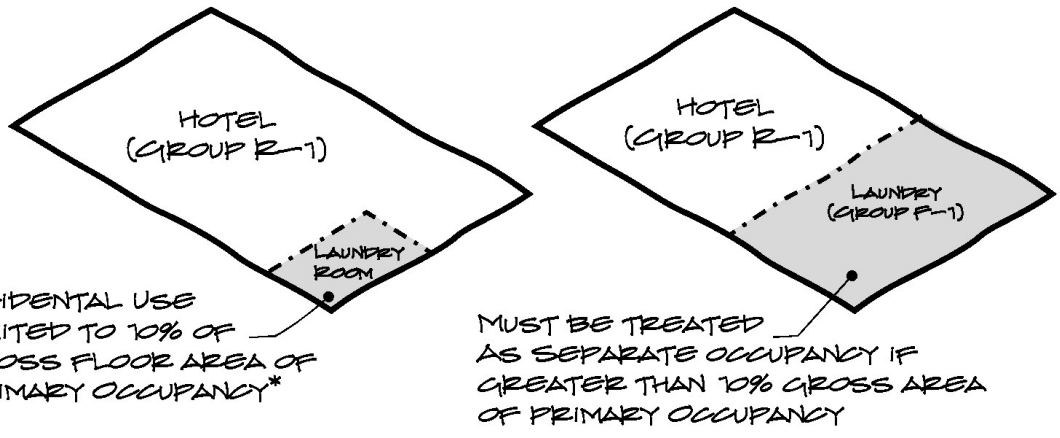


Incidental Uses

Incidental uses constitute special hazards or risks to life safety. Such uses or systems often pose risks that are not typically addressed by the provisions for the general occupancy classificaiton.

86

86



87

Figure 6

87

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Audience Q&A Session

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88

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Construction Type

Key concepts

The 5 types of construction

Combustible materials in Types I - IV

Basements

Photo courtesy Papageorge Haymes / Ken DeMuth

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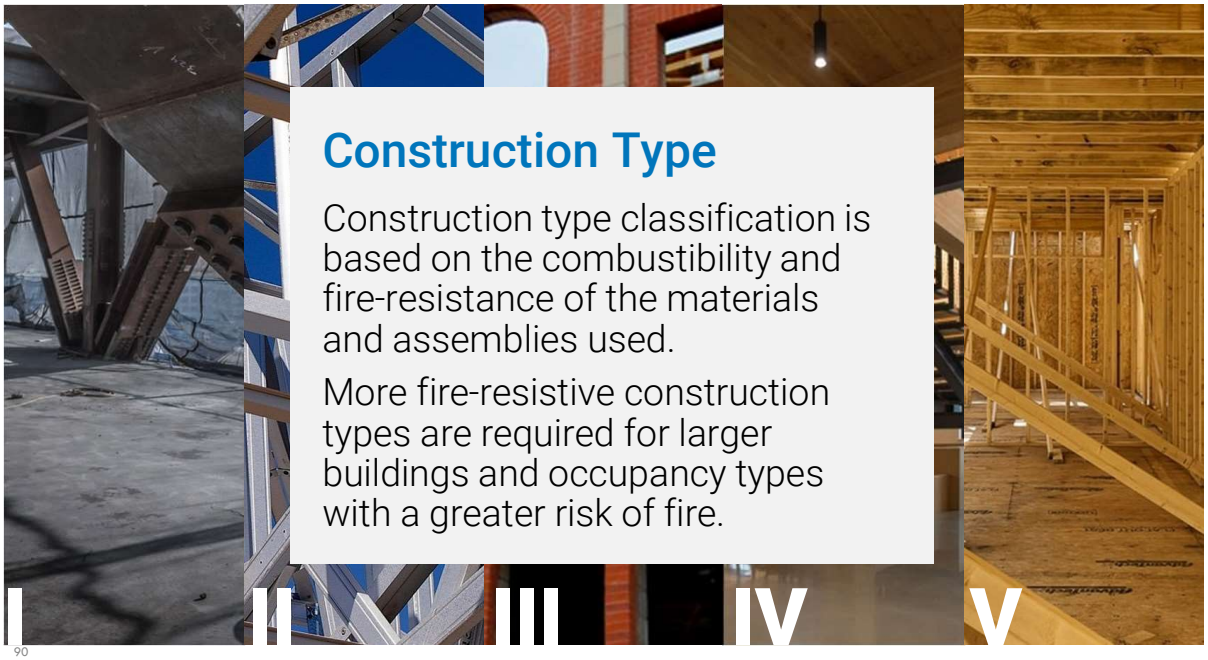
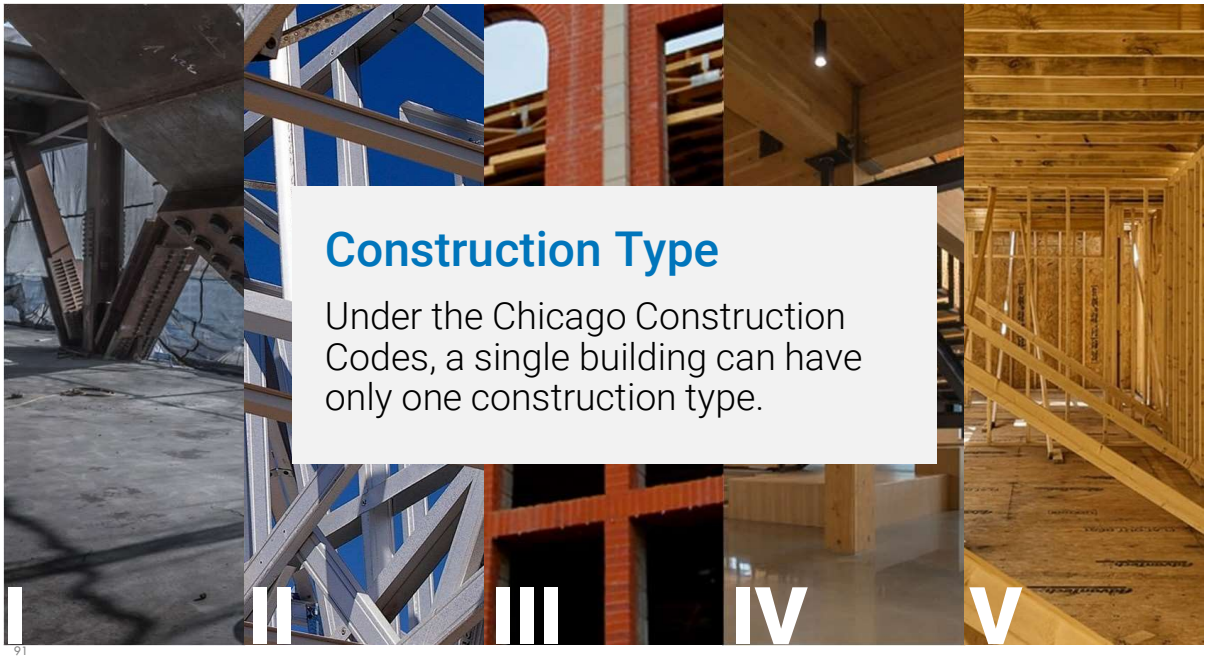

Construction Type
Construction type classification is based on the combustibility and fire-resistance of the materials and assemblies used.
More fire-resistive construction types are required for larger buildings and occupancy types with a greater risk of fire.
I
II
III
IV
V
90

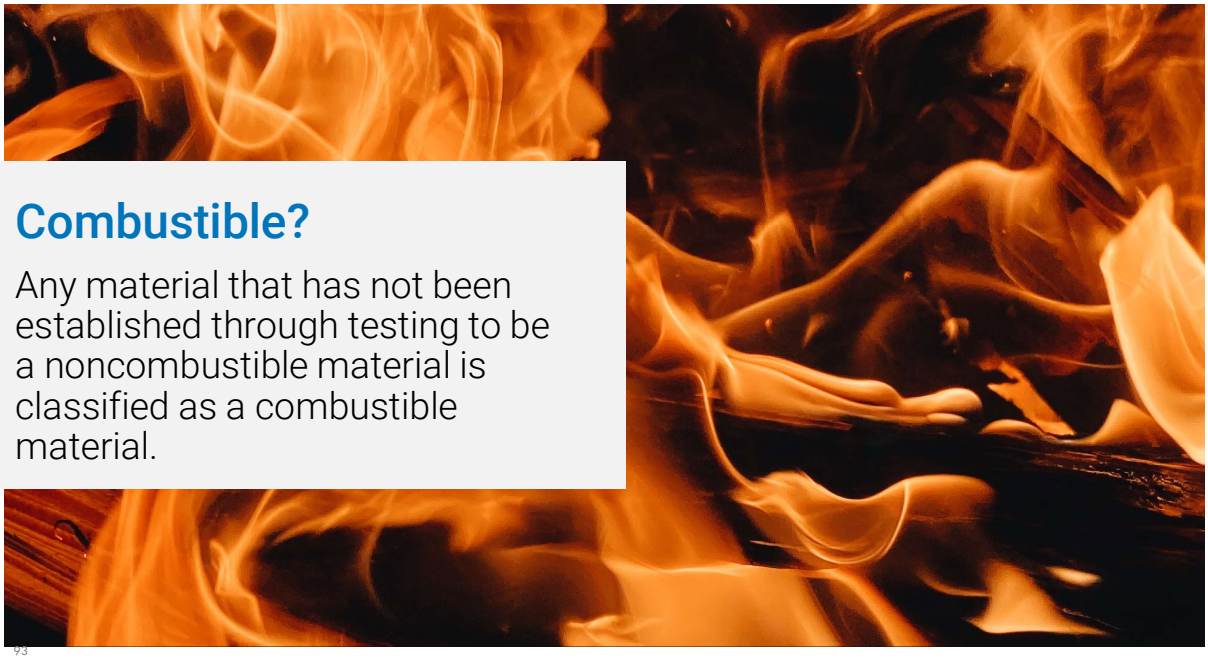
90


Construction Type
Under the Chicago Construction Codes, a single building can have only one construction type.
I
II
III
IV
V
91

91

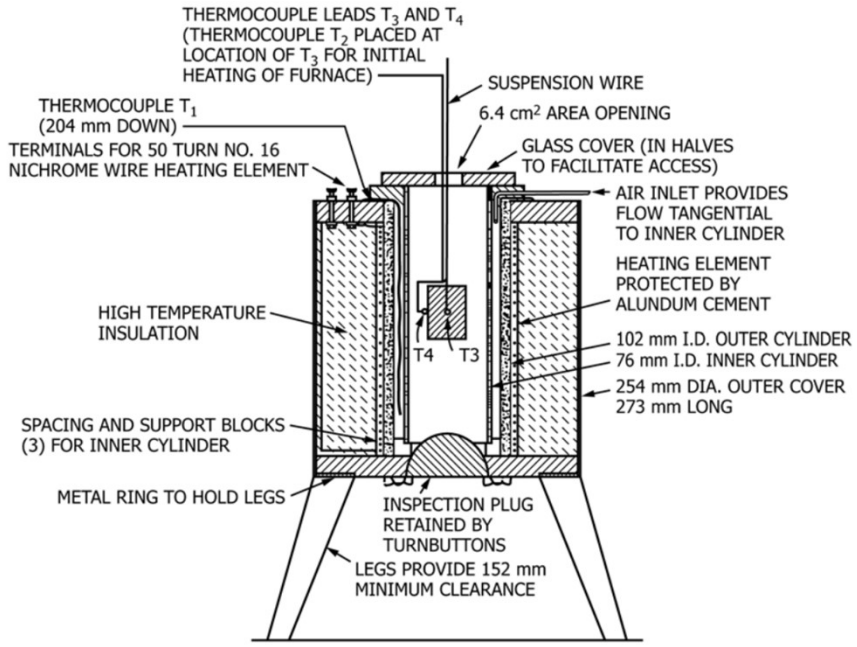
92

92


Combustible?
Any material that has not been established through testing to be a noncombustible material is classified as a combustible material.

93

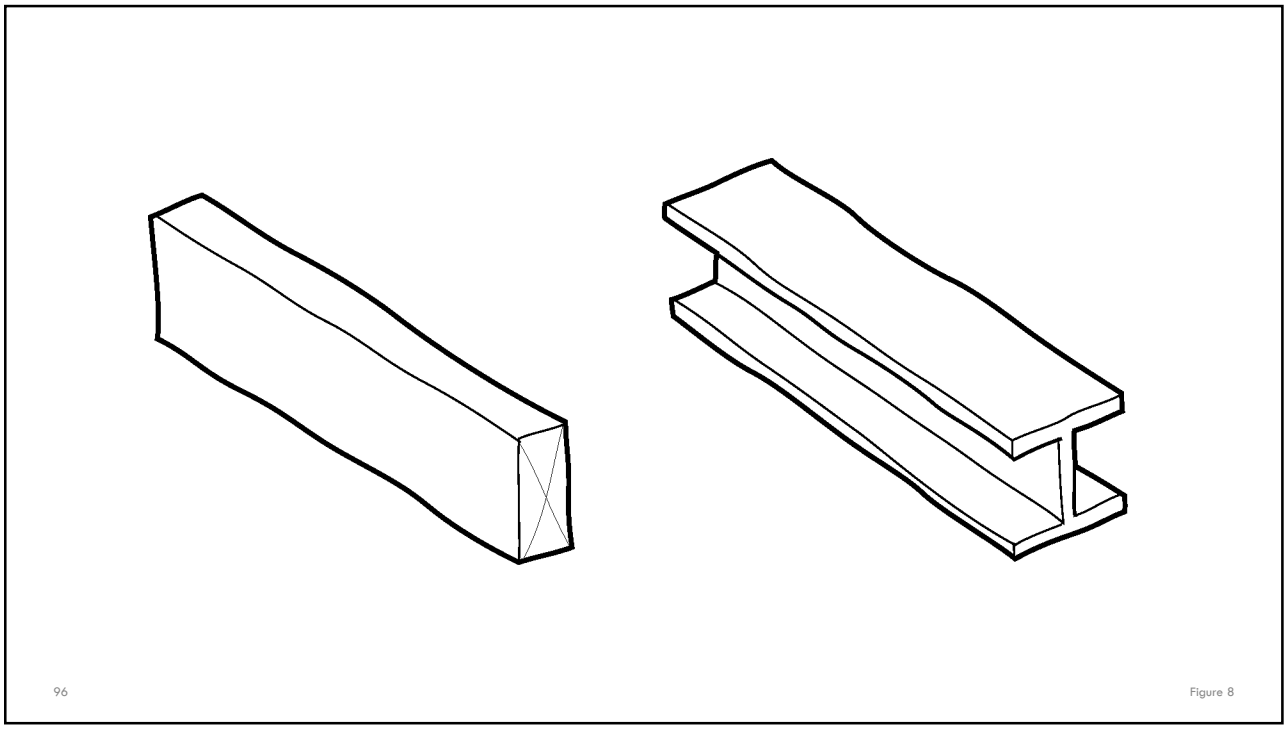
93


THERMOCOUPLE LEADS T_3 AND T_4 (THERMOCOUPLE T_2 PLACED AT LOCATION OF T_3 FOR INITIAL HEATING OF FURNACE)
SUSPENSION WIRE
THERMOCOUPLE T_1 (204 mm DOWN)
6.4 cm^2 AREA OPENING
TERMINALS FOR 50 TURN NO. 16 NICHROME WIRE HEATING ELEMENT
GLASS COVER (IN HALVES TO FACILITATE ACCESS)
AIR INLET PROVIDES FLOW TANGENTIAL TO INNER CYLINDER
HEATING ELEMENT PROTECTED BY ALUNDUM CEMENT
HIGH TEMPERATURE INSULATION
T4
T3
102 mm I.D. OUTER CYLINDER
76 mm I.D. INNER CYLINDER
254 mm DIA. OUTER COVER
273 mm LONG
SPACING AND SUPPORT BLOCKS (3) FOR INNER CYLINDER
METAL RING TO HOLD LEGS
INSPECTION PLUG RETAINED BY TURNBUTTONS
LEGS PROVIDE 152 mm MINIMUM CLEARANCE
94
Figure 7

94


Protected?
Building materials are “protected” when they are encased or enclosed in other materials with a higher resistance to heat or fire.
CC BY 2.0 MTA Construction & Development
95

95



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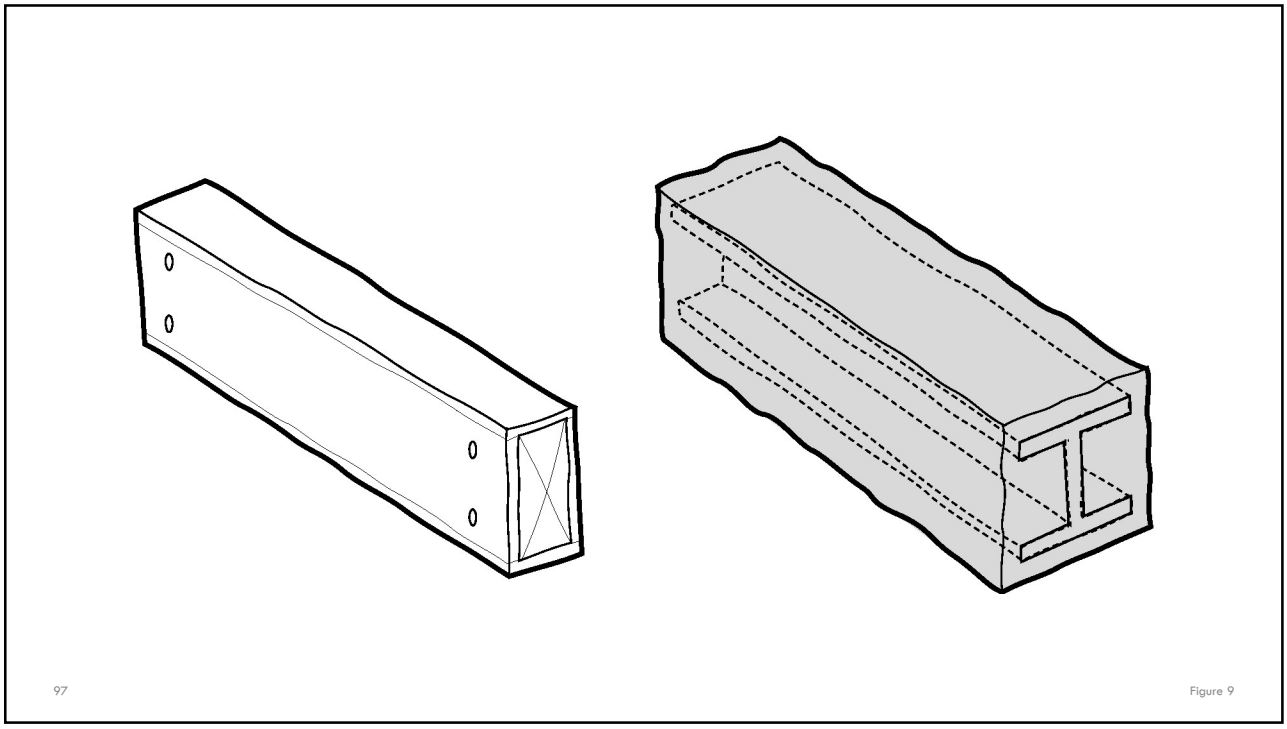

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TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary structural frame[f]	3[a, b]	2[a, b]	1[b]	0	1[b]	0	HT	1[b]	0
Bearing walls									
Exterior[e, f]	3	2	1	0	2	2	2	1	0
Interior	3[a]	2[a]	1	0	1	0	1/HT	1	0
Nonbearing walls and partitions — Exterior	See Table 602								
Nonbearing walls and partitions — Interior[d]	0	0	0	0	0	0	Note i	0	0
Floor construction and associated *secondary members*	2	2	1	0	1[g]	0	HT	1[g]	0
Roof construction and associated *secondary members*	1.5[b]	1[b]	1[b]	0[c]	1[b, c, h]	0	HT	1[b, c, h]	0

For SI: 1 foot = 304.8 mm.

99

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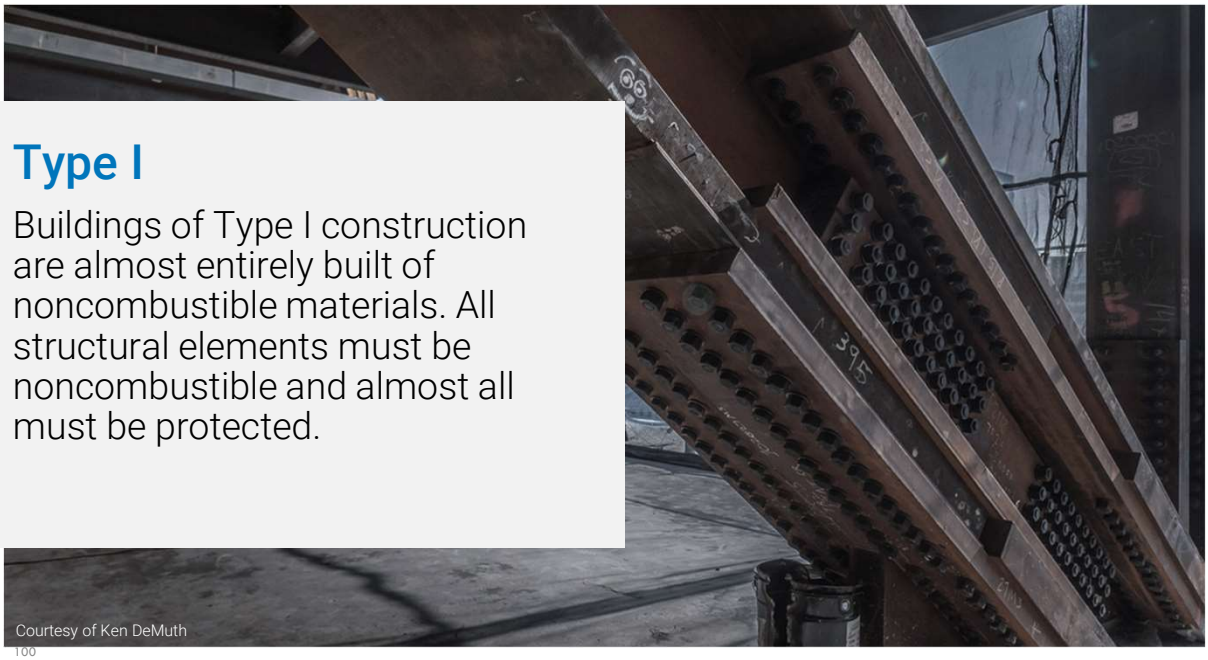
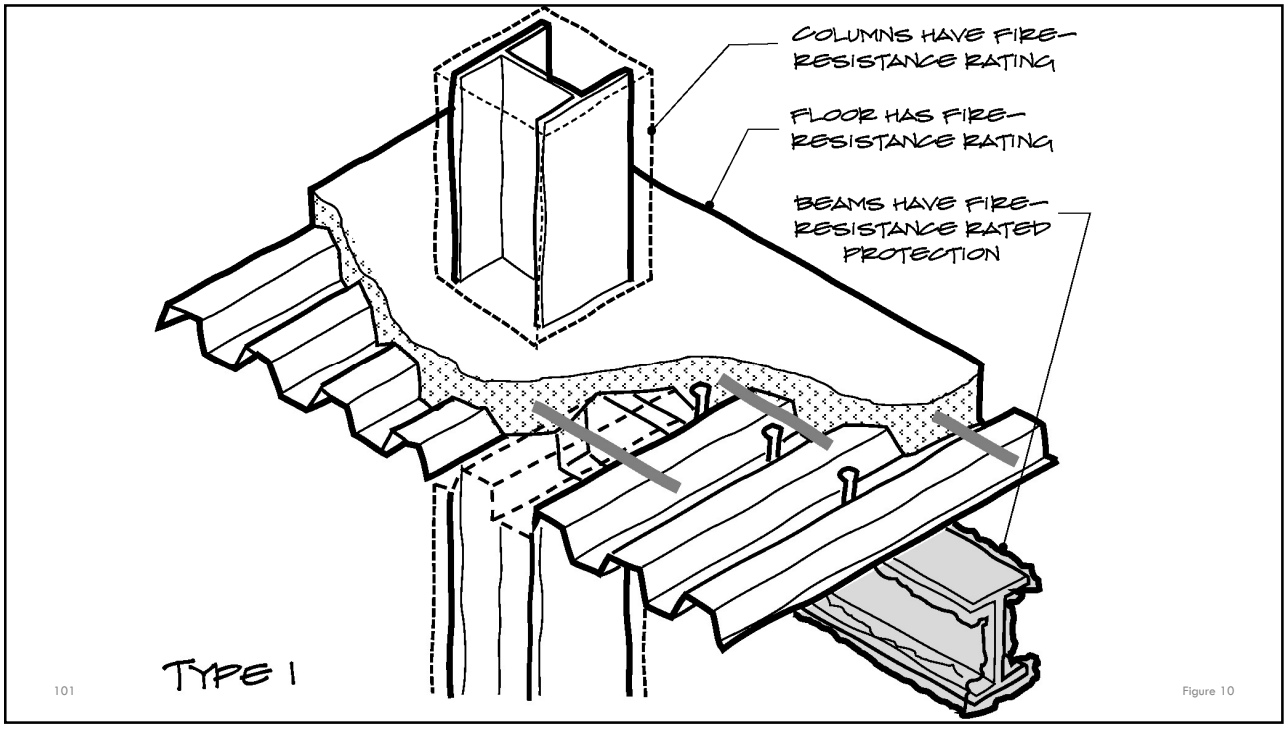
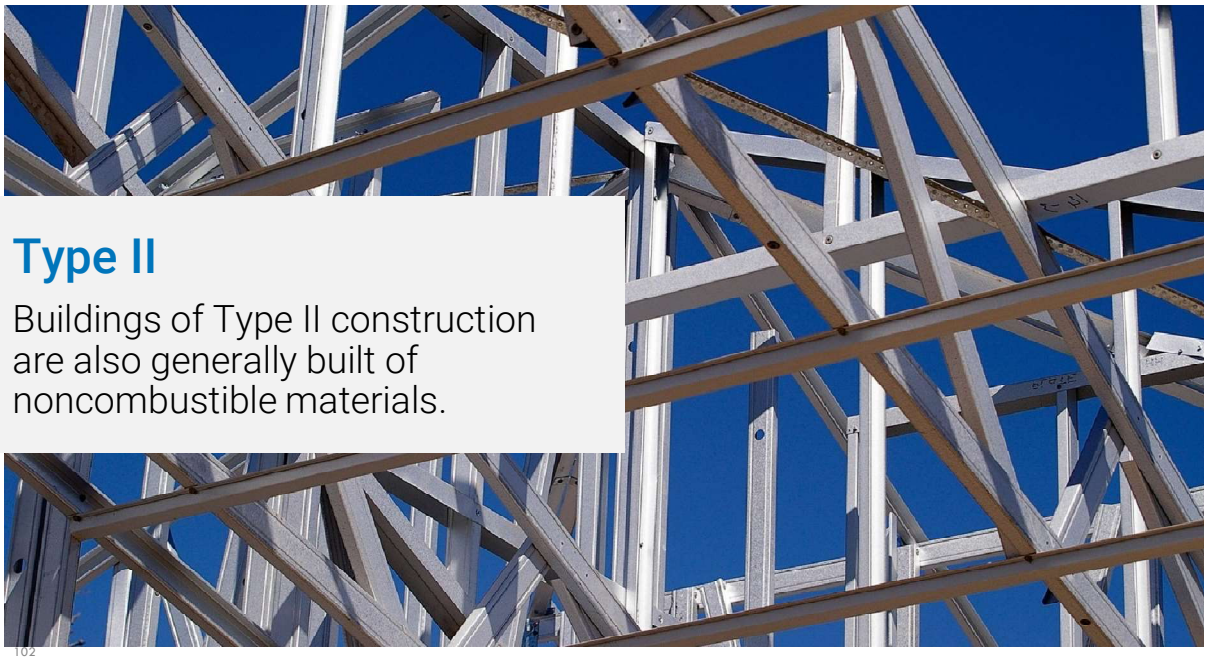

Type I
Buildings of Type I construction are almost entirely built of noncombustible materials. All structural elements must be noncombustible and almost all must be protected.
Courtesy of Ken DeMuth
100

100


COLUMNS HAVE FIRE-RESISTANCE RATING
FLOOR HAS FIRE-RESISTANCE RATING
BEAMS HAVE FIRE-RESISTANCE RATED PROTECTION
TYPE I
101
Figure 10

101

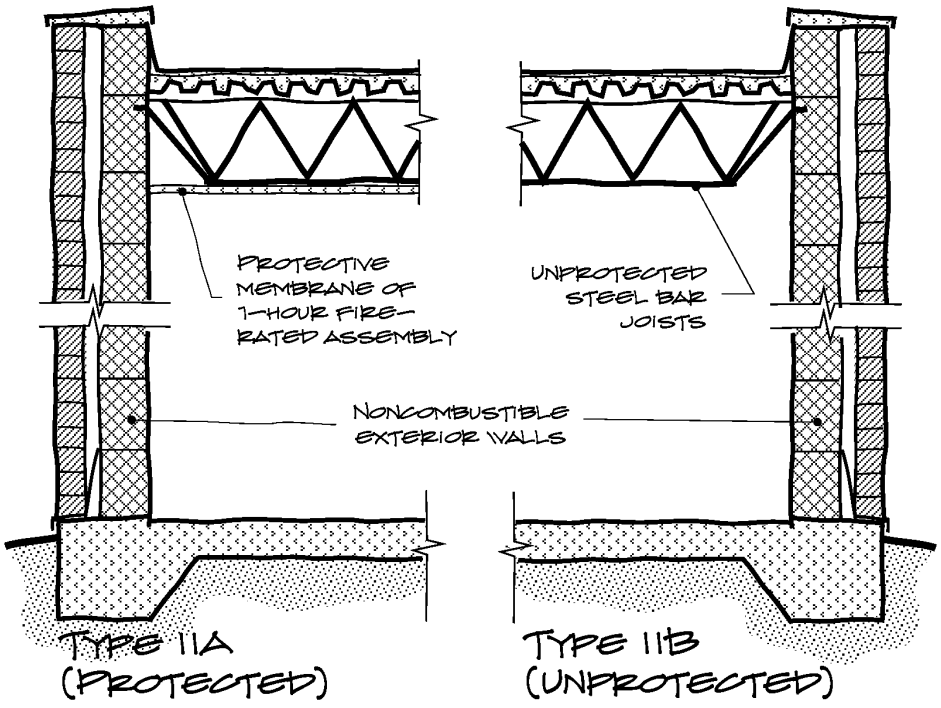


Type II

Buildings of Type II construction are also generally built of noncombustible materials.

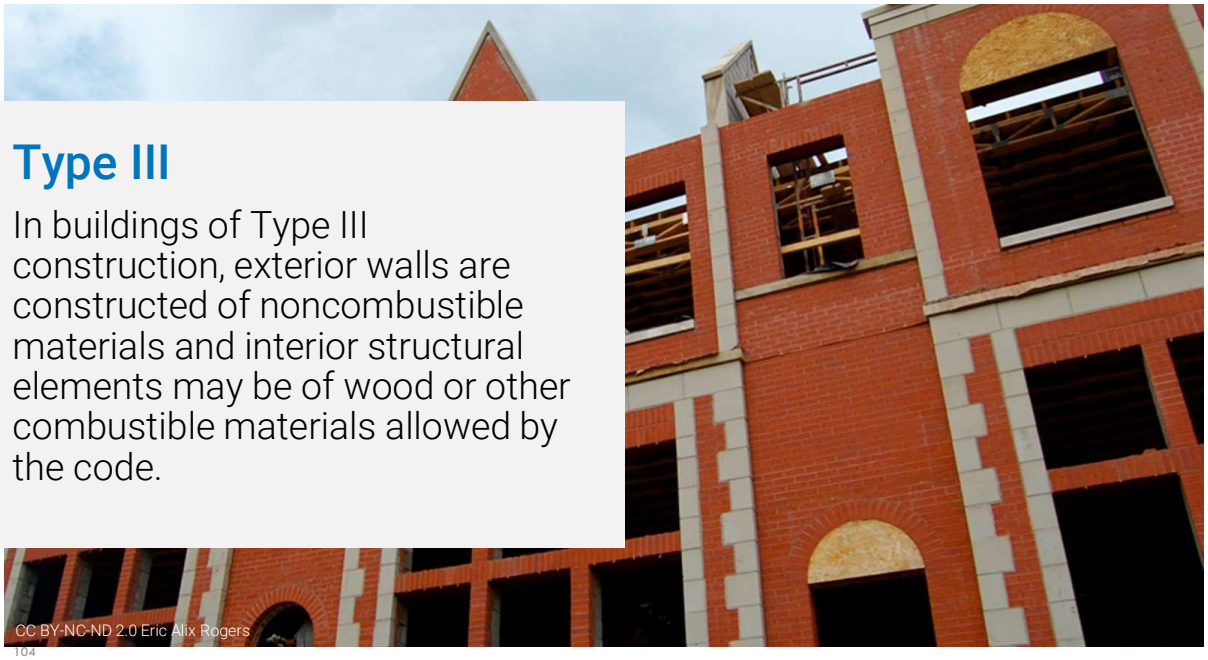
102

102

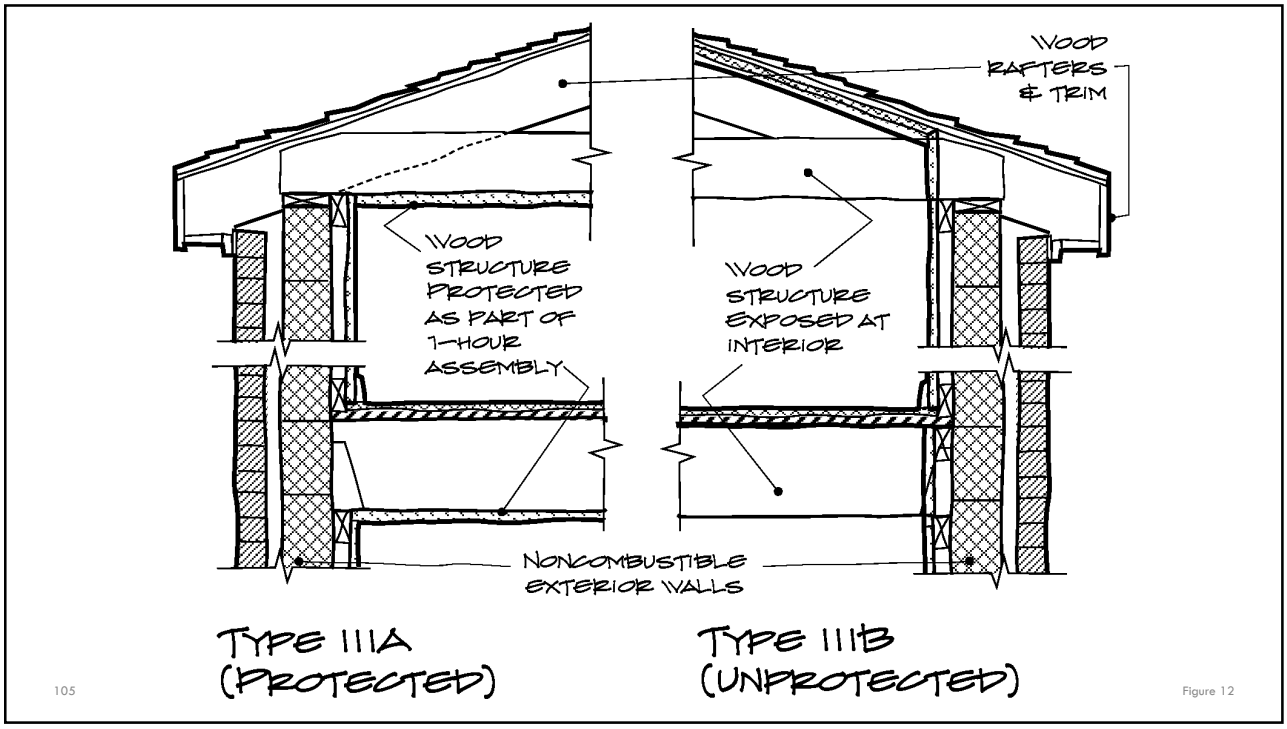


103 Figure 11

103


Type III
In buildings of Type III construction, exterior walls are constructed of noncombustible materials and interior structural elements may be of wood or other combustible materials allowed by the code.
CC BY-NC-ND 2.0 Eric Alix Rogers
104

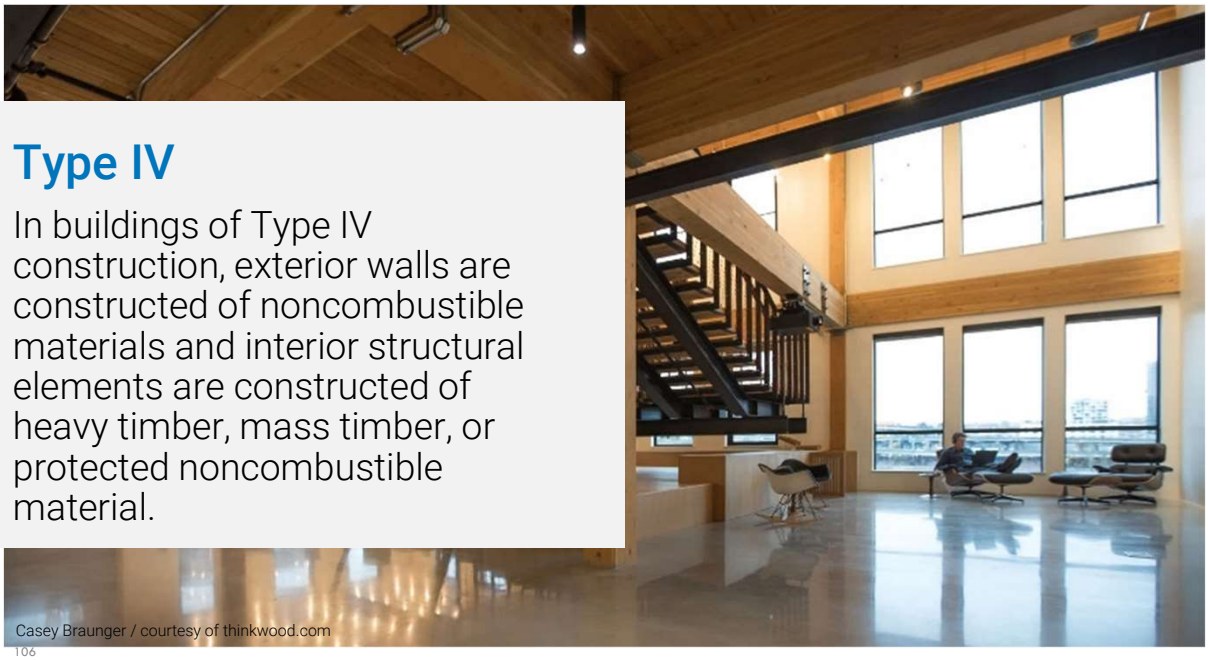
104


WOOD RAFTERS & TRIM
WOOD STRUCTURE PROTECTED AS PART OF 1-HOUR ASSEMBLY
WOOD STRUCTURE EXPOSED AT INTERIOR
NONCOMBUSTIBLE EXTERIOR WALLS
TYPE IIIA (PROTECTED)
TYPE IIIB (UNPROTECTED)
105
Figure 12

105

Type IV

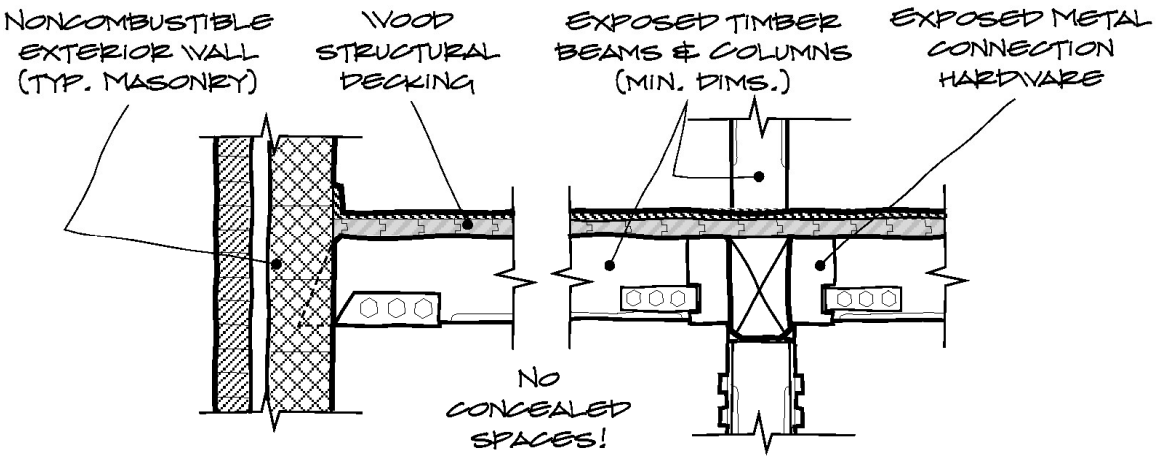
In buildings of Type IV construction, exterior walls are constructed of noncombustible materials and interior structural elements are constructed of heavy timber, mass timber, or protected noncombustible material.



Casey Braunger / courtesy of thinkwood.com

106

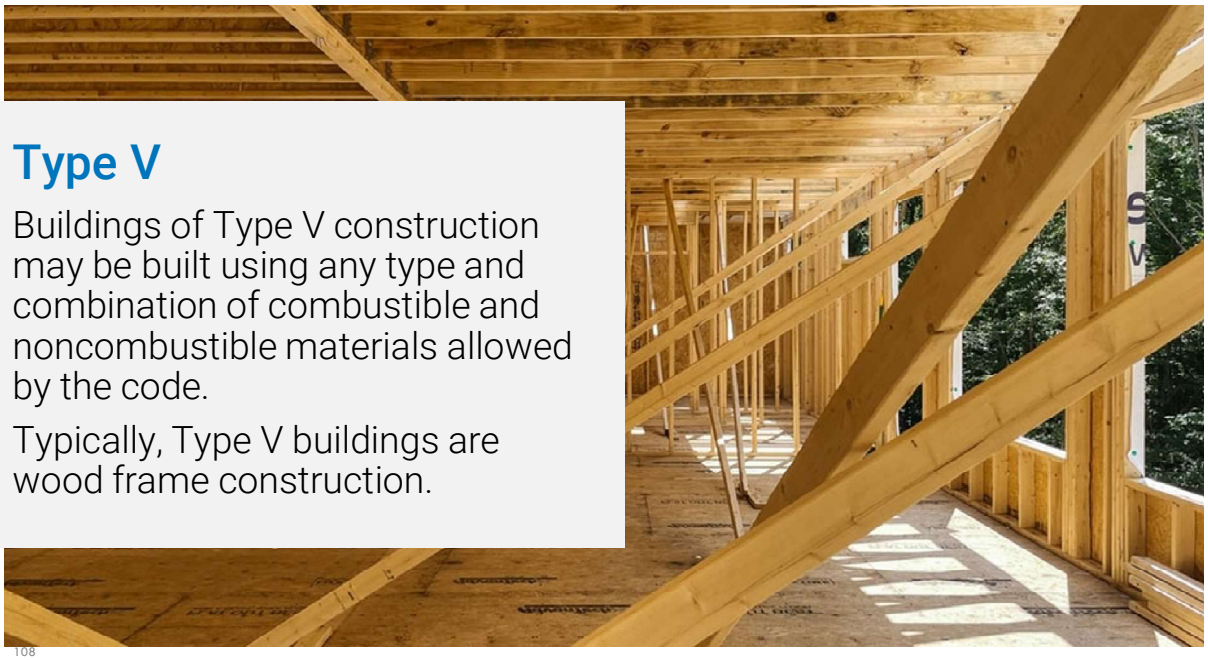
106



107

Figure 13

107



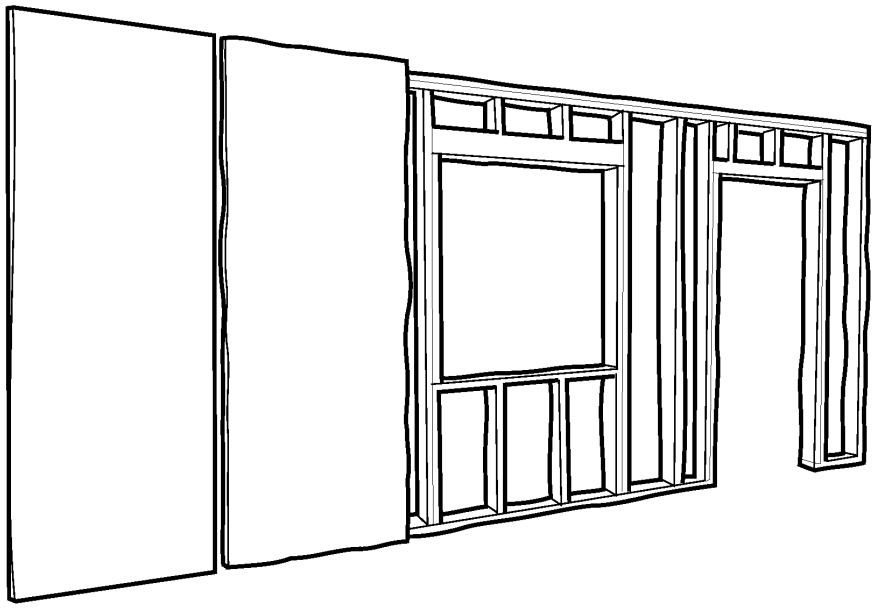
Type V

Buildings of Type V construction may be built using any type and combination of combustible and noncombustible materials allowed by the code.

Typically, Type V buildings are wood frame construction.

108

108



109

Figure 14

109

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Audience Q&A Session

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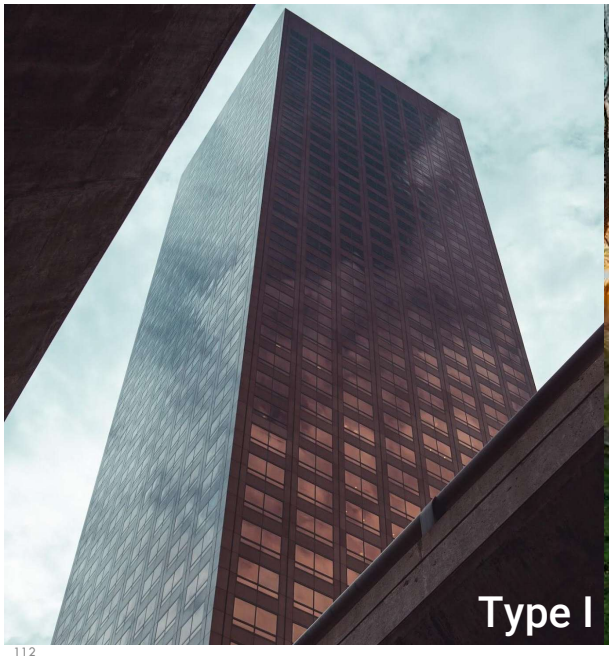
Height and Area Limits

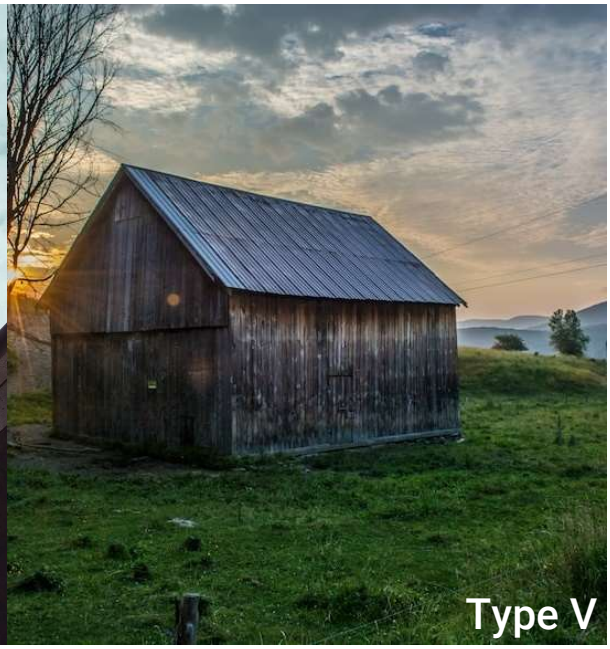
Concepts

Tables

111

111





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112

TABLE 504.3
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE[a]

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION									
	SEE FOOTNOTES	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A, B, E, F, H-4[c] M, S, U	NS[b]	80	80	65	30	55	30	65	30	15
	S	UL	150	85	45	70	45	85[g]	45	30
H-1, H-2, H-3, H-5	NS[c, d]	UL	80	65	30	55	NP	65	NP	NP
	S									
I	NS[b]	80	80	65	30	55	30	65	30	NP
	S	UL	150	85						
R	NS[b]	80	80	65	30	55	30	65	30[e]	20
	S13D	40	40	40	40	40	40	40	40	35
	S13R	55	55	55	45	55	45	55	45[f]	35
	S	UL	150	85	45	70	45	85[g]	45[f]	35

For SI: 1 foot = 304.8 mm.

UL = Unlimited; NS = *Buildings* not equipped throughout with an *automatic sprinkler system;* S = *Buildings* equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1; S13R = *Buildings* equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.2; S13D = *Buildings* equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.3.

a. See Chapters 4 and 5 for specific exceptions to the allowable *building height* height in this chapter.

113

113

TABLE 504.4
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE[a, b]

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS	UL	5	3	1	2	NP	2	1	NP
	S-13	UL	6	4	2	3	1	3	1	NP
A-2	NS	UL	10	3	1	2	NP	2	1	NP
	S-13	UL	11	4	2	3	1	3	1	NP
A-3	NS	UL	10	3	1	2	NP	2	1	NP
	S-13	UL	11	4	2	3	1	3	1	NP
A-4	NS	UL	10	3	1	2	NP	2	1	NP
	S-13	UL	11	4	2	3	1	3	1	NP
A-5	NS	UL	UL	UL	UL	*	*	*	*	*
	S-13	UL	UL	UL	UL	*	*	*	*	*
B	NS	UL	11	6	1	4	2	5	1	NP
	S-13	UL	12	7	2	5	3	6	2	1

114

114

TABLE 506.2
ALLOWABLE AREA FACTOR (A_t = NS, S1, S13R, S13D or SM, as applicable) IN SQUARE FEET[a, b]

OCCUPANCY CLASSIFICATION	SEE NOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS	UL	UL	16,000	8,500	6,000	NP	6,000	3,000	NP
	S1	UL	UL	64,000	34,000	24,000	12,000	24,000	12,000	NP
	SM	UL	UL	48,000	25,500	18,000	9,000	18,000	9,000	NP
A-2	NS	UL	UL	16,000	8,500	6,000	5,000	6,000	3,000	NP
	S1	UL	UL	64,000	34,000	24,000	20,000	24,000	12,000	NP
	SM	UL	UL	48,000	25,500	18,000	15,000	18,000	9,000	NP
A-3	NS	UL	UL	16,000	8,500	6,000	5,000	6,000	3,000	NP
	S1	UL	UL	64,000	34,000	24,000	20,000	24,000	12,000	NP
	SM	UL	UL	48,000	25,500	18,000	15,000	18,000	9,000	NP
A-4	NS	UL	UL	16,000	8,500	6,000	5,000	6,000	3,000	NP
	S1	UL	UL	64,000	34,000	24,000	20,000	24,000	12,000	NP
	SM	UL	UL	48,000	25,500	18,000	15,000	18,000	9,000	NP
A-5	NS	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S1	UL								
	SM	UL								

115

115

Building Height

Grade plane

Height in feet

Height in stories

116

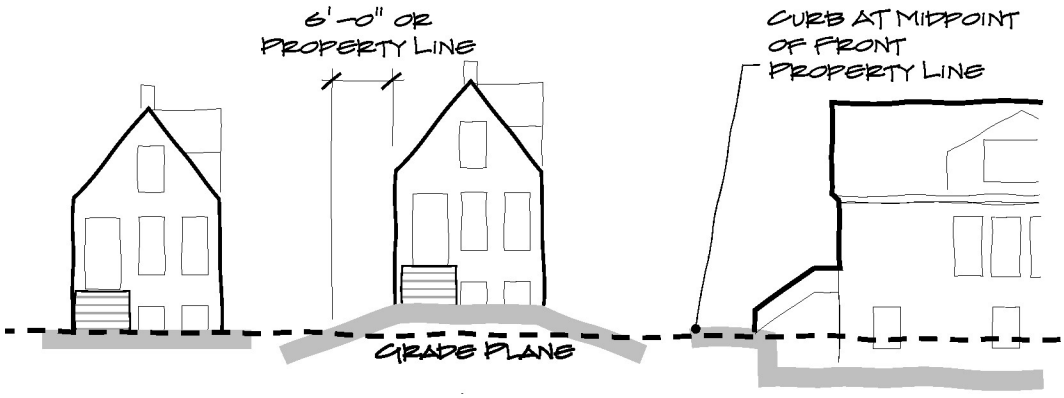
116

Grade Plane

With respect to each building, grade plane shall be a reference plane representing the average finished ground level adjoining the building at exterior walls.

117

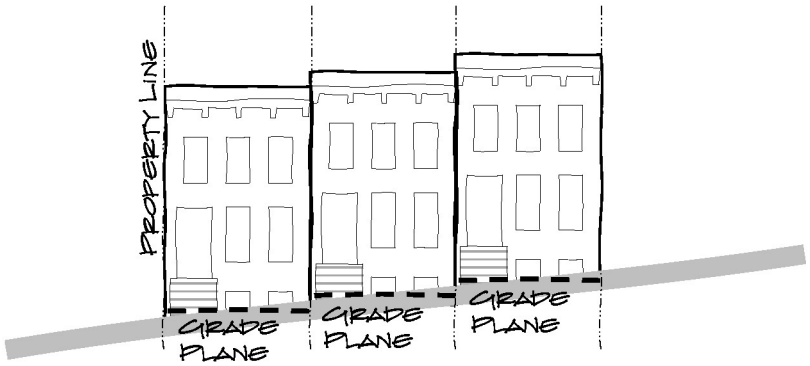
117



"flat" lot sloped lot raised street

118 Figure 17

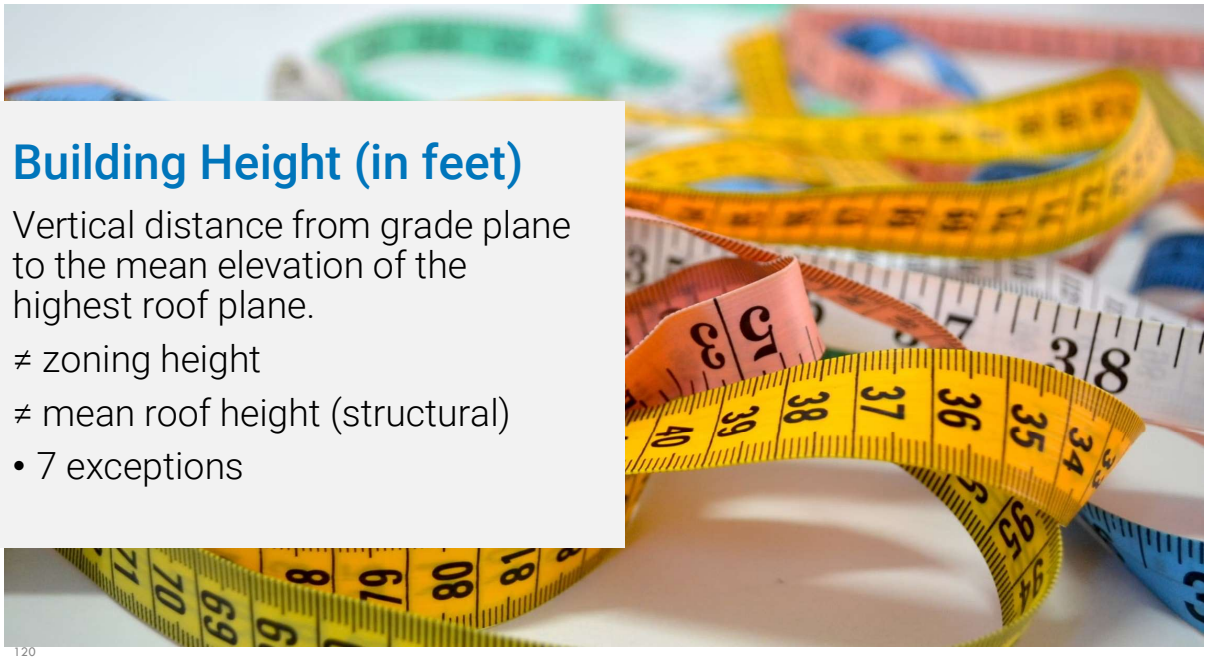
118



Rowhouses as
separate buildings

119 Figure 18

119



Building Height (in feet)

Vertical distance from grade plane to the mean elevation of the highest roof plane.

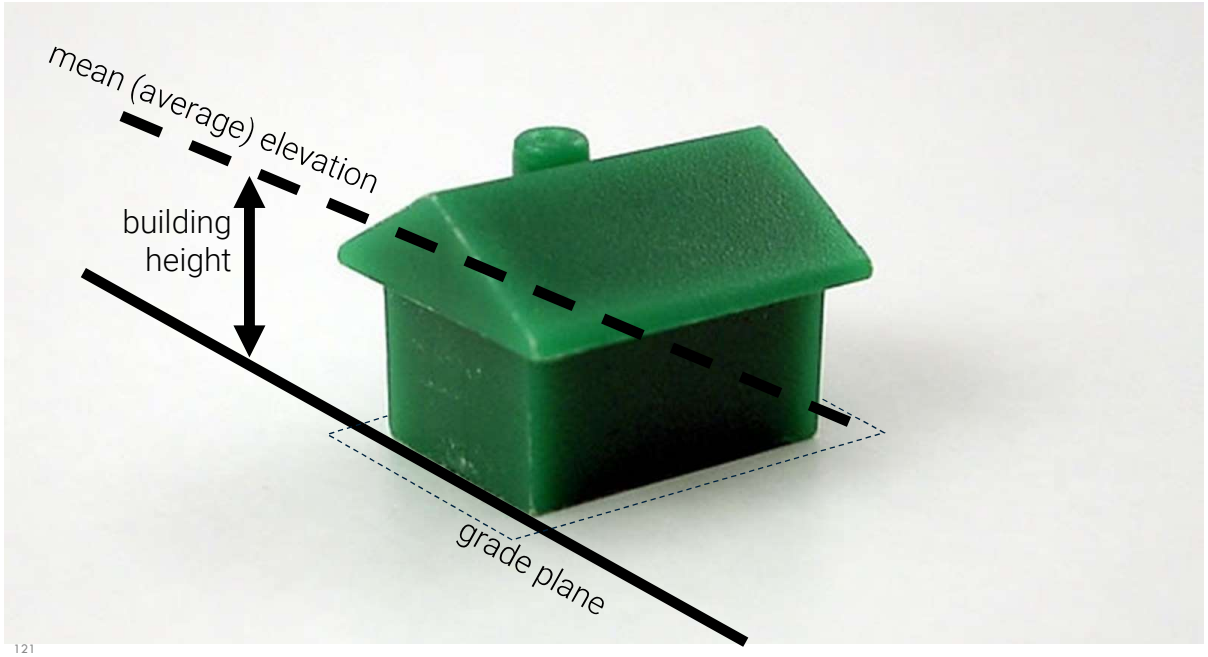
≠ zoning height

≠ mean roof height (structural)

- 7 exceptions

120

120



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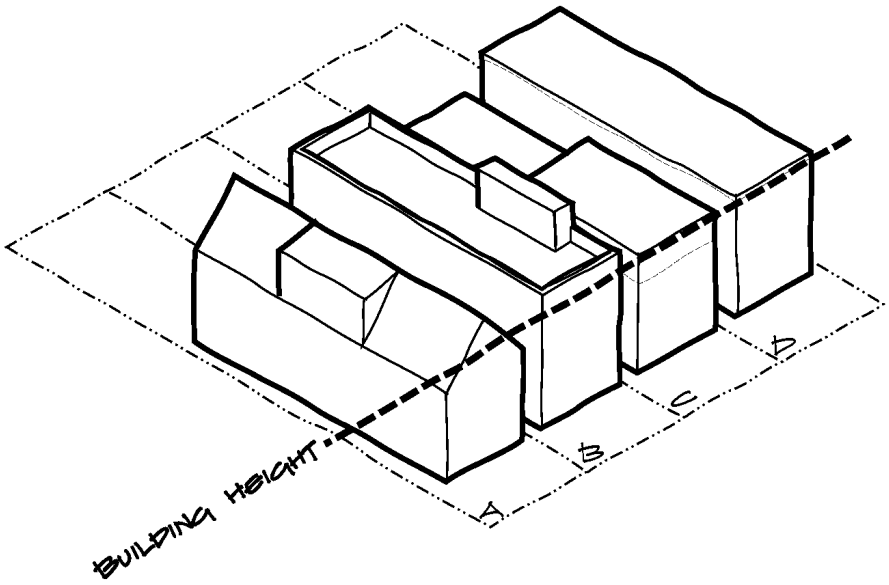


122

Figure 16

122

Exception 1

Measure to highest walking surface of an occupiable rooftop above the highest story.

123

123

Exception 2

Exclude parapets up to 42" above highest point of a low-sloped (> 2:12) roof or occupiable rooftop.

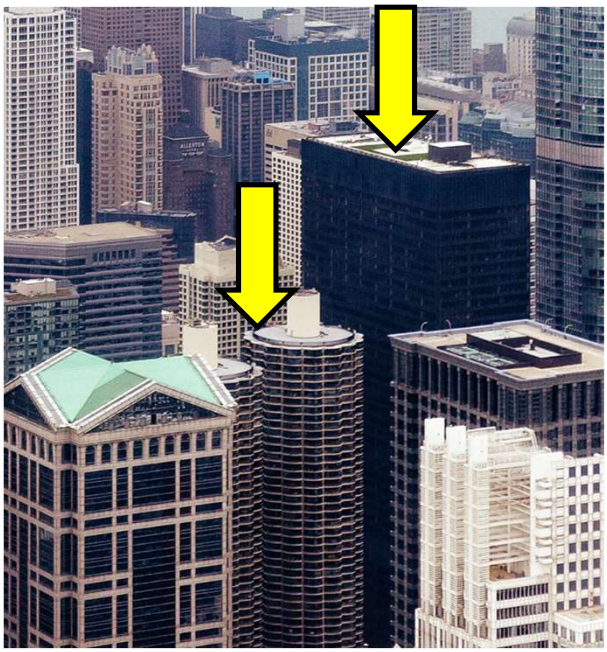
124

124

Exceptions 3 and 4

Exclude unoccupied rooftop features (mechanical penthouses) per Sec. 1510 and rooftop access penthouses per Sec. 1513:

- 1/3 area of supporting roof deck
- Height limits specified for various features



125

125

Exception 5

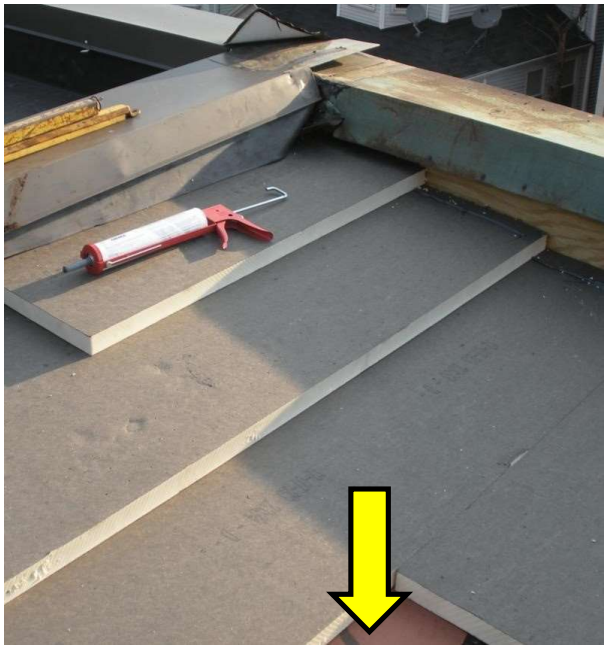
Dormers that do not have a low-sloped roof, are not higher than highest point of roof plane, and do not exceed 1/3 of horizontal area of roof plane

126

126

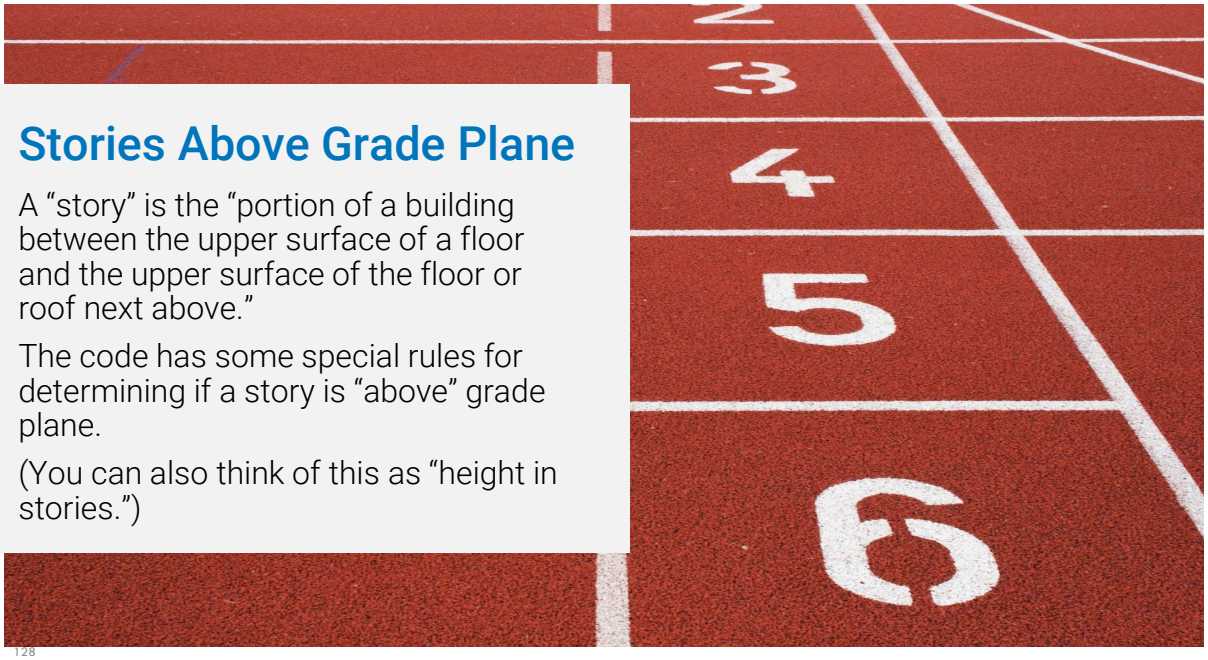
Exception 7

For low-sloped roofs (> 2:12), exclude up to 12" continuous insulation above structural roof deck.



127

127



Stories Above Grade Plane

A "story" is the "portion of a building between the upper surface of a floor and the upper surface of the floor or roof next above."

The code has some special rules for determining if a story is "above" grade plane.

(You can also think of this as "height in stories.")

128

128

Always a "story"

- Story above grade plane
- Basement

Sometimes a "story"

- Attic
- Penthouse

Not a "story"
(if requirements met)

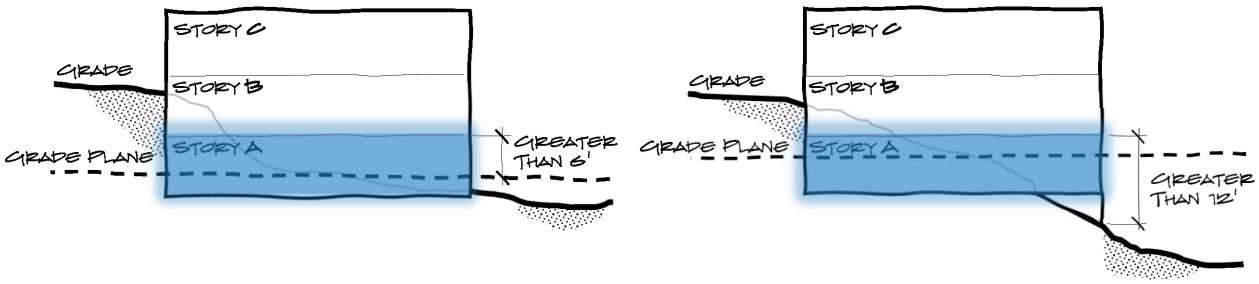
- Mezzanine
- Equipment platform
- Loft
- Occupiable rooftop

129

129

Any *story* having its finished floor surface entirely above *grade plane*, or in which the finished surface of the floor next above is:

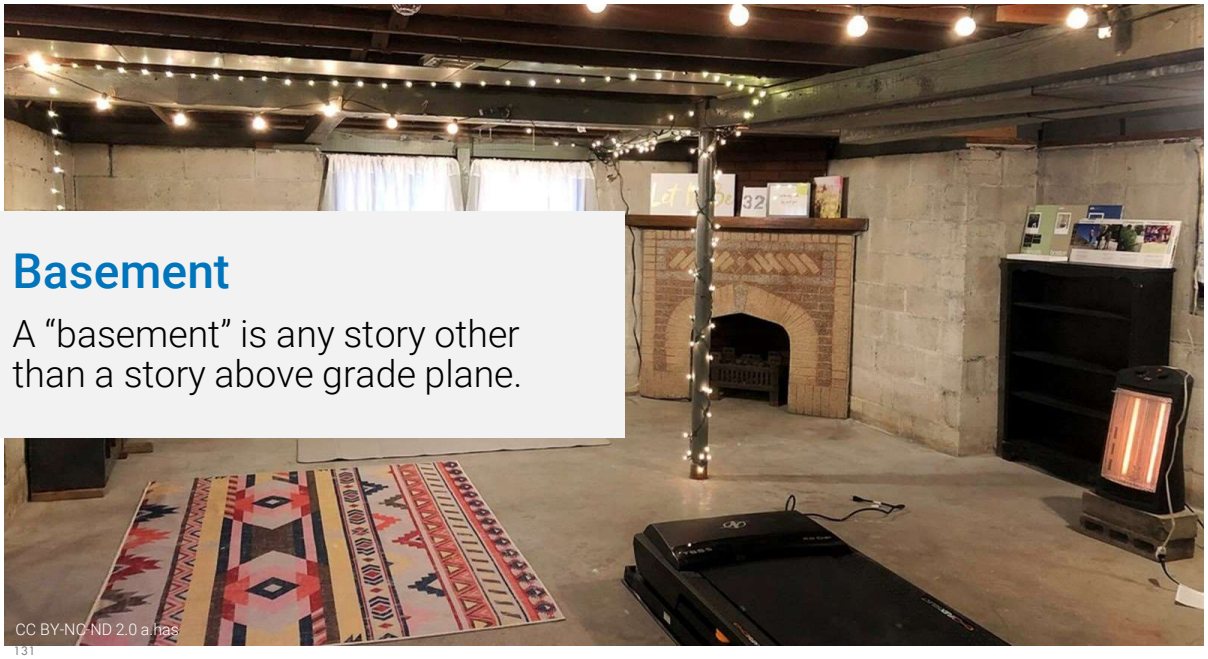
1. More than 6 feet above *grade plane*.
2. More than 12 feet above the adjacent finished ground level at any point.



130

Figures 19 and 20

130



Basement

A “basement” is any story other than a story above grade plane.

131

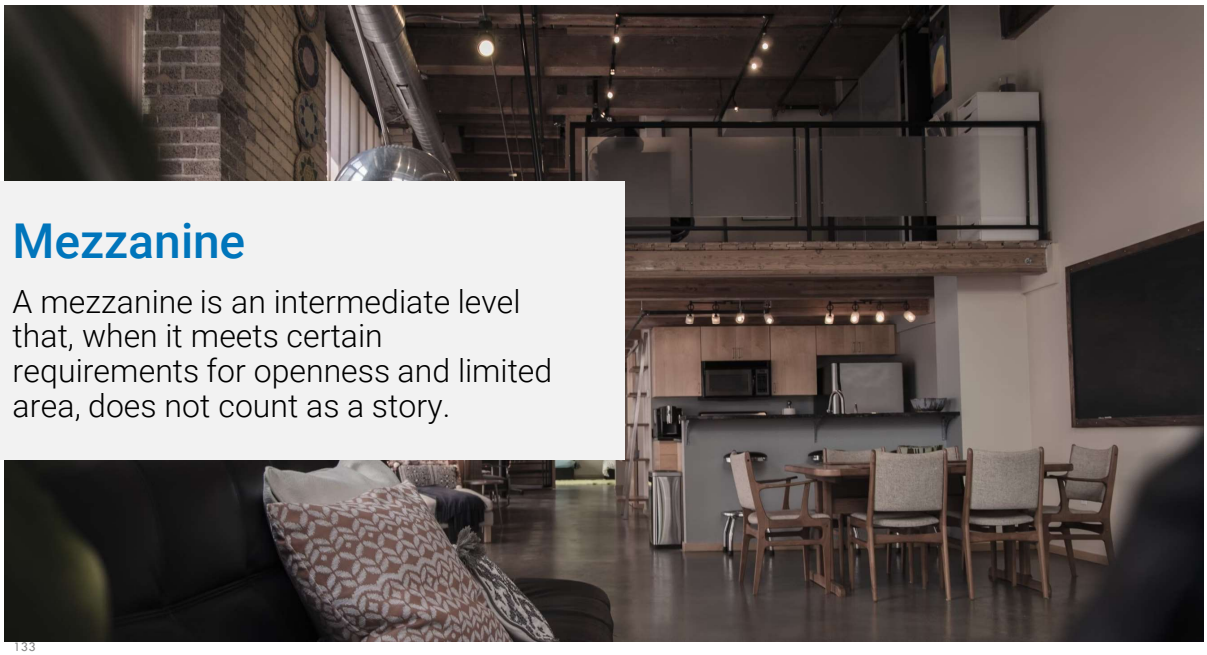
131

Attic

An unfinished attic counts as a story if the clear height is 6’-9" or greater.

132

132

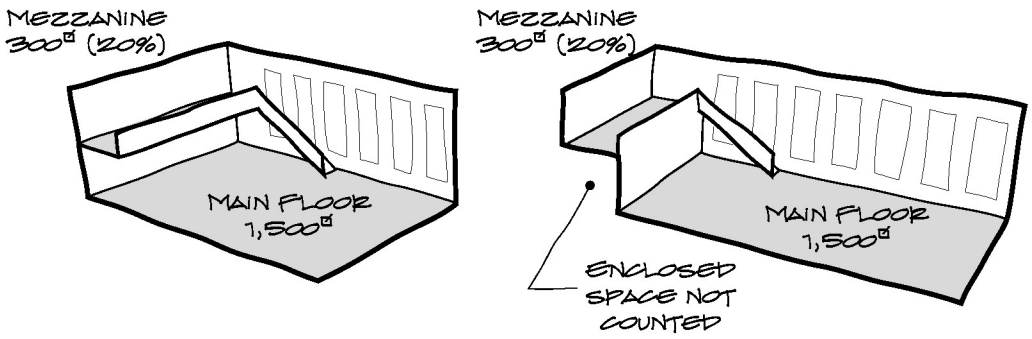


Mezzanine

A mezzanine is an intermediate level that, when it meets certain requirements for openness and limited area, does not count as a story.

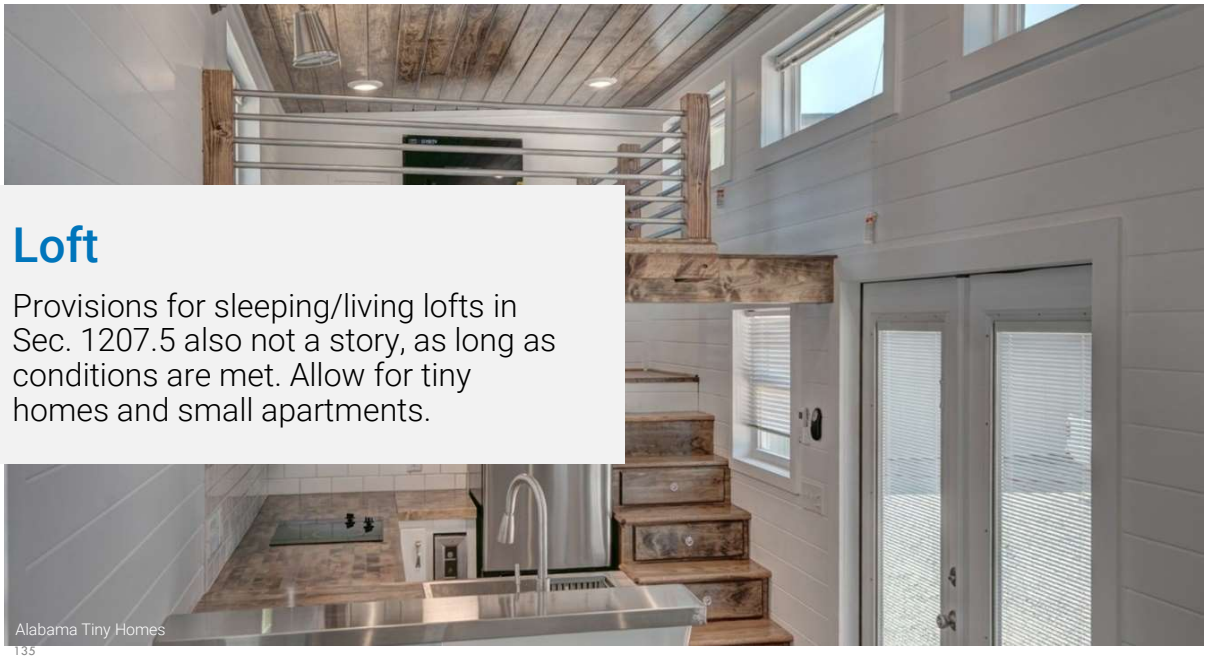
133

133



134 Figure 22

134



135

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Audience Q&A Session

ⓘ Start presenting to display the audience questions on this slide.

136

136

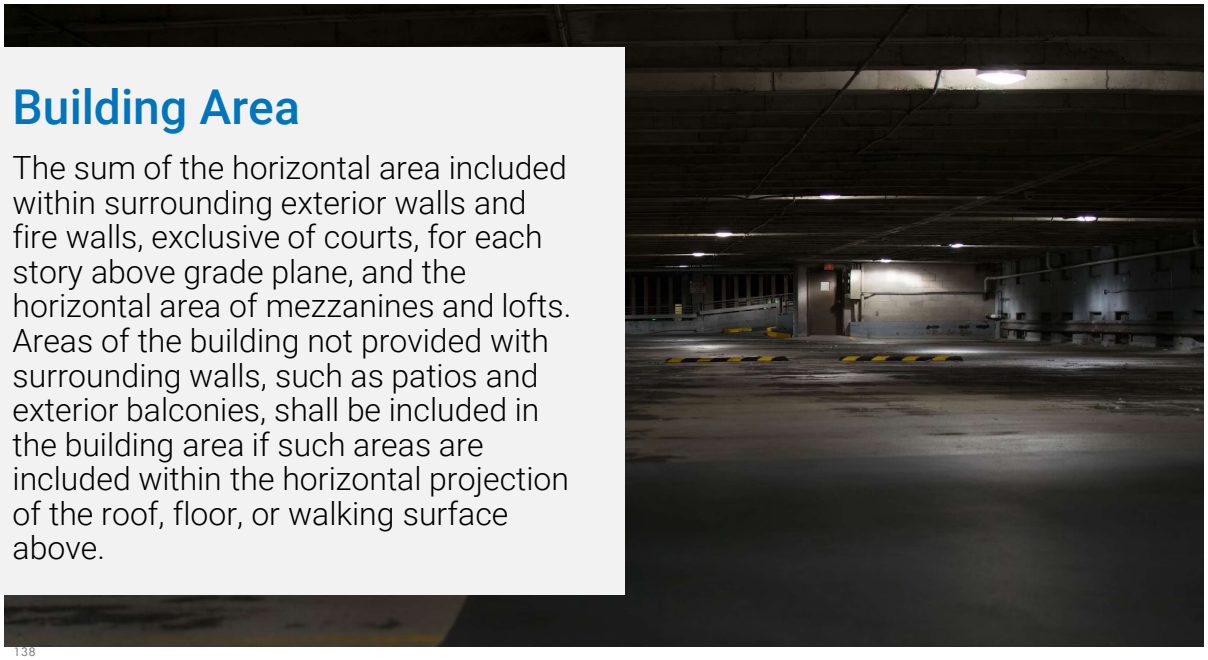
Building Area

Measurement

Maximum allowable area

137

137

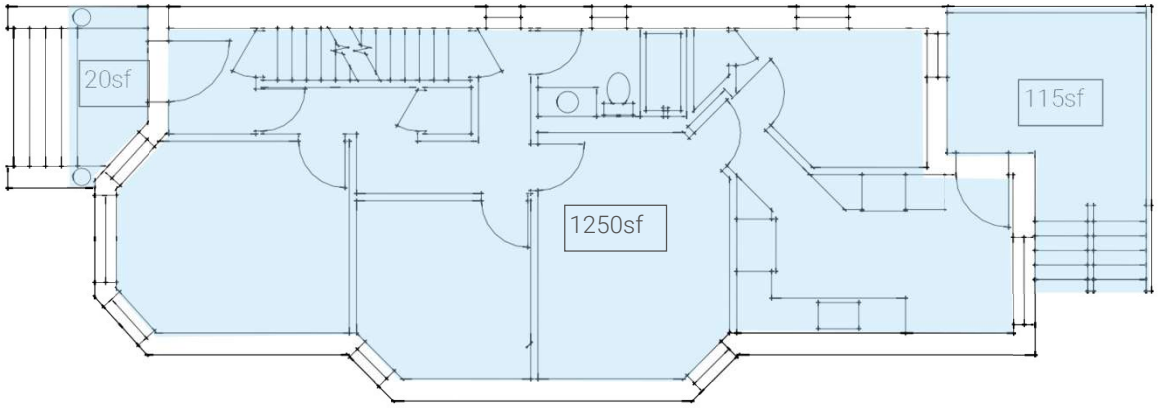


Building Area

The sum of the horizontal area included within surrounding exterior walls and fire walls, exclusive of courts, for each story above grade plane, and the horizontal area of mezzanines and lofts. Areas of the building not provided with surrounding walls, such as patios and exterior balconies, shall be included in the building area if such areas are included within the horizontal projection of the roof, floor, or walking surface above.

138

138



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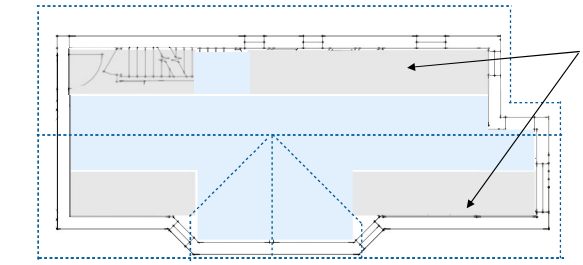
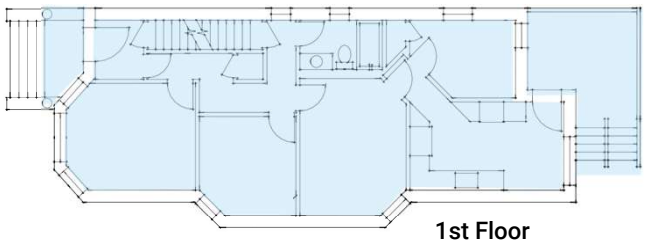
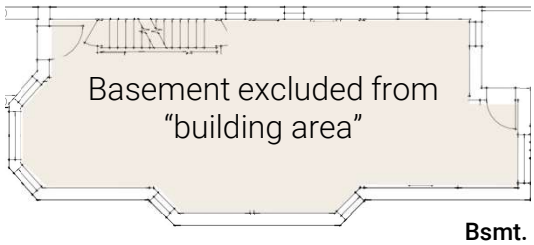


Areas with less than 5'-0" of headroom excluded from "building area"

2nd Floor



1st Floor



Bsmt.

140

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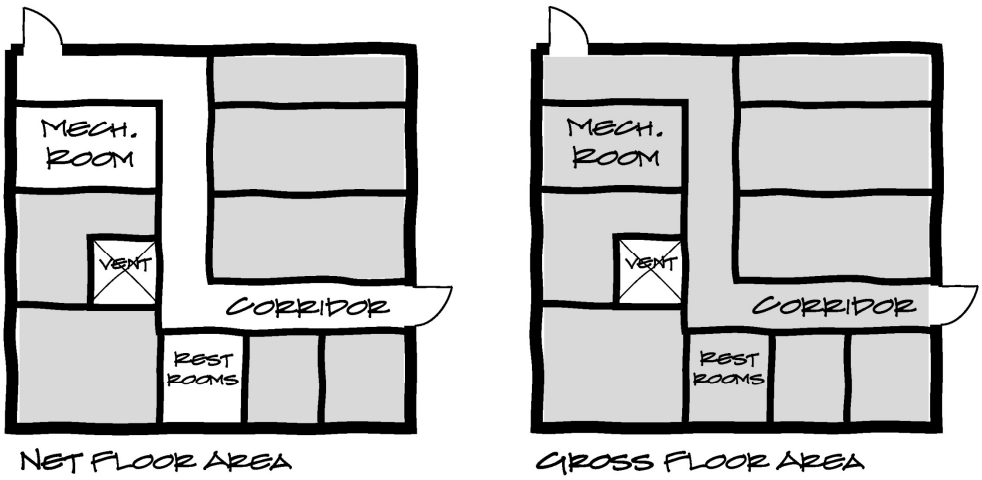
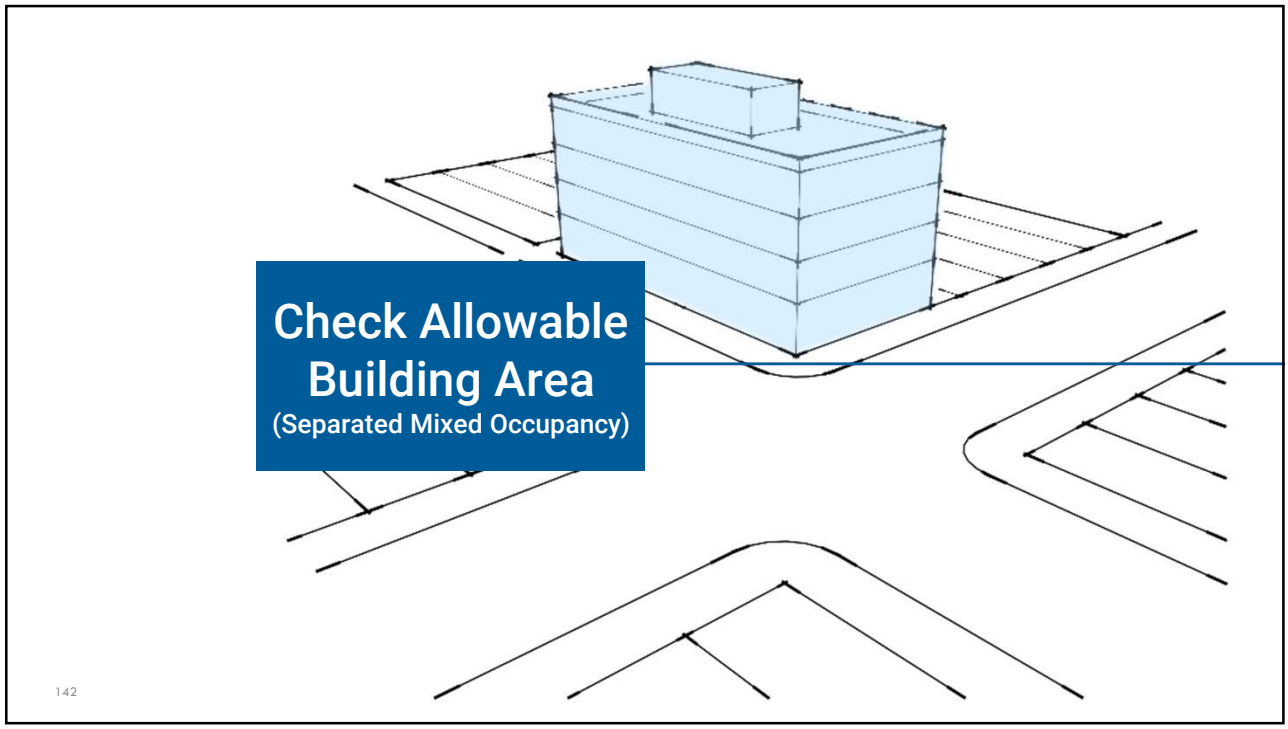


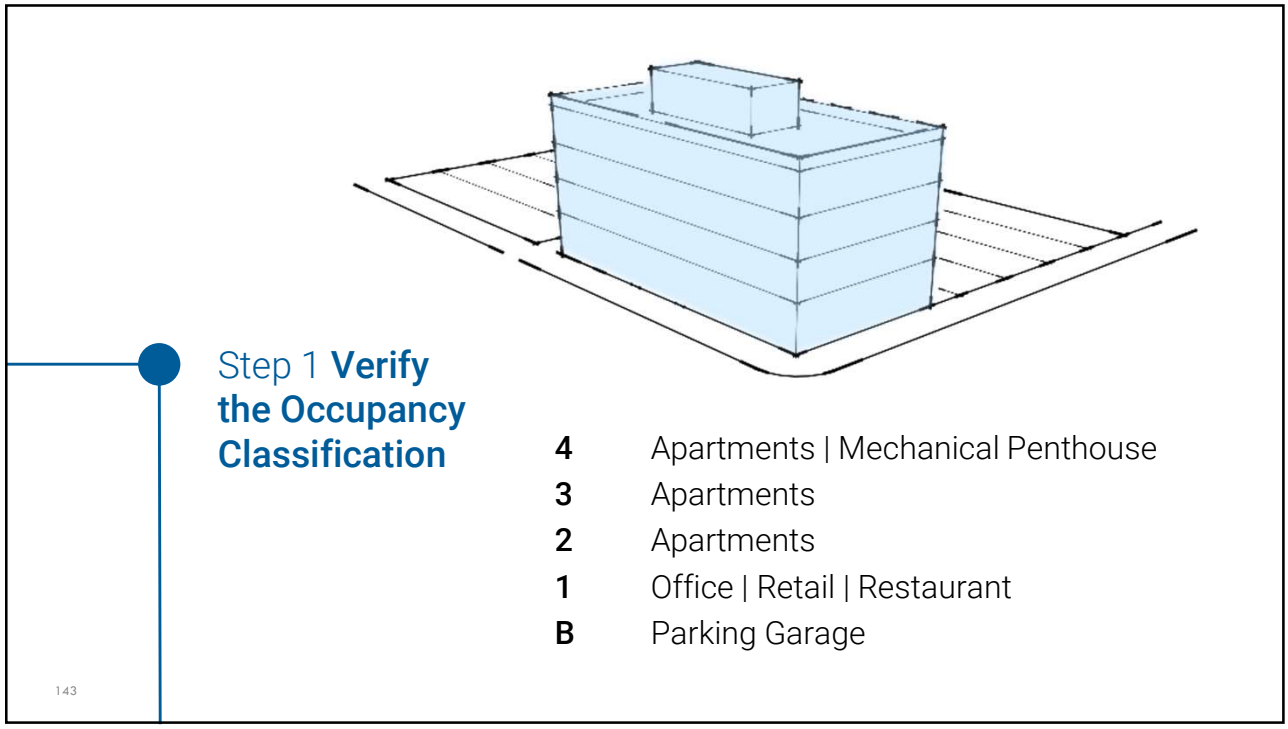
141

Figure 39

141

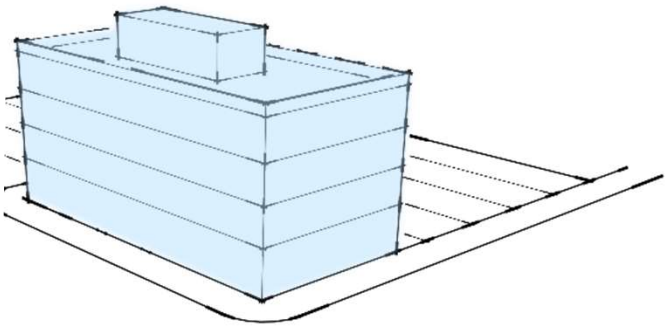

Check Allowable Building Area
(Separated Mixed Occupancy)
142

142


Step 1 Verify the Occupancy Classification
4 Apartments | Mechanical Penthouse
3 Apartments
2 Apartments
1 Office | Retail | Restaurant
B Parking Garage
143

143

Step 2 **Check the Proposed Type of Construction.**

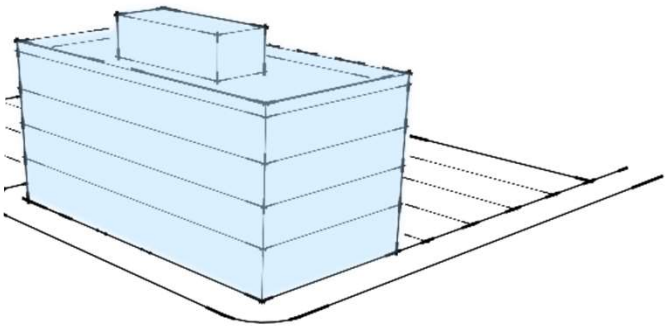


Type V-A (Protected Wood Frame)

144

144

Step 3 **Verify the Building Height In Feet and Stories Above Grade Plane.**



54'-0"

4 stories above grade plane

145

145

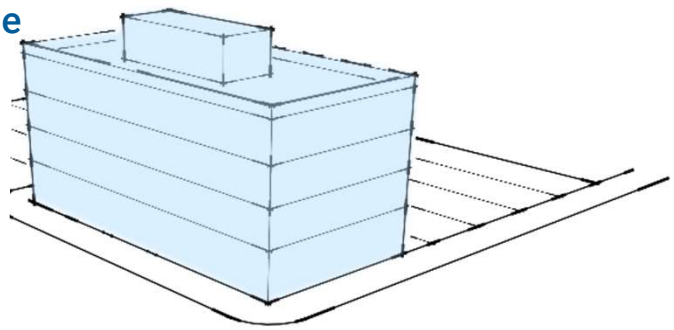
Step 4 **Determine the Tabular Allowed Area Factor (A_t) and Tabular Area Factor for Nonsprinklered Buildings.**

	A_t (SM)	NS
A-2	9,000	3,000
B	18,000	6,000
M	15,000	5,000
R-2	15,000	5,000
S-2 (GARAGE)	18,000	6,000

146

146

Step 5 **Calculate the Area Increase for Frontage (I_f).**



When a rectangular lot has street frontage on 2 sides, the frontage increase is 100%.

(Could be more, depending on alley width/setback.)

147

147

Step 6 **Determine Whether the Building Is Single- or Mixed-Occupancy.**

This appears to be a separated mixed-occupancy building, but we must confirm the required occupancy separations:

TABLE 508.4
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)[f]

OCCUPANCY	A, E		I-1[a], I-3, I-4		I-2		R[a]		F-2, S-2[b], U		B[e], M		F-1, S-1		H-1		H-2		H-3, H-4		H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
A, E	N[h]	N[g,h]	2	3	3	NP	1[h]	2	1[h]	2	1[h]	2	1[h]	2	NP	NP	4	NP	4	NP	4	NP
I-1[a], I-3, I-4	—	—	N	N	2	NP	2	NP	3	4	3	4	3	4	NP	NP	4	NP	4	NP	4	NP
I-2	—	—	—	—	N	N	2	NP	3	NP	2	NP	2	NP	NP	NP	4	NP	4	NP	4	NP
R[a]	—	—	—	—	—	—	N	N	1	2	1	2	1	2	NP	NP	4	NP	4	NP	4	NP
F-2, S-2[b], U	—	—	—	—	—	—	—	—	N	N	1	2	1	2	NP	NP	3	4	4	4	4	NP
B[e], M	—	—	—	—	—	—	—	—	—	—	N	N	1	2	NP	NP	3	4	4	4	3	NP
F-1, S-1	—	—	—	—	—	—	—	—	—	—	—	—	N	N	NP	NP	3	4	4	4	3	NP
H-1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	NP	NP	NP	NP	NP	NP
H-2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	2	NP	1	NP
H-3, H-4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2[d]	NP	1	NP
H-5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP

148

148

Step 7 **Calculate the Allowable Area (for each occupancy).**

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

GROUP A-2 $A_a = 9{,}000^{\square} + (3{,}000^{\square} \times 100\%) = 12{,}000^{\square}$

GROUP B $A_a = 18{,}000^{\square} + (6{,}000^{\square} \times 100\%) = 24{,}000^{\square}$

GROUP M $A_a = 15{,}000^{\square} + (5{,}000^{\square} \times 100\%) = 20{,}000^{\square}$

GROUP R-2 $A_a = 15{,}000^{\square} + (5{,}000^{\square} \times 100\%) = 20{,}000^{\square}$

GROUP S-2 $A_a = 18{,}000^{\square} + (6{,}000^{\square} \times 100\%) = 24{,}000^{\square}$

149

149

Step 8 **Check the Proposed Building Area.**

Calculate the ratio of actual (proposed) area to allowable area for each occupancy on each story.

BASEMENT

GROUP S-2: 7,000☐ / 24,000☐ = 0.292

FIRST STORY:

GROUP A-2: 3,000☐ / 12,000☐ = 0.25

GROUP B: 2,000☐ / 24,000☐ = 0.083

GROUP M: 2,000☐ / 20,000☐ = 0.1

SECOND AND THIRD STORIES:

GROUP R-2: 7,000☐ / 20,000☐ = 0.35

FOURTH STORY (INCLUDING MECHANICAL PENTHOUSE ABOVE):

GROUP R-2: 9,000☐ / 20,000☐ = 0.45

150

150

Step 9 **Verify the Actual (Proposed) Area Is Less Than Allowable Area For Each Story.**

Sum the ratios from Step 8 for each story. The sum of the ratios for each story cannot exceed 1.

BASEMENT

0.292 0.292 ≤ 1

FIRST STORY:

0.25 + 0.083 + 0.1 = 0.433 0.433 ≤ 1

SECOND–FOURTH STORIES:

0.35 OR 0.45 0.45 ≤ 1

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151

Step 10 **Check Maximum Allowable Building Area.**

Sum all ratios for stories above grade plane (exclude basements) from Step 9 to determine if the building complies.

The sum cannot exceed 2 for a 2-story building, or 3 for a building with 3 or more stories.

$0.433 + 0.35 + 0.35 + 0.45 = 1.583$ $\quad 1.583 \leq 3$

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152

Occupancy	Actual Ht. (feet)	Max Height (feet)	Actual Ht. (stories AGP)	Max Height (stories AGP)	OK?
A-2	20'	45'	1	1	Y
B	20'	45'	1	2	Y
M	20'	45'	1	1	Y
R-2	54'	55' *	4	4	Y*
S-2	0'	45'	0	1	Y

* PER TABLE 504.3, NOTE F, 55' PROVIDED THE HIGHEST FINISHED FLOOR IS NO MORE THAN 40' ABOVE GRADE PLANE.

Step 11 **Verify Proposed Height And Area Do Not Exceed Code Maximums.**

For separated mixed occupancy, the height limits are applied to the portion of the building containing the occupancy.

153

153

Special Building Features, Uses, and Occupancies

For more information, see Task 2.7.

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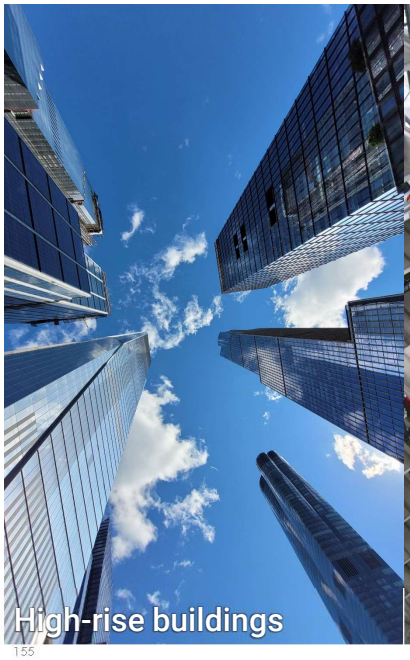

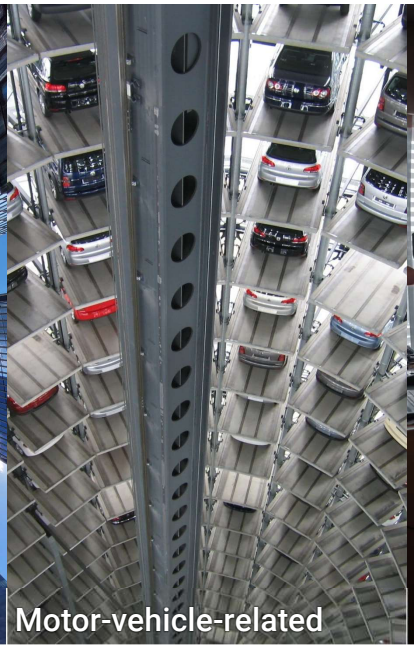

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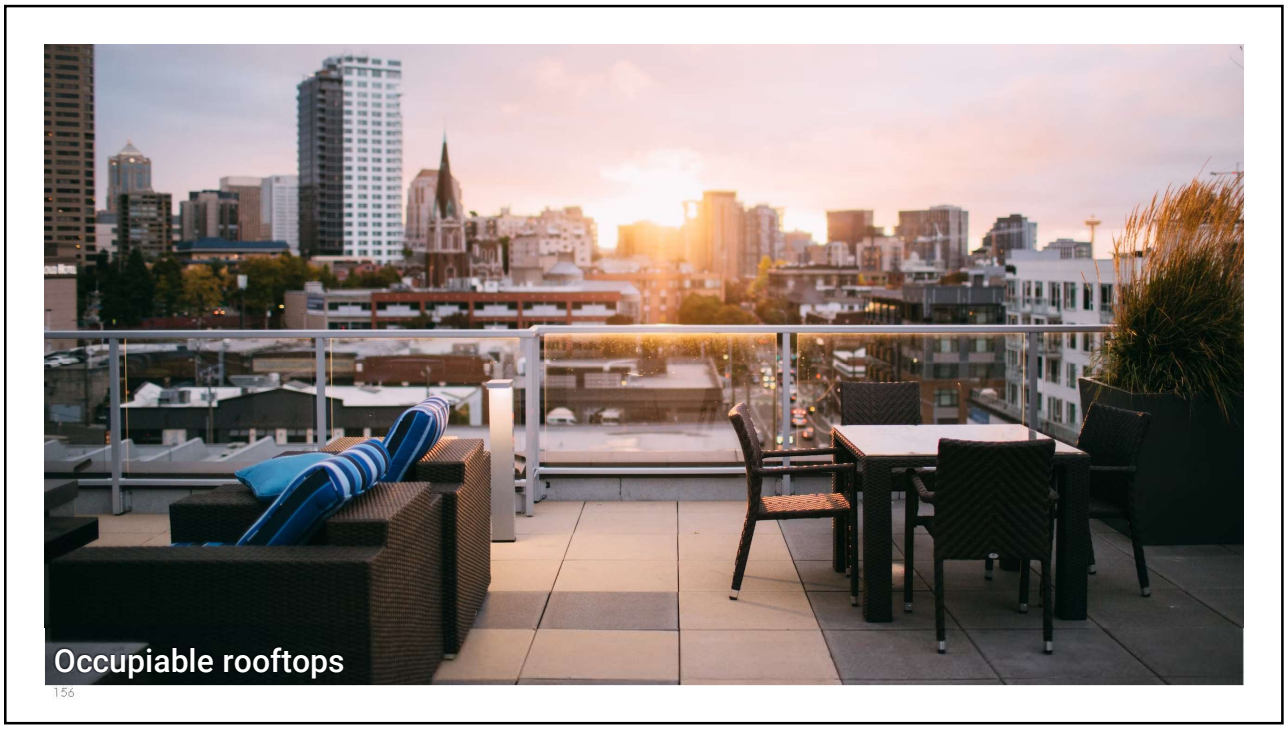

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