2009 IBC – Significant Changes included within the Lincoln Municipal Code

L.M.C.

Chapter 1 Administration:

- LMC 20.08.010 Adoption of International Building Code, ***2009*** Edition

Note:
All new changes to the Lincoln Municipal Code that have been adopted by the City of Lincoln are *in red italic text* and the slides are noted with a bold "**LMC**" in the upper left-hand corner.

As for the majority of changes within the 2009, every effort has been made to make the code less ambiguous and more consistent with the International Fire Code and Life Safety Code.

Chapter 1 Administration:

- IBC 107.1 - **Submittal Documents** now make specific reference to soils report and statement of special inspections.

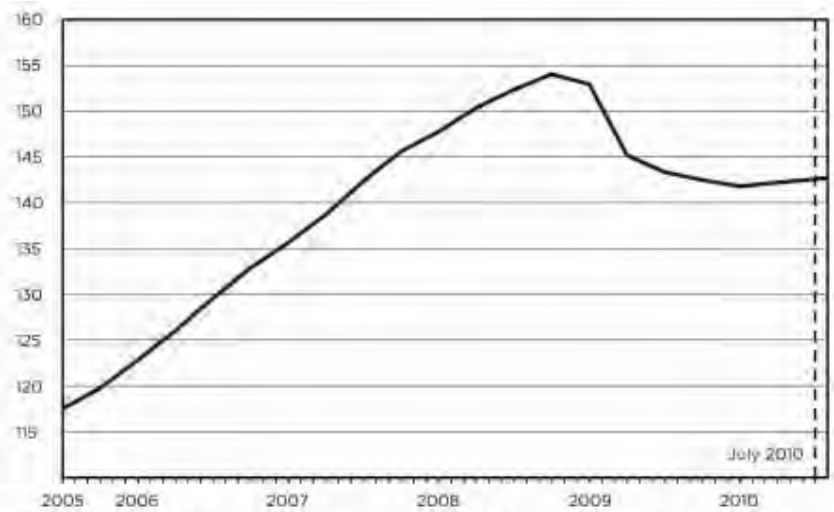
- IBC 106 – **Floor & Roof Design Loads**

The only practical application is that storage mezzanines must have a sign posted near the edge which indicate that the floor has been designed for either 125 psf or 250 psf.

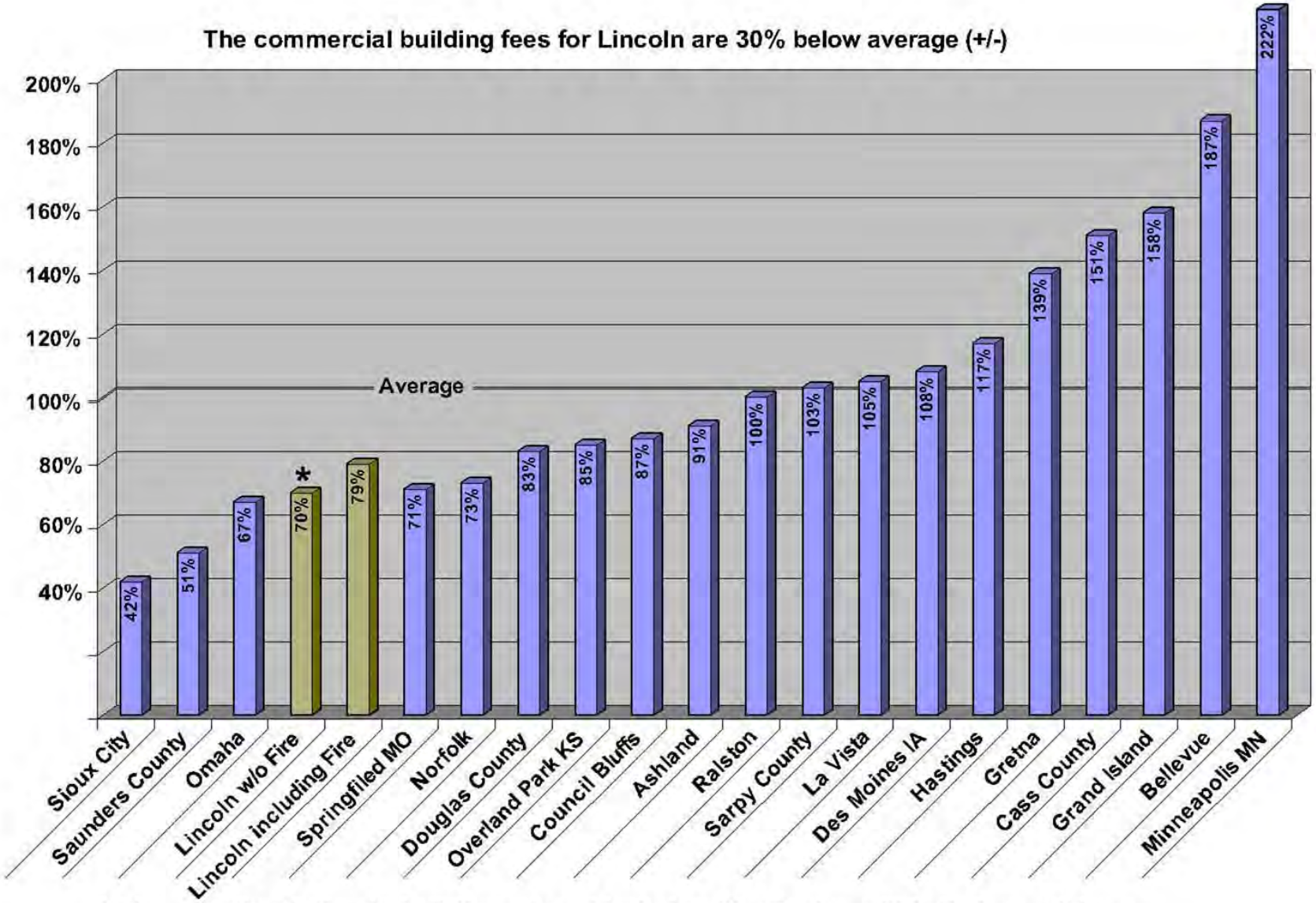
Reference: Table 1607.1, Manufacturing Heavy = 250 psf
and Manufacturing Light = 125 psf

- LMC 20.08.090 IBC 108.3 **Permit Fees**

Typically, the sq.ft. valuations for various types of construction and occupancies are increased each year to keep up with costs.



Although the national cost of construction index has increased an average of 3.5% each year, building permit fees in Lincoln have remained low.



*** The majority of other jurisdictions do not include a Fire Review within their permit fees. For most jurisdictions, a separate review is required by the State Fire Marshal.**

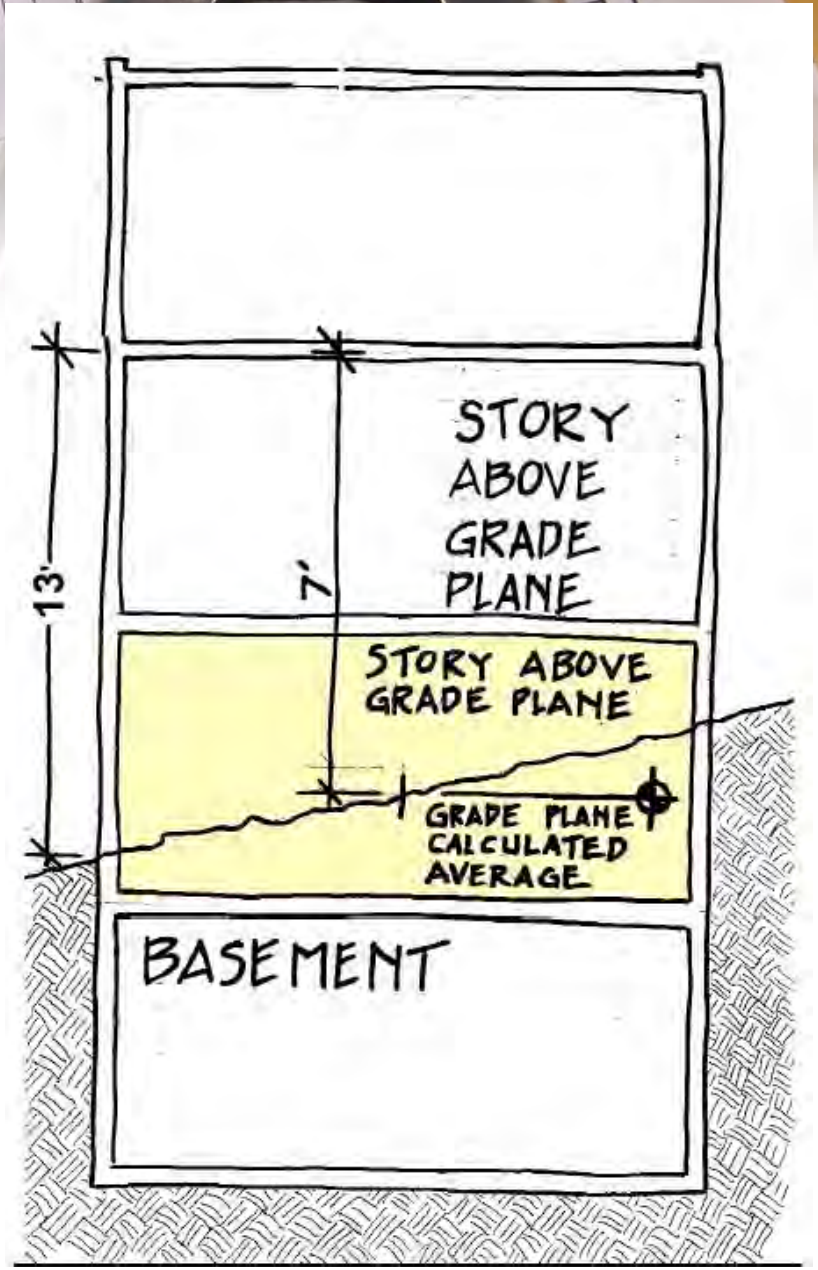
Statistics compiled by Plan Reviewer Mike Petersen
Graphics by Plan Reviewer Richard Burton - May 2011

Chapter 2 Definitions:

- **High-Rise Building.** A building with an occupied floor located more than 75 feet above the lowest level of fire department vehicle access. (Clarification now consistent with 403.1)

High-Rise: Block 38 by Sinclaire Hille Architects

Chapter 2 Definitions:



- The definition for "**Story above grade plane**" has been modified by the removal of language addressing basements and the addition of a reference for measurement purposes.

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

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

Chapter 3: Use & Occupancy Classification

- **Child Care Facilities** – Facilities that provide care on a 24-hour basis to more than five* children, 2-1/2 years of age or less. *(the duration of 24-hour basis = I-2 occupancy)*

- *Remember that Lincoln amendments have allowed for ***twelve*** children in a Home-based Day Care – which is consistent with the Health Department's licensing regulation, Zoning and Fire Code.

- **Detoxification Facilities** - Facilities that serve patients who are provided treatment for substance abuse on a 24-hour basis and who are incapable of self-preservation or who are harmful to themselves or others

Nothing too significant – simply added a few definitions to the list of I-2 Occupancies.

Chapter 3: Use & Occupancy Classification

- **Ambulatory Health Clinics** – Buildings or portions thereof used to provide medical, surgical, pyschiatric, nursing, or similar care on a less than 24-hour basis to individuals who are rendered incapable of self-preservation.

- **Outpatient Clinic** - Buildings or portions thereof used to provide medical care on a less than 24-hour basis to individuals who are <u>not</u> rendered incapable of self-preservation by the services provider.

Patient under anesthesia = ambulatory

Chapter 3: Use & Occupancy Classification

- **Hospitals and Mental Hospitals** – Buildings or portions thereof used on a 24-hour basis for the medical, psychiatric, obstetrical or surgical treatment of inpatients who are incapable of self-preservation.

- **Nursing Homes** – Nursing homes are long-term care facilities on a 24-hour basis, including both intermediate care facilities and skilled nursing facilities, serving more than five persons and any of the persons are incapable of self-preservation.

308.5.1

But if personal care service is provided for more than five unrelated adults, less than 24 hours, and everyone is capable of responding to an emergency, then this facility can be considered as a Group **R-3** - Adult Care Facility rather than classified as Group **I-4**.

Chapter 4: Special Detailed Requirements Based on Use & Occupancy

- **High-Rise Buildings** – additional requirements:
  Emergency responder radio
  Smoke removal (windows and air handlers)
  Either additional exit stairway or evac. elevator
  Luminous egress markings
  Fire service access elevator
  Occupant evacuation elevator

Chapter 4: Special Detailed Requirements Based on Use & Occupancy

- **Live / Work Units** –
  added to Group R-2 (Apartments)
  Nonresidential area is limited to 50% of unit's floor area.
  Work area is located on first or main floor of unit.
  Limit of 5 non-residential workers.
  High-hazard and storage uses not permitted (limited storage acceptable).

- There are several provisions and requirements within the building code that are consistent with **green** building practices. For this reason, the new Live-Work Units will be promoted and encouraged by Lincoln Building Safety Dept.

L.M.C.

Chapter 4: Special Detailed Requirements Based on Use & Occupancy

- **Storm Shelters** – recent addition to the IBC that provides standards for construction. But there is nothing that *requires* a storm shelter.

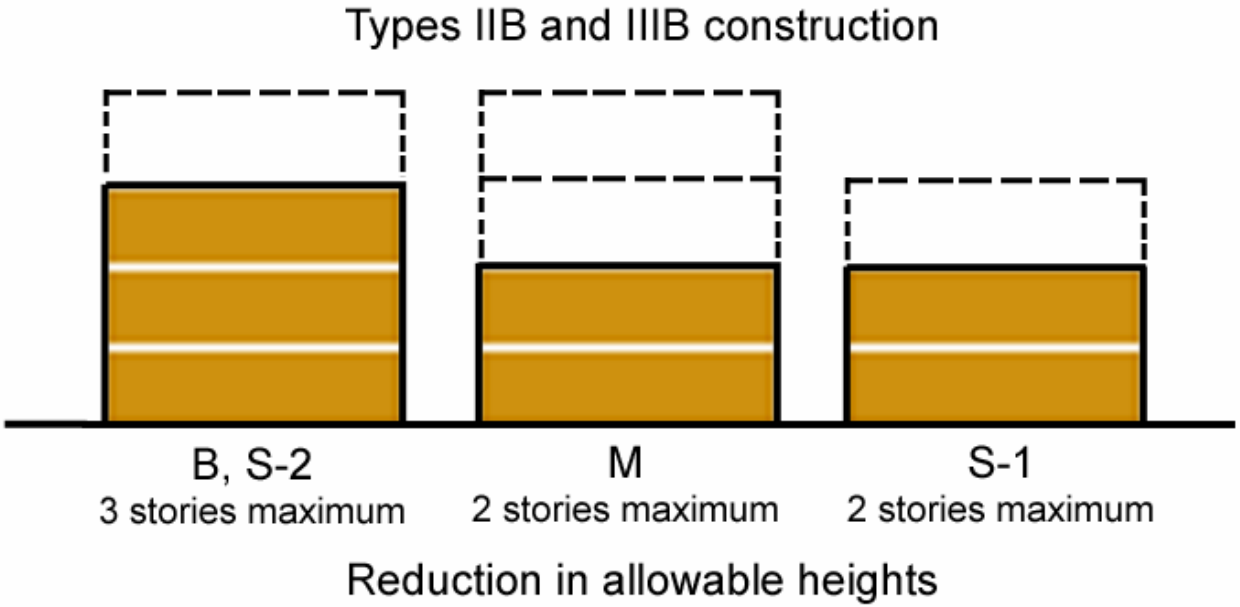
- Lincoln's Code Study Task Force chooses to accept **FEMA 361** as the standard for construction.

- ICC-500 and FEMA 361 design criteria for tornados are essentially the same. Walls for both community shelters & residential tornado shelters must be designed to resist **250 mph** winds & doors must resist the 15-lb 2x4 missile impact test at 100 mph. 5 S.F. of space/person.

F-5 Tornado in Greensburg Kansas

Chapter 5: Building Heights & Areas

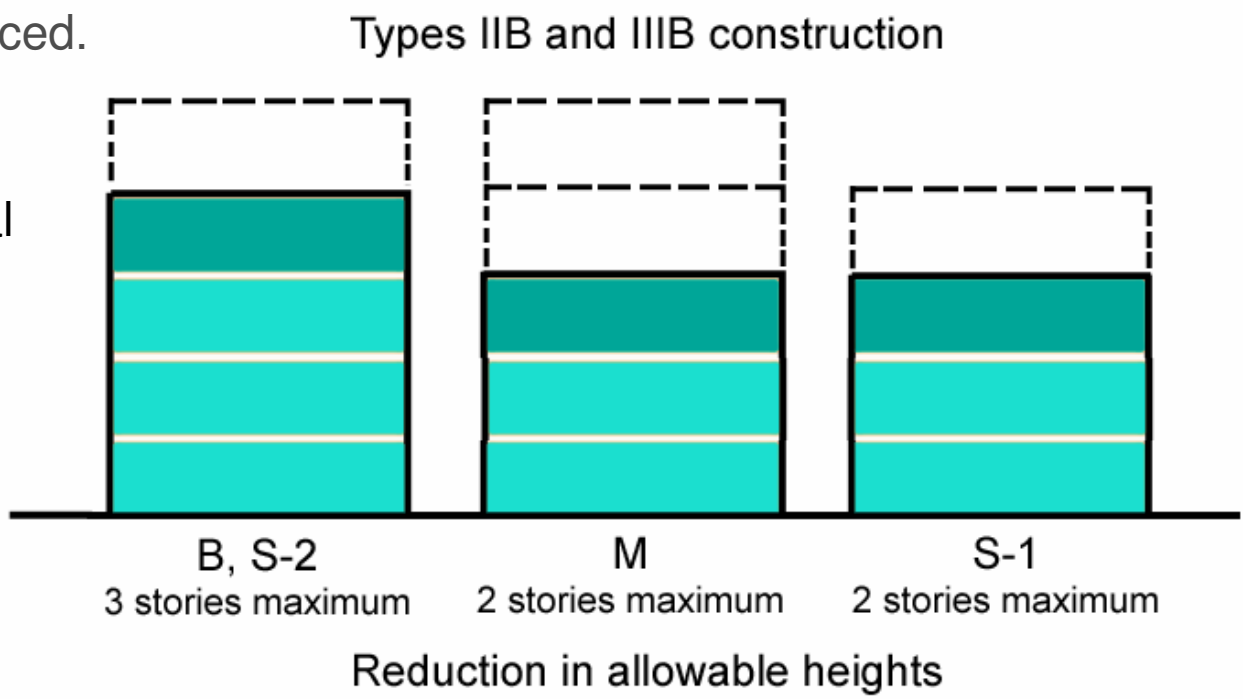
- **Table 503 Allowable Building Heights and Areas** – In groups B, M, S-1 and S-2 buildings of Type IIB and IIIB construction, the allowable height in stories has been reduced.



Chapter 5: Building Heights & Areas

- **Table 503 Allowable Building Heights and Areas** – In groups B, M, S-1 and S-2 buildings of Type IIB and IIIB construction, the allowable height in stories has been reduced.

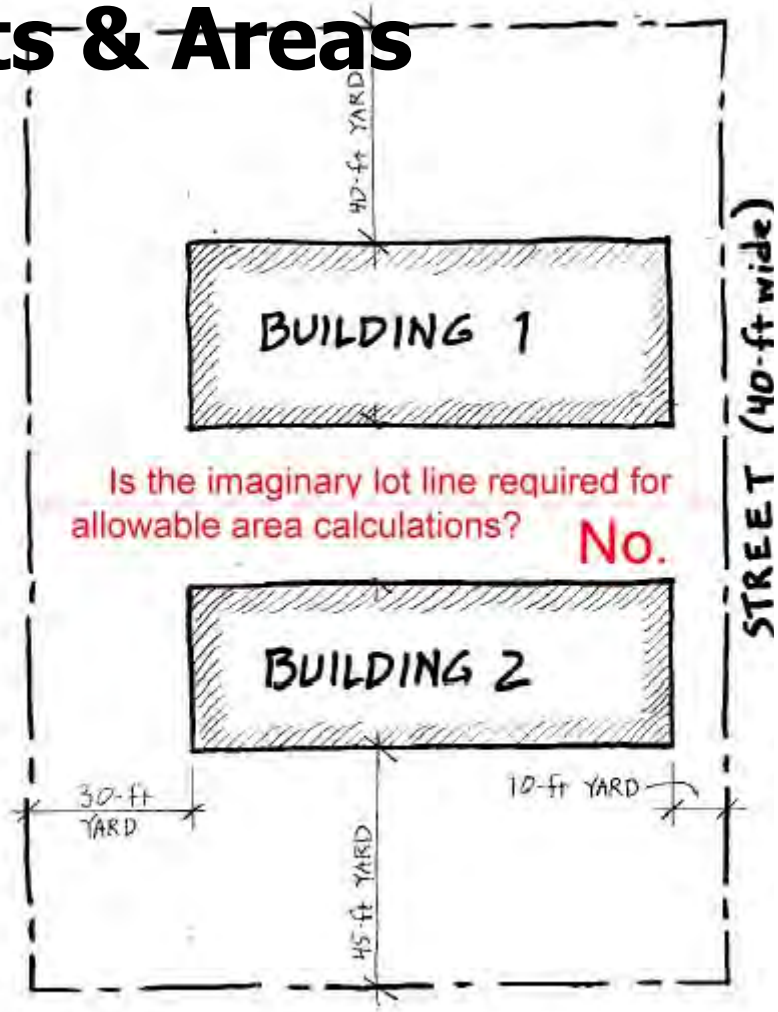
Sprinkler increase for additional story still applies



Chapter 5: Building Heights & Areas

- **506.2.1 Width Limits** – The value of "W" shall be at least 20 feet. Where the value of W exceeds 30 feet, a value of 30 feet shall be used in calculating the weighted average… <u>Where two or more buildings are on the same lot, W shall be measured from the exterior face of a building to the exterior face of an opposing building.</u>

Although the use of the imaginary lot line is still used for determining the required wall and opening protection based on Section 705.3, this change in the code makes it clear that the imaginary line was never intended for use while determining allowable area. Different / false interpretations are now eliminated



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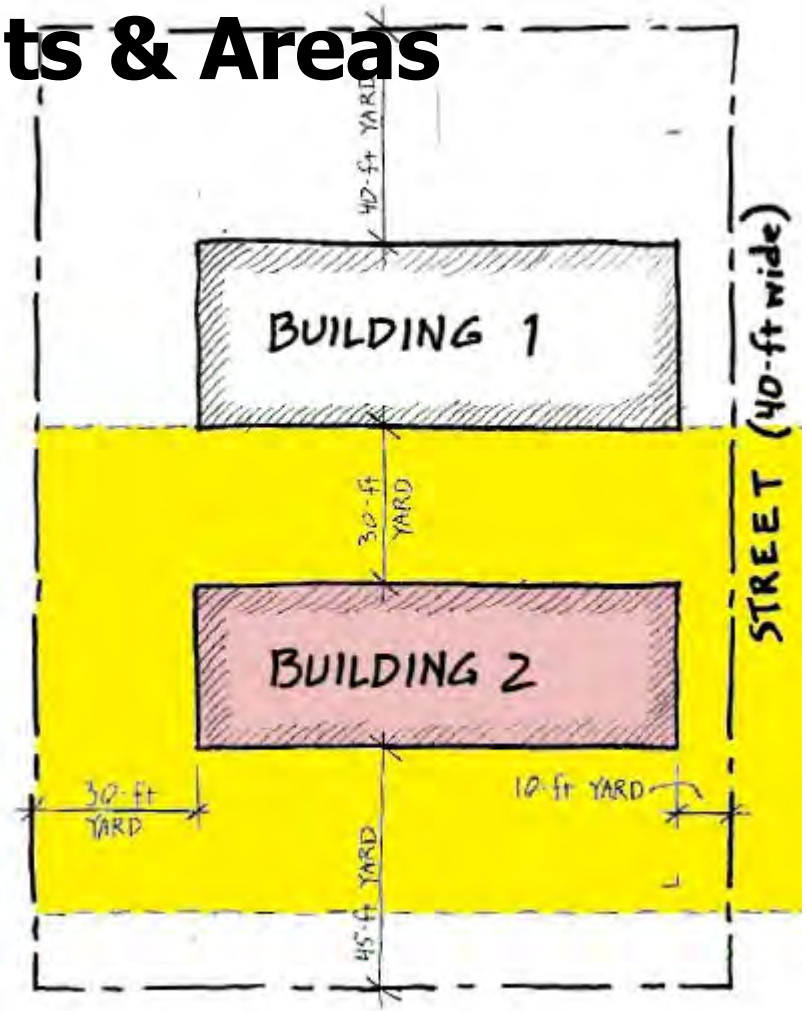
In this example with Buildings 1 and 2 being located on the same lot, both buildings may use the 30-foot yard that separates them for area increases. As a result, each building may use the total perimeter for area increases, provided access is available per Section 506.2.2.



Chapter 5: Building Heights & Areas

- **506.5 Mixed-occupancy Multi-story Allowable Area** – The method of calculating allowable area for multi-story buildings has been clarified where mixed-occupancy conditions occur.

Code Review Summary for Ten Story Building:

Floor Level	Occup' Type	Actual Area	Constr' Type	Allowable area per occupancy
10	R-2	25,450	Type IIA	24,000 + 24,000(200%) = 72,000
9	R-2	25,450	Type IIA	24,000 + 24,000(200%) = 72,000
8	R-2	25,120	Type IIA	24,000 + 24,000(200%) = 72,000
8	A-3	4,273	Type IIA	15,500 + 15,500(200%) = 46,500
2 hour fire separation between two different construction types				
7	S-2	35,500	Type IB	non-sprinkled parking garages open around the entire perimeter are permitted to be increased by 50 percent in area = 79,000 + 79,000(50%) = 118,500 per floor
6	S-2	35,500	Type IB	
5	S-2	35,500	Type IB	
4	S-2	35,500	Type IB	
3	S-2	35,500	Type IB	
2	S-2	35,500	Type IB	
3 hour fire separation between First and Second Floor per 2009 IBC 509.2				
1	S-2	21,920	Type IB	non-sprink open garage= 79,000
1	M	18,656	Type IB	Unlimited

Occupancy Key:	
Use Description	**Classification**
Mercantile	M
Residential	R-2
Storage	S-2
Assembly	A-3

506.5

Solution for total building area:
Allowable area per occupancy and
Sum of ratios calculation per story

Tenth floor		$\frac{25{,}450}{72{,}000}$		= 0.35 which is less than or equal to 1.0 = okay
Ninth floor		$\frac{25{,}450}{72{,}000}$		= 0.35 which is less than or equal to 1.0 = okay
Eighth floor	$\frac{25{,}120}{72{,}000}$	+	$\frac{4{,}273}{46{,}500}$	= 0.44 which is less than or equal to 1.0 = okay
Seventh floor		$\frac{35{,}550}{118{,}500}$		= 0.30 which is less than or equal to 1.0 = okay
Sixth floor		$\frac{35{,}550}{118{,}500}$		= 0.30 which is less than or equal to 1.0 = okay
Fifth floor		$\frac{35{,}550}{118{,}500}$		= 0.30 which is less than or equal to 1.0 = okay
Fourth floor		$\frac{35{,}550}{118{,}500}$		= 0.30 which is less than or equal to 1.0 = okay

Third floor	$\frac{35{,}550}{118{,}500}$	= 0.30 which is less than or equal to 1.0 = okay
Second floor	$\frac{35{,}550}{118{,}500}$	= 0.30 which is less than or equal to 1.0 = okay

* * * Three hour floor separation per IBC 509.2 * * *

First floor	$\frac{21{,}920}{118{,}500}$	+	$\frac{18{,}656}{\text{Unlimited}}$	= 0.18 which is less than or equal to 1.0 = okay

Each story complies
Sum of ratios calculation for building area above 3 hour separation per IBC 509.2
0.35 + 0.35 + 0.44 + 0.30 + 0.30 + 0.30 + 0.30 + 0.30 + 0.30 = 2.94 which is less than 3.0
Entire building also complies in accordance with 2009 IBC 506.5 -
Mixed-occupancy Multi-story Allowable Area

506.5

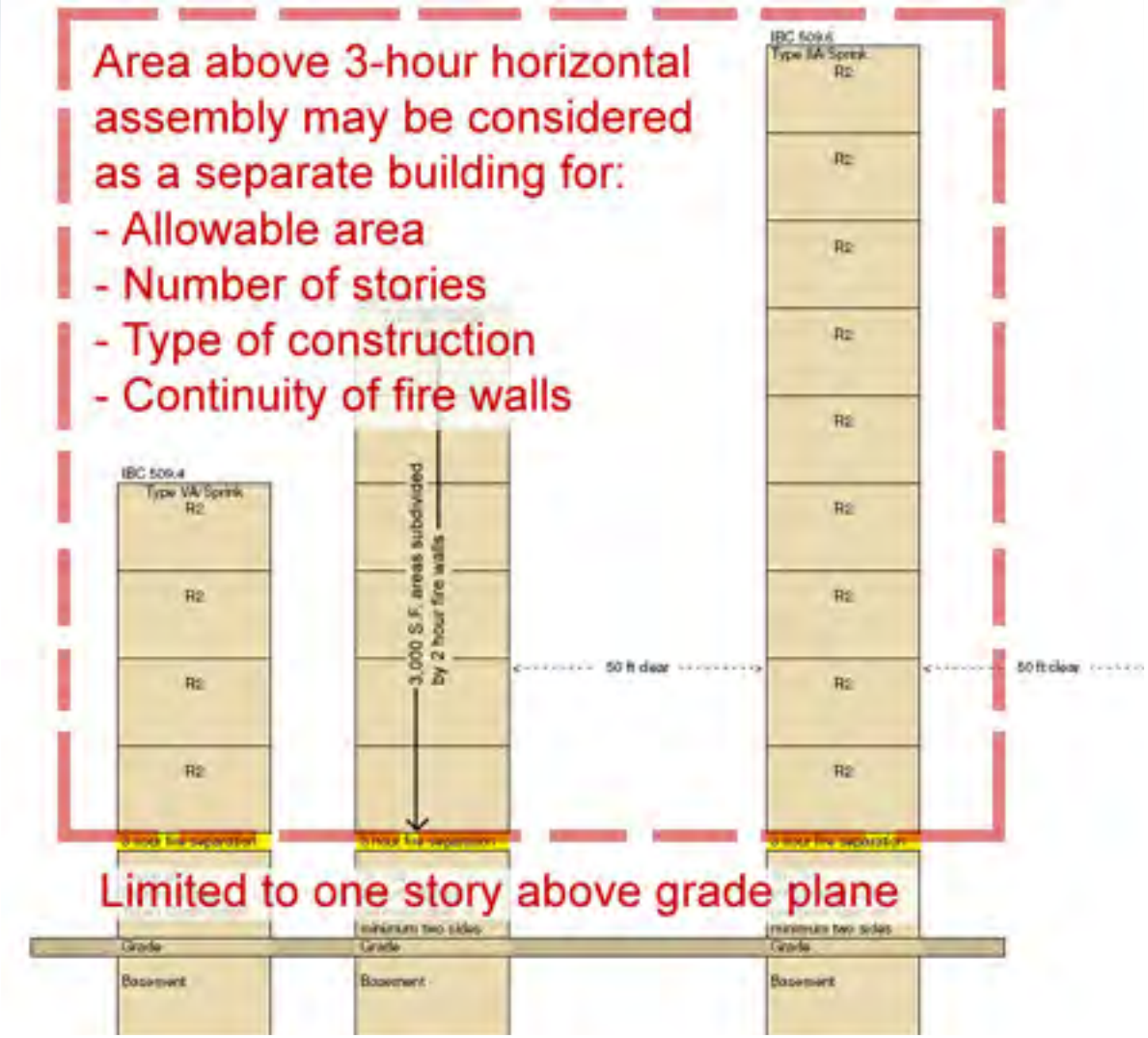
Chapter 5: Building Heights & Areas

- **509.2 Horizontal Separation of Buildings** – A special provision is allowed as separate buildings are created above and below a 3-hour rated horizontal building separation.

Further clarification has been made and the presence of a parking facility below the “podium” or “pedestal” is no longer required for these special provisions. Group R occupancies are now permitted below the horizontal separation in addition to several group A occupancies – provided that each assembly area has an occupant load of less than 300 (example: Chipotle restaurant, a small theatre, and an art gallery).

Chapter 5:

- **509.2 Horizontal Separation of Buildings –**



Chapter 5: Building Heights & Areas

- **508.4 Group I-2 Separated Occupancies** – The minimum required fire-resistance rating between a Group I-2 and any adjoining occupancy based on the separated occupancies method has been increased to provide at least a 2-hour separation.

Table 508.4

Group I-2 Separated Occupancies

CHANGE TYPE: Modification

CHANGE SUMMARY: The minimum required fire-resistance rating between a Group I-2 and any adjoining occupancy based on the separated occupancies method has been increased to provide at least a 2-hour separation.

2009 CODE:

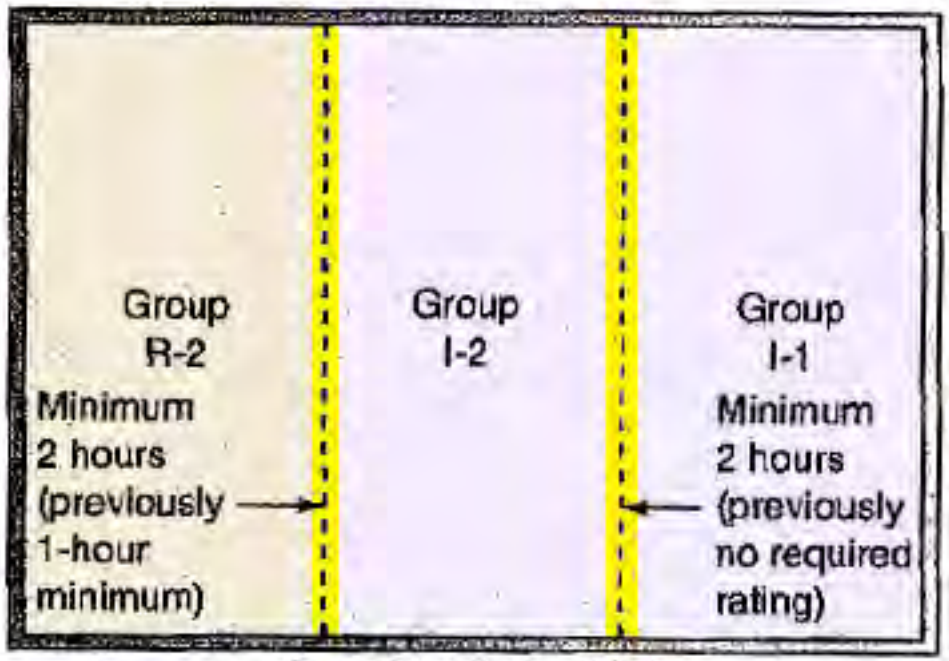
TABLE 508.~~3.3~~.4
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

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

~~b. Occupancy separation need not be provided for storage areas within Group B and M if the:~~
~~1. Area is less than 10 percent of the floor area;~~
~~2. Area is equipped with an automatic fire-extinguishing system and is less than 3,000 square feet; or~~
~~3. Area is less than 1,000 square feet.~~
~~c.~~ b. The required separation from areas used only for private or pleasure vehicles shall be ~~allowed to~~ reduced ~~separation~~ by 1 hour but to not ~~less than one hour~~

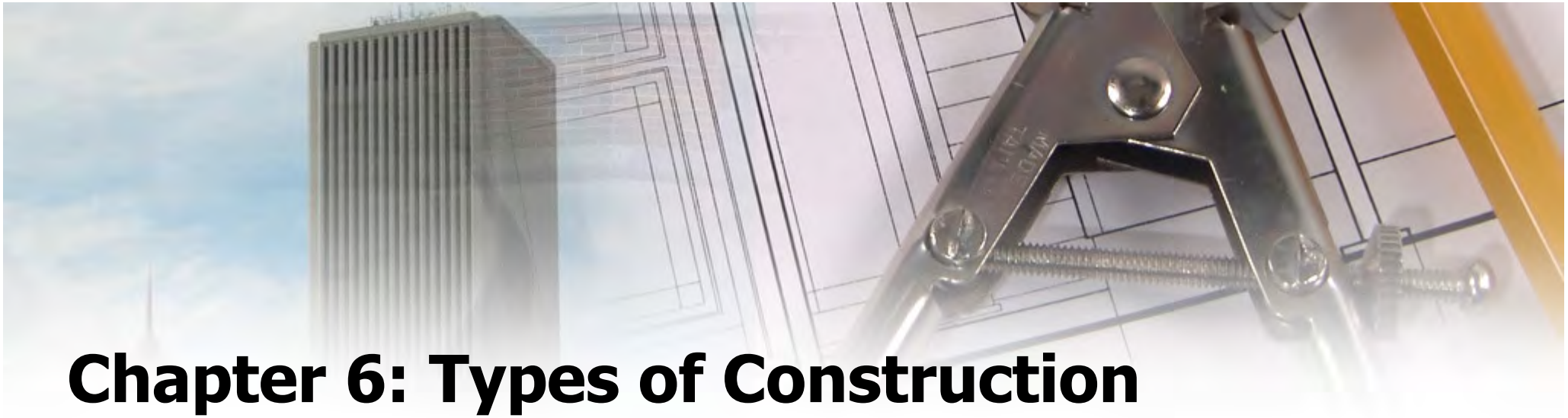
CHANGE SIGNIFICANCE: Where the separated occupancy method is used for fully sprinklered mixed-occupancy buildings that contain a Group I-2 occupancy, the minimum required fire-resistance-rated separation between the Group I-2 occupancy and any adjoining occupancy

Fully sprinklered building



Based on Table 508.4

Fire separation of Group I-2 occupancies



Chapter 6: Types of Construction

- **Table 601** – Fire resistance rating requirements for building elements (hours).

- **602.1 – Fire Resistance Ratings Based on Construction Type** – clarification and distinction is made between those structural elements that are required to be rated according to Table 601 and other elements that may or may not be required to be fire rated such as openings and ductwork and special occupancy separation walls.

- **603.1 Combustible Material in Types I and II Construction** – Fire-retardant-treated-wood (FRTW) within roof construction is now permitted in all buildings of Type IB construction.

Chapter 6:

- **Table 601** – Fire resistance rating requirements for building elements (hours).

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[d]	B	A[d]	B	HT	A[d]	B
Primary structural frame[g] (see Section 202)	3[a]	2[a]	1	0	1	0	HT	1	0
Bearing walls Exterior[f, g] Interior	3 3[a]	2 2[a]	1 1	0 0	2 1	2 0	2 1/HT	1 1	0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior[e]	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction and secondary members (see Section 202)	2	2	1	0	1	0	HT	1	0
Roof construction and secondary members (see Section 202)	$1^1/_2$[b]	1[b, c]	1[b, c]	0[c]	1[b, c]	0	HT	1[b, c]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.

d. An approved automatic sprinkler system in accordance with Section 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 506.3 or an allowable height increase in accordance with Section 504.2. The 1-hour substitution for the fire resistance of exterior walls shall not be permitted.

e. Not less than the fire-resistance rating required by other sections of this code.

f. Not less than the fire-resistance rating based on fire separation distance (see Table 602).

g. Not less than the fire-resistance rating as referenced in Section 704.10

Chapter 6:

- **Table 601** – Fire resistance rating requirements for building elements (hours). Primary and secondary structural elements are now defined in Section 202.

Ask your engineer what structural elements are “primary” and what structural elements are considered “secondary”?

Chapter 6:

- **603.1 Combustible Material in Types I and II Construction** – Fire-retardant-treated-wood (FRTW) within roof construction is now permitted in all buildings of Type IB construction.

23. Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 717.5.
24. Materials exposed within plenums complying with Section 602 of the *International Mechanical Code*.
25. *Fire-retardant-treated wood* shall be permitted in:
    - 25.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less.
    - 25.2. Nonbearing *exterior walls* where no fire rating is required.
    - 25.3. Roof construction, including girders, trusses, framing and decking.

      Exception: In buildings of Type IA construction exceeding two *stories above grade plane*, *fire-retardant-treated wood* is not permitted in roof construction when the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).

603.1.1 Ducts. The use of nonmetallic ducts shall be permitted when installed in accordance with the limitations of the *International Mechanical Code*.

603.1.2 Piping. The use of combustible piping materials shall be permitted when installed in accordance with the limitations of the *International Mechanical Code* and the *International Plumbing Code*.

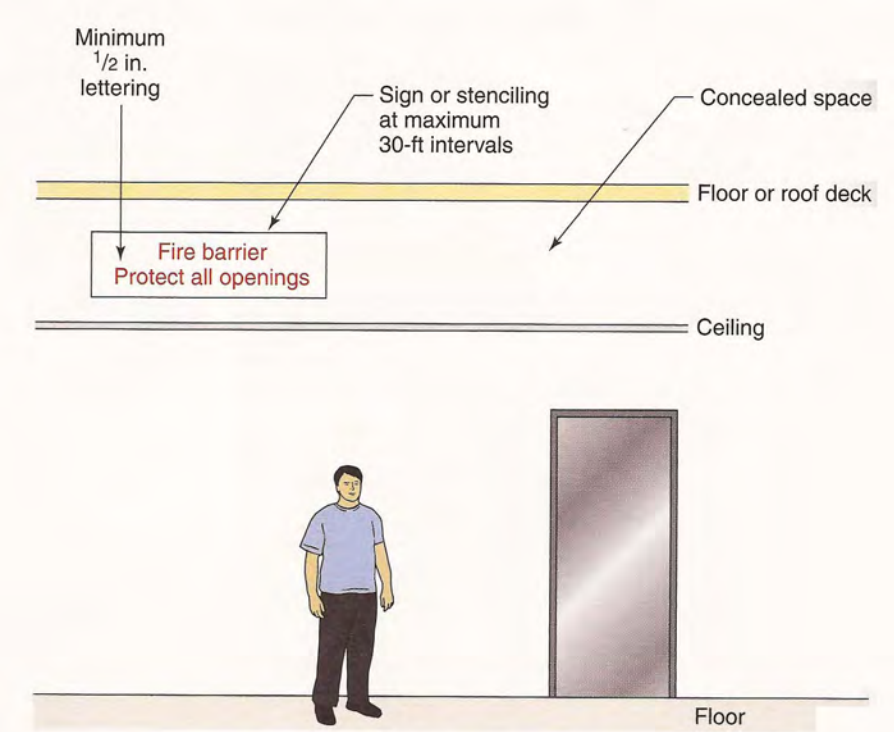
603.1.3 Electrical. The use of electrical wiring methods with combustible insulation, tubing, raceways and related components shall be permitted when installed in accordance with the limitations of this code.

2009 IBC – Significant Changes
Fire Protection

Chapters 7 through 9

Chapter 7 – Fire-Rated Construction:

- **703.6 – Identification of Fire & Smoke Separation Walls –** Fire walls, fire barriers, and other walls required to have protected openings or protected penetrations must now be identified above the ceiling where a concealed space is created.



Identification sign for fire barrier

Chapter 7 – Fire-Rated Construction:

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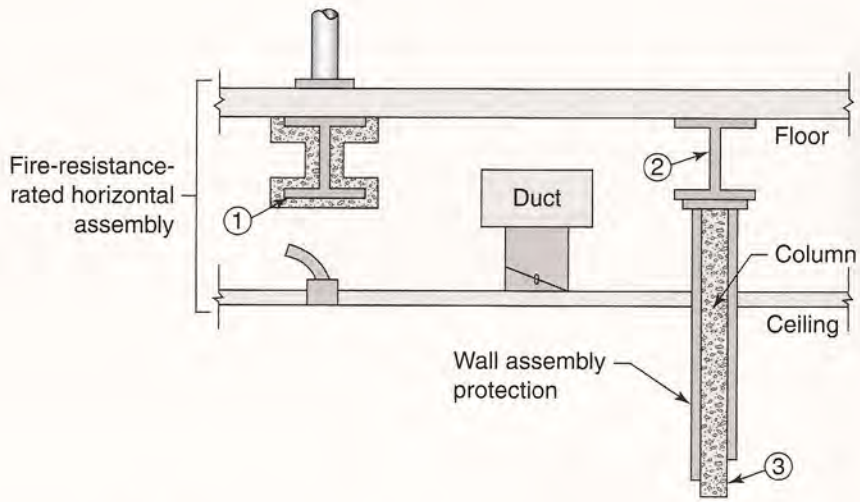

Code requirements:

1. Individual protection for structural members is required if supporting loads are from more than two floors or from one floor and roof
2. Otherwise, protection may be by individual encasement membrane or ceiling protection per Section 712 or combination of both
3. Columns must be protected for full height by individual encasement regardless of loading conditions (Section 704.2)

Protection of structural members

- **704 – 202 – Fire-resistance Ratings of Structural Members –** The classification of structural elements as being either “primary” or “secondary” is now defined in Section 202. A fundamental emphasis is given to the protection of the structural columns. Columns must be individually protected or encased within a fire-resistant assembly.

Chapter 7 – Fire-Rated Construction:

- **704.9 – Impact Protection for Fire Protective Coverings –** Corner guards or other forms of impact protection are no longer required for concrete columns in an open or enclosed parking garage. The exception recognizes that concrete is a durable material that is not susceptible to damage from slow moving vehicles and these concrete columns are designed to resist such an impact.

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Corner guards no longer required

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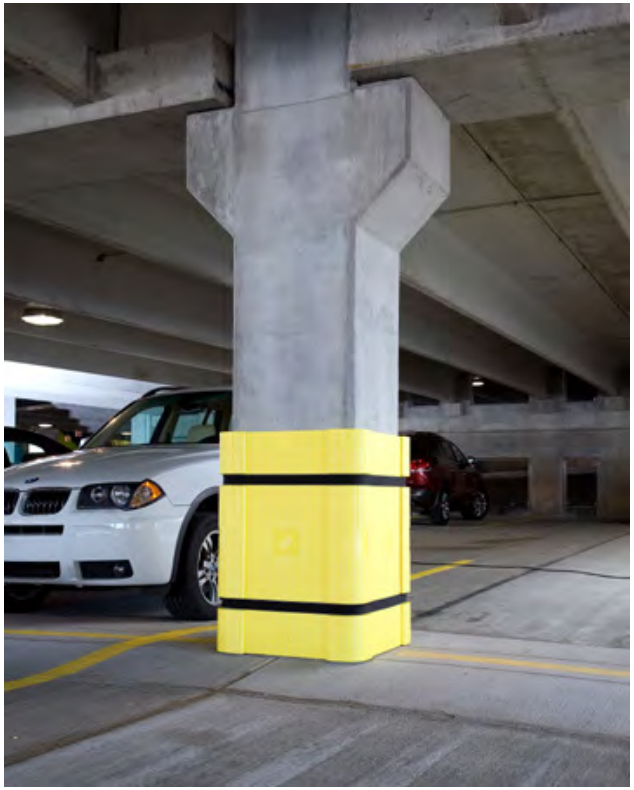

Corner guards no longer required

Chapter 7 – Fire-Rated Construction:

- **704.13 - Sprayed Fire-resistant Materials (SFRM) –** The application of SFRM is now specifically regulated to minimize the potential for the materials to be dislodged. The in-place durability needs to resist elevator movement, building sway and maintenance activities

Chapter 7 – Fire-Rated

- **705.2 - Limitations on Extension of Projections –** The method for determining the maximum extent of a projection beyond the exterior wall has been extensively revised. Projections such as cornices, eave overhangs, and balconies, have the ability to trap the convected heat from a fire in an adjacent building if the projection is located in close proximity to a property line.

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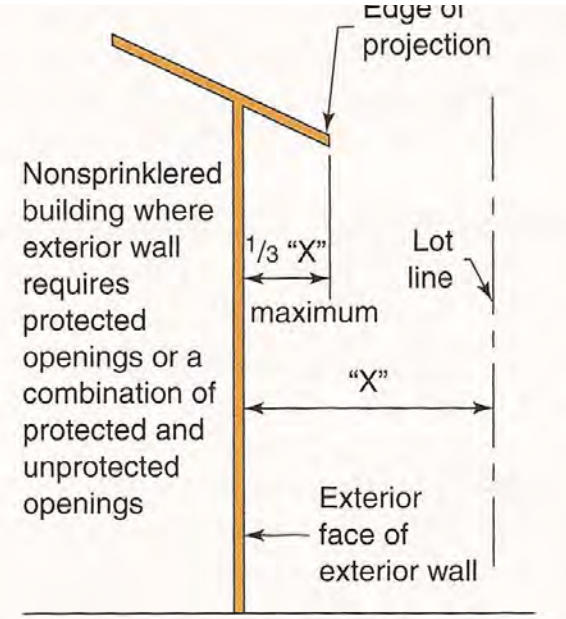
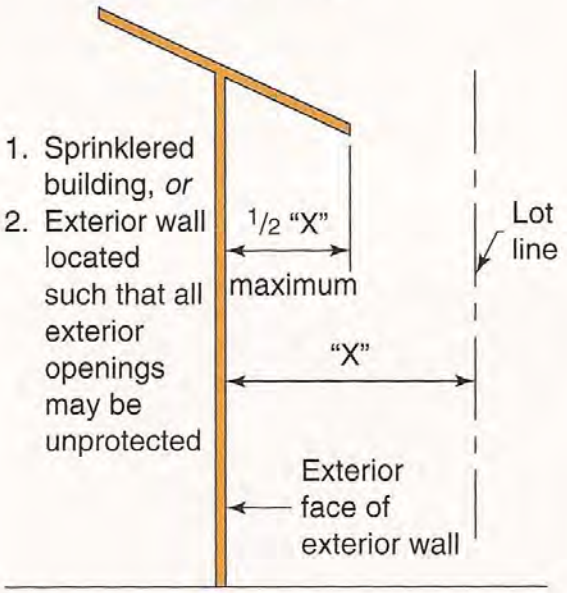


Method 1



Method 2

Limitations on extension of projections

Chapter 7 – Fire

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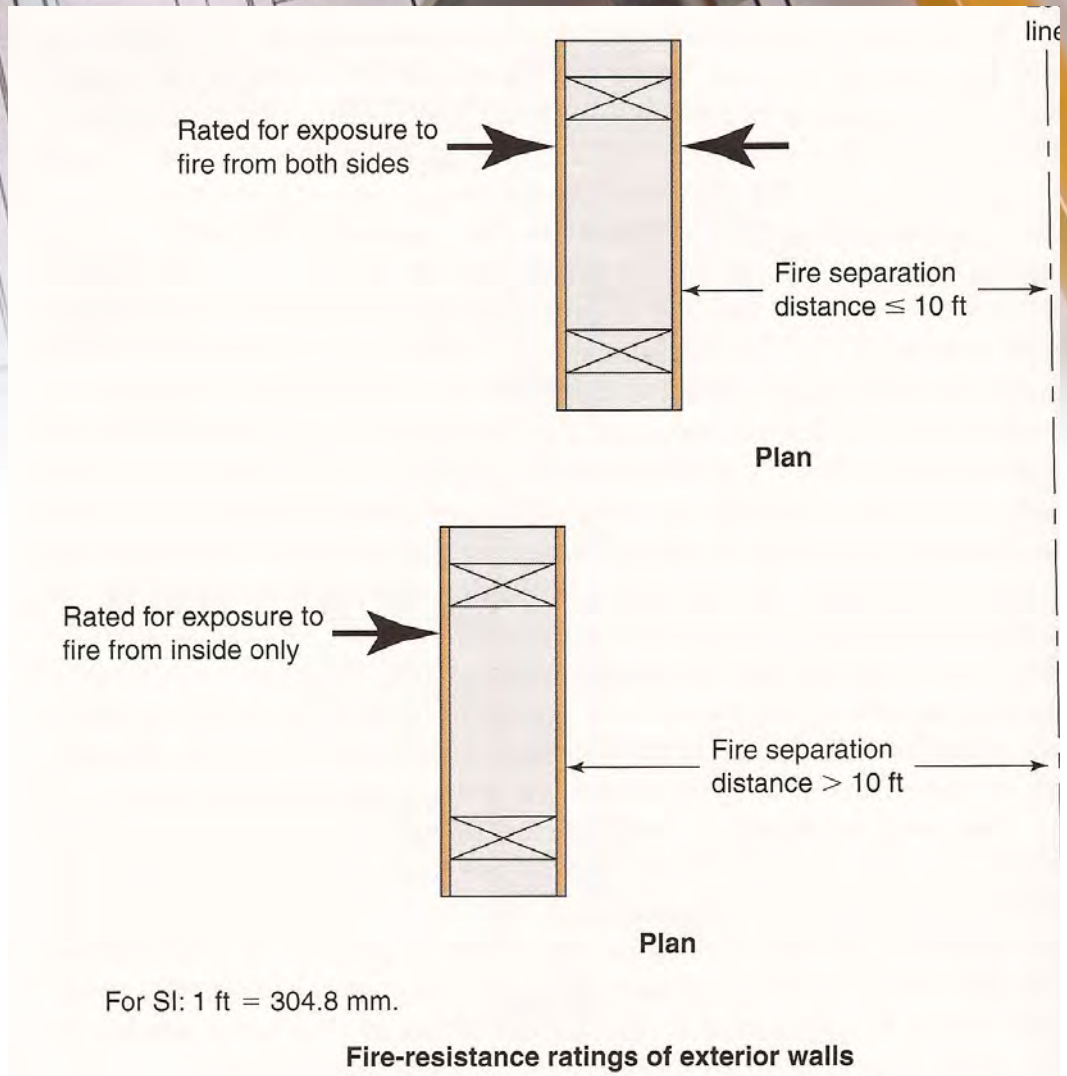
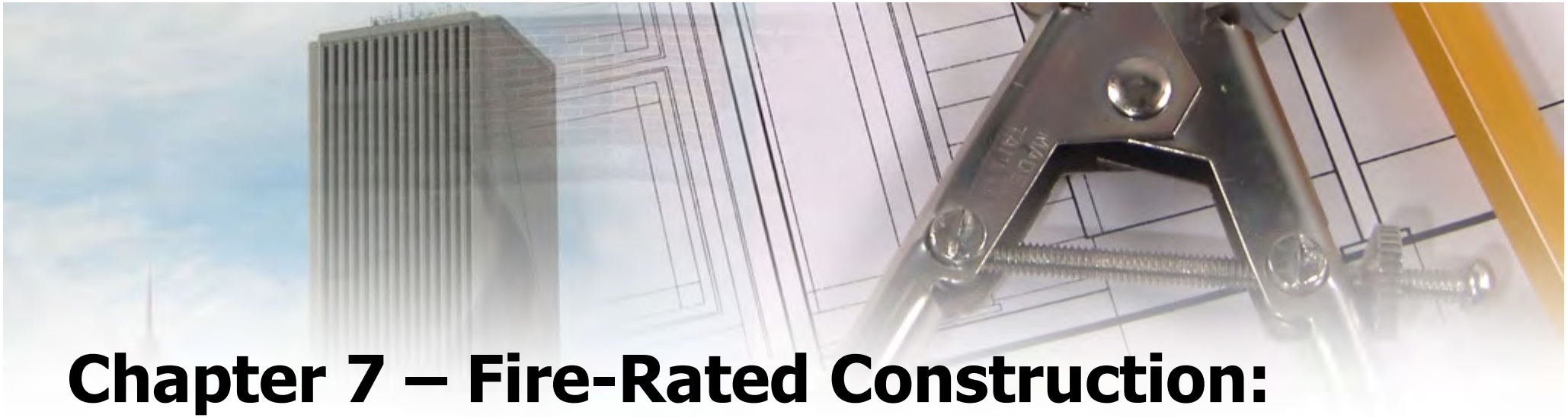


Fire-resistance ratings of exterior walls

- **705.5 - Fire-resistance Ratings of Exterior Walls –** Exterior walls required to be fire-resistance rated must now be rated for fire exposure from <u>both sides</u> where their fire separation distance is 10 feet or less.



Chapter 7 – Fire-Rated Construction:

- **Table 705.8 – Maximum Area of Exterior Wall Openings –** The table has been modified to allow for a more logical and understandable format. The revised table now coincides with the criteria of Table 602 addressing exterior wall protection.

See next slide for table

-

Chapter 7 – Fire-Rated Construction:

A very subtle change is that the thresholds values for the fire separation distances now coincide with Table 602 which regulates the fire-resistance ratings of exterior walls that are located either 5 feet, 10 ft, or less than 30 ft from either 1) an interior lot line, 2) to the centerline of a street, alley or public way, or 3) to an imaginary line between two buildings on the property.

2009 CODE:

TABLE ~~704.8~~ 705.8
MAXIMUM AREA OF EXTERIOR WALL OPENINGS
BASED ON FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION

FIRE SEPARATION DISTANCE (feet)	DEGREE OF OPENING PROTECTION	ALLOWABLE AREA[a]
0 to less than 3[b,c]	Unprotected, Nonsprinklered (UP, NS) Unprotected, Sprinklered (UP, S)[i] Protected (P)	Not Permitted Not Permitted Not Permitted
~~Greater than~~ 3 to less than 5[d,e]	Unprotected, Nonsprinklered (UP, NS) Unprotected, Sprinklered (UP, S)[i] Protected (P)	Not Permitted 15% 15%
~~Greater than~~ 5 to less than 10[e,f]	Unprotected, Nonsprinklered (UP, NS) Unprotected, Sprinklered (UP, S)[i] Protected (P)	10% [h] 25% 25%
~~Greater than~~ 10 to less than 15[e,f,g]	Unprotected, Nonsprinklered (UP, NS) Unprotected, Sprinklered (UP, S)[i] Protected (P)	15% [h] 45% 45%
~~Greater than~~ 15 to less than 20[f,g]	Unprotected, Nonsprinklered (UP, NS) Unprotected, Sprinklered (UP, S)[i] Protected (P)	25% 75% 75%
~~Greater than~~ 20 to less than 25[f,g]	Unprotected, Nonsprinklered (UP, NS) Unprotected, Sprinklered (UP, S)[i] Protected (P)	45% No Limit No Limit
~~Greater than~~ 25 to less than 30[f,g]	Unprotected, Nonsprinklered (UP, NS) Unprotected, Sprinklered (UP, S)[i] Protected (P)	70% No Limit No Limit
~~Greater than~~ 30 or greater	Unprotected, Nonsprinklered (UP, NS) Unprotected, Sprinklered (UP, S)[i] Protected (P)	No Limit Not Required Not Required

UP, NS = Unprotected openings in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
UP, S = Unprotected openings in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1
P = Openings protected with an opening protective assembly in accordance with Section 705.8.2
(No changes to footnotes other than reorganization and editorial.)

Chapter 7 – Fire-Rated Construction:

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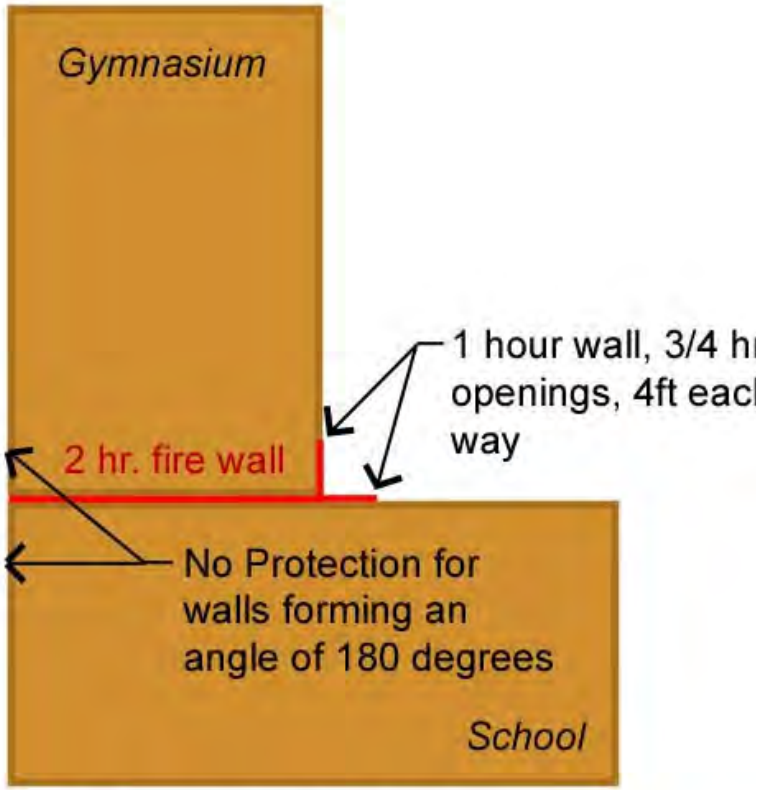
- **706.5.1 – Fire Wall Intersection at Exterior Walls –** An alternative method using an imaginary lot line has been established for regulating exterior wall and opening protection adjacent to the intersection of a fire wall and the exterior wall.



706.5 Horizontal Continuity

Chapter 7 – Fire-Rated Construction:

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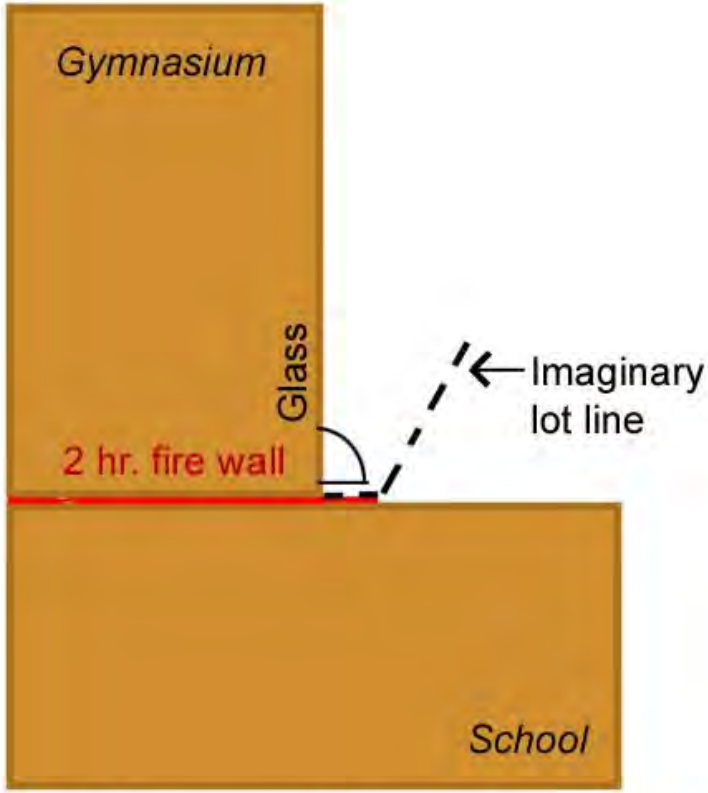
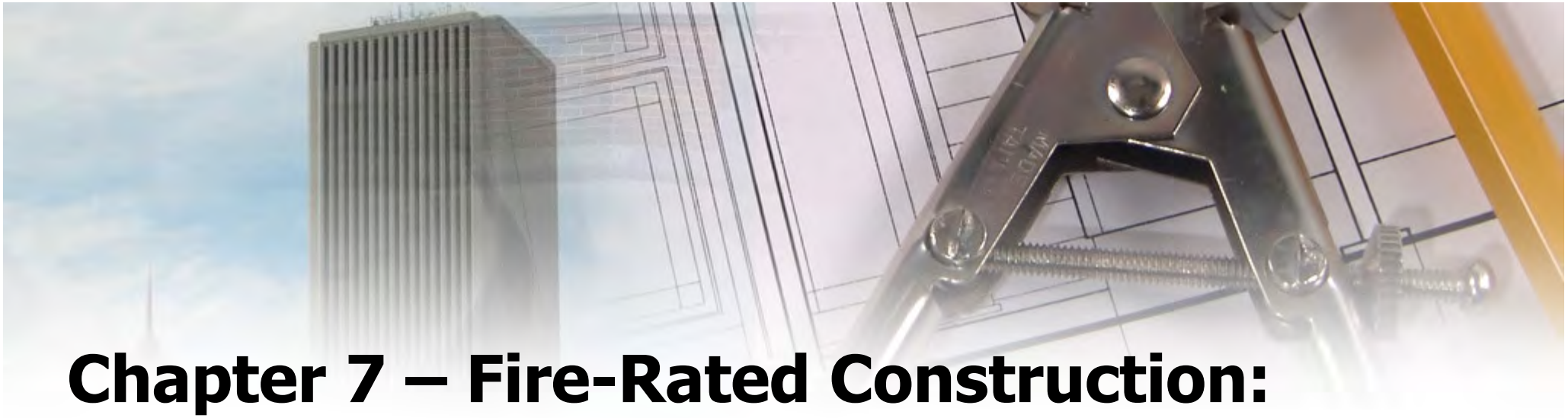
• **706.5.1 – Fire Wall Intersection at Exterior Walls –** An alternative method using an imaginary lot line has been established for regulating exterior wall and opening protection adjacent to the intersection of a fire wall and the exterior wall.



706.5.1 Horizontal Continuity



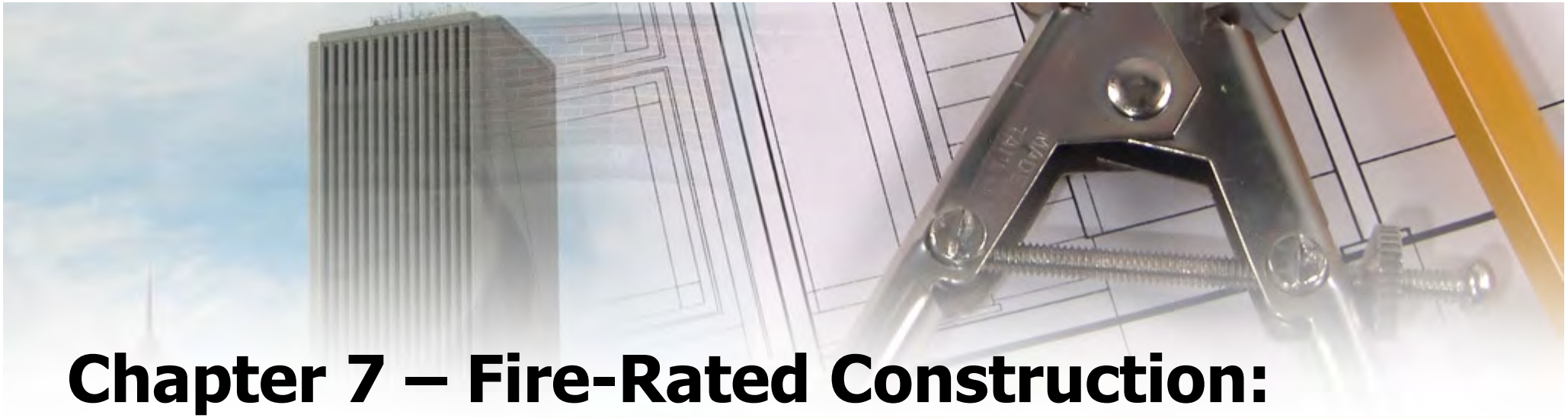
Chapter 7 – Fire-Rated Construction:

- **707.3.9 – Separation of Fire Areas –** When fire areas are created in mixed occupancy buildings, the fire barriers and/or horizontal assemblies must have a minimum fire-resistance rating based on that of the most restrictive occupancy involved as established in Table 707.3.9

TABLE 707.3.9
FIRE-RESISTANCE RATING REQUIREMENTS FOR FIRE BARRIER ASSEMBLIES OR HORIZONTAL ASSEMBLIES BETWEEN FIRE AREAS

OCCUPANCY GROUP	FIRE-RESISTANCE RATING (hours)
H-1, H-2	4
F-1, H-3, S-1	3
A, B, E, F-2, H-4, H-5, I, M, R, S-2	2
U	1

-



Chapter 7 – Fire-Rated Construction:

TABLE 707.3.9
FIRE-RESISTANCE RATING REQUIREMENTS FOR FIR
BARRIER ASSEMBLIES OR HORIZONTAL ASSEMBLI
BETWEEN FIRE AREAS

OCCUPANCY GROUP	FIRE-RESISTANCE RATING
H-1, H-2	4
F-1, H-3, S-1	3
A, B, E, F-2, H-4, H-5, I, M, R, S-2	2
U	1

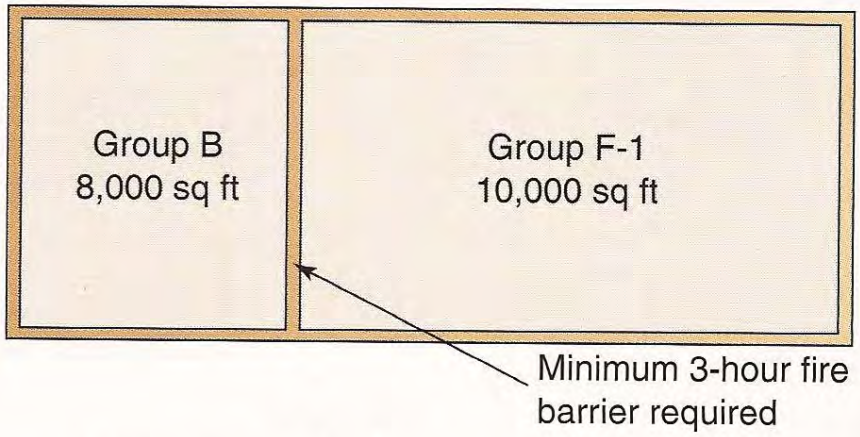
Example:

Given: An 18,000 sq ft mixed occupancy nonsprinklered building as shown.

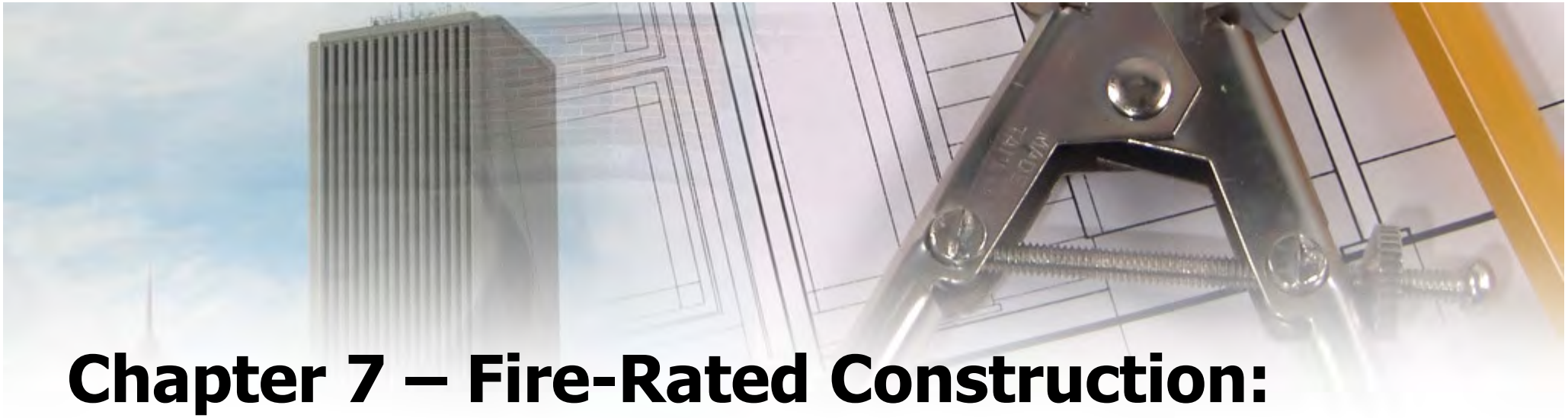
Determine: The minimum required fire-resistance rating of a fire barrier used to create a separation of complying fire areas.

No sprinkler system

Per Table 707.3.9,
Group B: 2 hours
Group S-1: 3 hours



Minimum required separation of fire areas



Chapter 7 – Fire-Rated Construction:

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- **708.2 Shaft Exceptions 7, 14 and 15 –** The extent of a concealed space in regard to the allowance for two stories to be open to each other without shaft protection has been clarified.

CHANGE TYPE: Clarification:

2009 CODE: 708.2 Shaft Enclosure Required: Openings through a floor/ceiling assembly shall be protected by a shaft enclosure complying with this section.

Exceptions:

1. through **6.** (No change to text.)
7. In other than Groups I-2 and I-3, a shaft enclosure is not required for a floor opening or an air transfer opening that complies with the following:

   7.1 and **7.2.** (No change to text.)

   7.3. Is not concealed within the ~~building~~ construction of a wall or a floor/ceiling assembly.

   7.4 through **7.7.** (No change to text.)
8. through **13.** (No change to text.)
14. A shaft enclosure is not required for elevator hoistways in open or enclosed parking garages that serve only the parking garage.
15. In open or enclosed parking garages, a shaft enclosure is not required to enclose mechanical exhaust or supply duct systems when such duct system is contained within and serves only the parking garage.

~~13.~~ **16.** (No change to text.)

Chapter 7 – Fire-Rated Construction:

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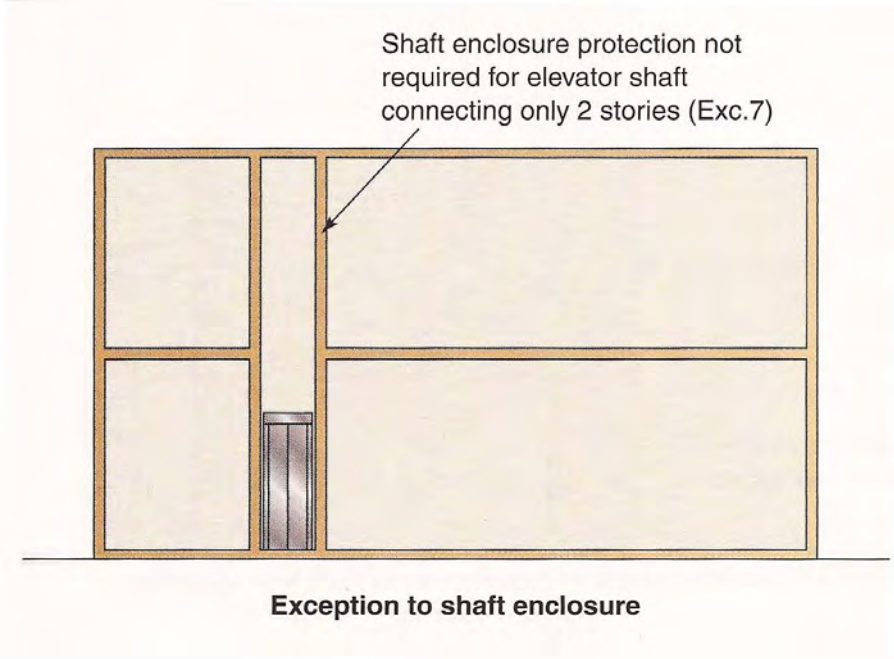
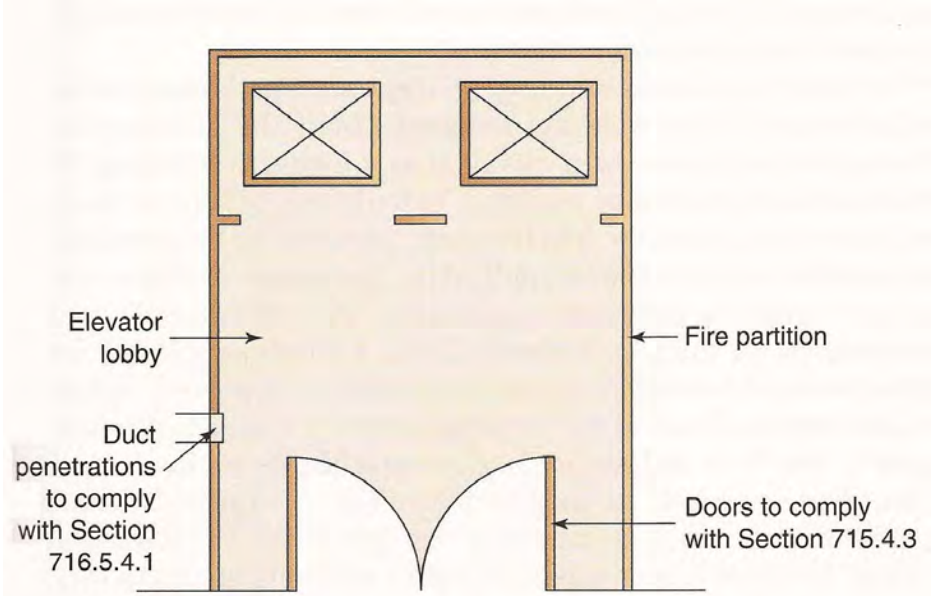


- **708.2 Shaft Exceptions 7, 14 and 15 –** The extent of a concealed space in regard to the allowance for two stories to be open to each other without shaft protection has been clarified.

Chapter 7 – Fire-Rated Construction:

- **708.14.1 – Elevator Lobby Protection –** Group I-2 occupancies must now be afforded the protection provided by elevator lobbies in the same manner as required for Group I-3 occupancies and high-rise buildings.

-



Door openings and duct penetrations of elevator lobbies

Chapter 7

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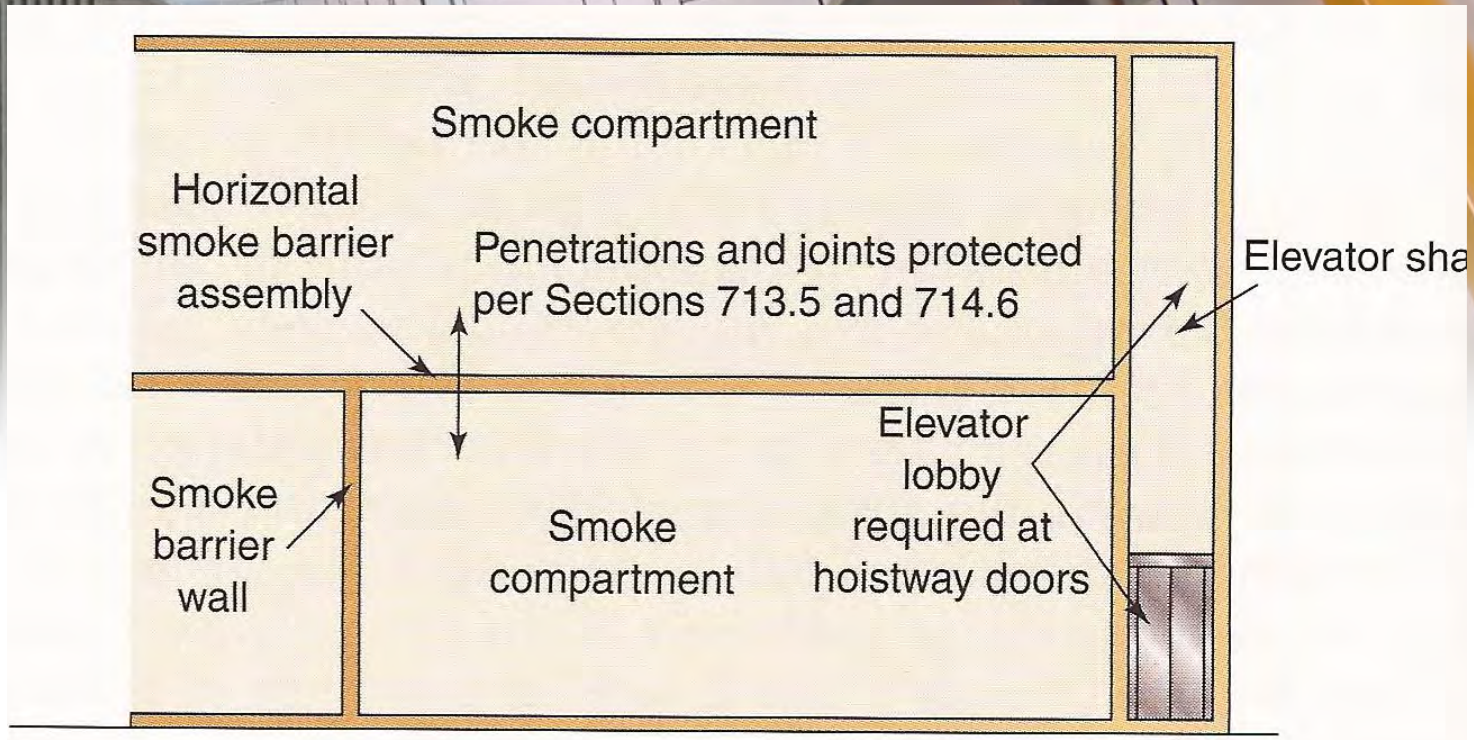
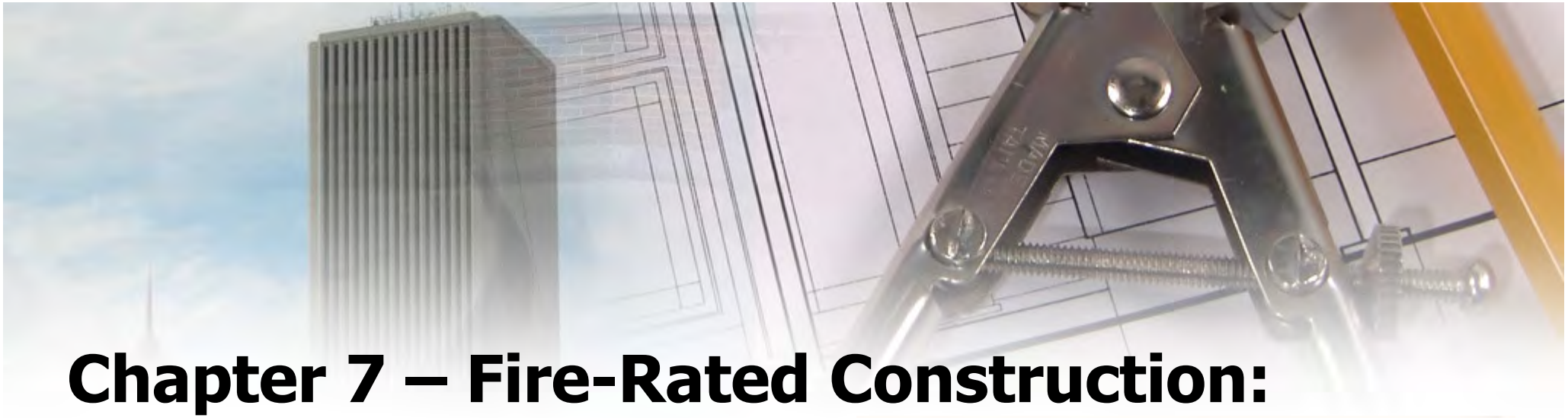


Horizontal smoke barrier

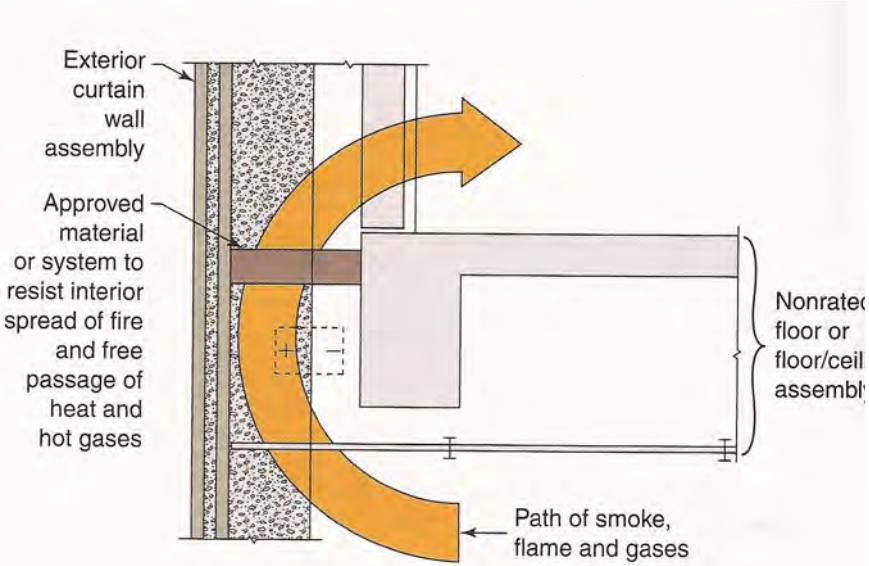
- **712.9 and 407.4.3 – Horizontal Smoke Barriers –** Horizontal assemblies utilized as smoke barriers are now specifically regulated where such assemblies contain openings for elevator shafts, penetrations, and joints. Horizontal assemblies shall not be allowed to have unprotected vertical openings.



Chapter 7 – Fire-Rated Construction:

- **714.4.1 – Exterior Wall / Floor Intersections –** an approved material capable of resisting the spread of fire and hot gases must now be installed in open space that occurs at the intersection of an exterior curtain wall and a nonfire-resistance-rated floor or floor assembly.

-



Exterior wall/nonrated floor/ceiling intersection

Chapter 7 – Fire-Rated Construction:

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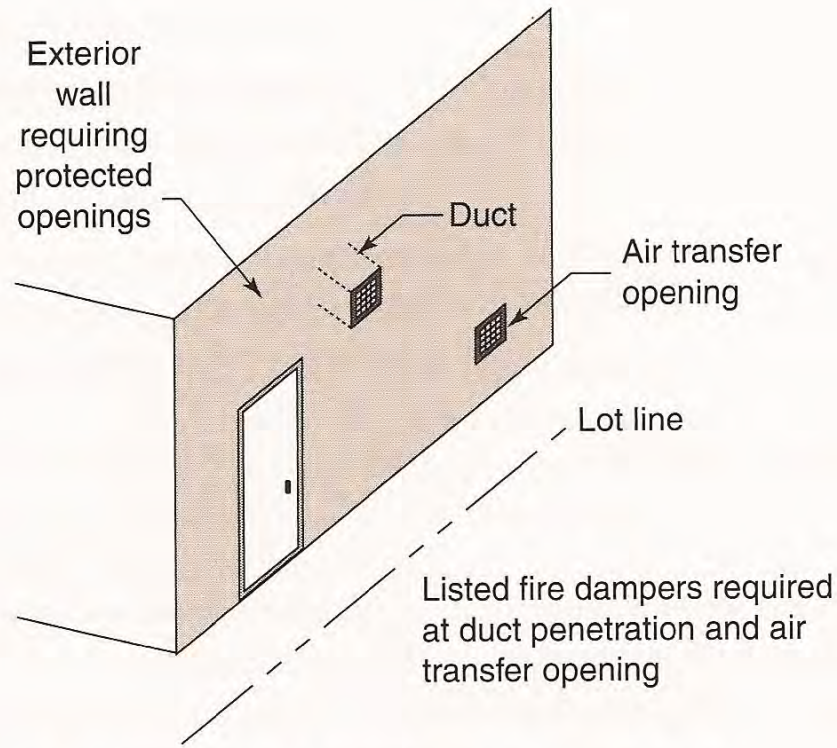


Protection of air openings in exterior walls

- **716.5.6 - Protection of Air Openings in Rated Exterior Walls –** Fire dampers are now specifically mandated for duct penetrations and air transfer openings that occur in fire-resistance-rated exterior walls required to have protected openings.

Chapter 7 – Fire-Rated Construction:

- **717.2.1.2 - Fire Blocking Materials –**

Fiberglass insulation used as fireblocking shall fill the entire cross section of the wall cavity to a minimum height of 16 inches measured vertically.

Where piping, conduit or similar obstructions are encountered, the insulation shall be packed tightly around the obstruction.

Chapter 7 – Fire-Rated

- **Lincoln Municipal Code – 717.4.2 Exc #3 - 3,000 S.F. draftstopping areas in attics; Group R-1 and R2** (no change – but let's review anyway)

In occupancies R-1 and R-2 the attic space shall be subdivided by draftstops into areas not exceeding 3,000 square feet.

Example:

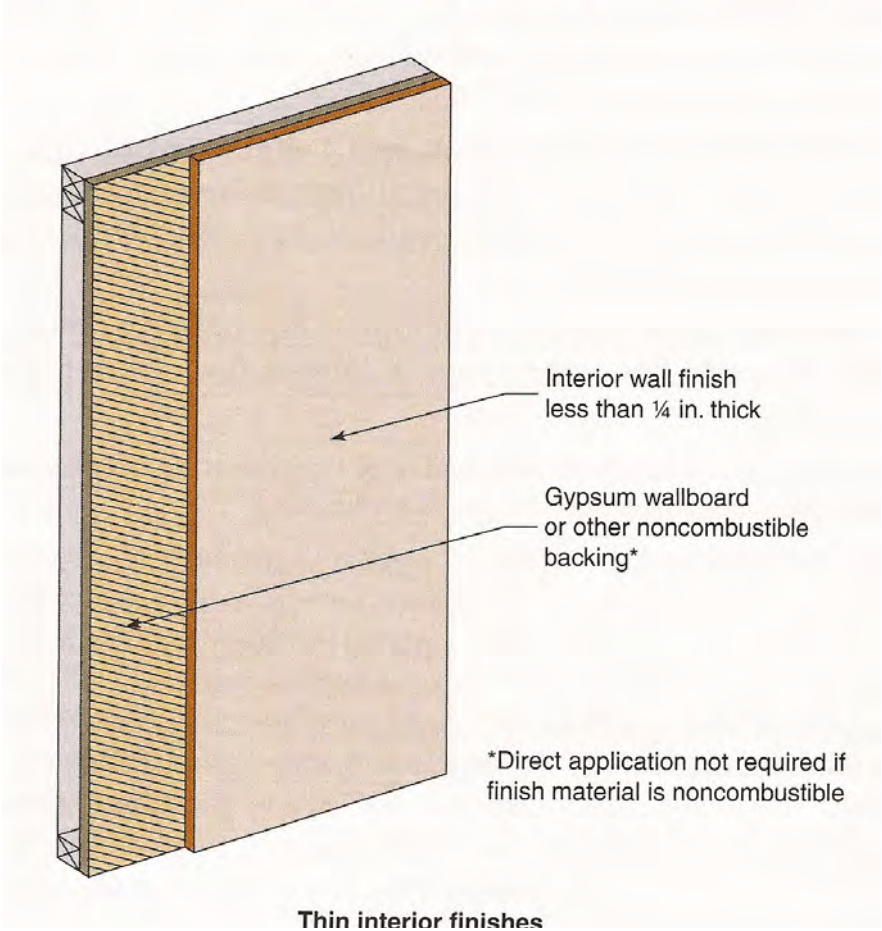
Given: 10,000 S.F. attic area over an apartment building.

Determine: The number of draftstops required for the non-sprinkled attic area

10,000 S.F. / 3,000 S.F. = 3.33 = 4 area divided by three draftstops.

Chapter 8 – Interior Finishes:

- **803.11.4 – Thin Interior Finishes –** previously there were thin combustible materials that would qualify as a Class A material but will burn with an almost uncontrolled rapid flame spread if installed where they are set out or suspended from another surface. Now these thin finish materials must be either noncombustible or installed against a noncombustible backing.



Thin interior finishes

Chapter 8 – Interior Finishes:

Minimum classification of floor covering materials in exit enclosures, exit passageways, and corridors				
		Class I	Class II	DOC FF-I "pill test"
Groups I-1, I-2, I-3	Sprinklered		X	
	Nonsprinklered			
Groups A, B, E, H, I-4, M, R-1, R-2, S	Sprinklered			X
	Nonsprinklered		X	
Other groups	Sprinklered			X
	Nonsprinklered			X

(Conflicts with Section 903.2.5)

?

Classification of floor covering materials

- **804.4.1 – Floor Covering Materials in Group I-1 Occupancies –** the minimum classification for floor covering materials in exitways of Group I-1 occupancies has been established as Class I in nonsprinkled buildings and Class II in sprinkled buildings

Note: Interior floor finishes Class I and II are tested in accordance with NFPA 253 test for critical radiant flux for materials. Class II = 0.22 watts/cm^2 or greater.

Chapter 9 – Fire Protection Systems:

- **902.1 – Definition of Fire Area –** The aggregate floor area enclosed and bounded by fire walls, fire barriers, exterior walls, or horizontal assemblies of a building. Areas of the building not provided with surrounding walls shall be included in the fire area if such areas are included within the horizontal projection of the roof or floor next above. (consistent with 502 definition of "building area")

- **903.2.3 – Sprinkler Protection in Group E Occupancies –** throughout all group E fire areas greater than **12,000** square feet in area. Now consistent with other types of occupancy. Previously 20,000 square feet.

Example

Given: A Group S1 Truck Repair Garage that includes a roofed exterior sales area of 3,000 sq. ft.

Determine: If a sprinkler system is required.

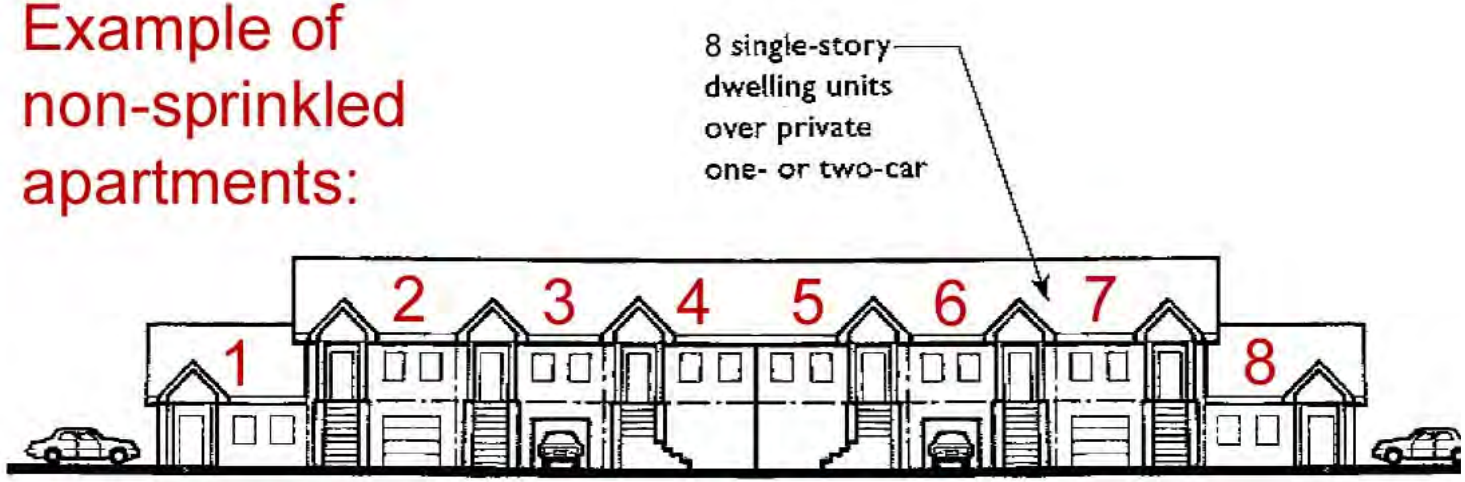
Solution: As a single group S1 fire area of 13,000 sq ft, a sprinkler system is required. However, no sprinkler system is required if a complying 2-hour fire barrier per Section 707.3.9 separates the interior and exterior areas.

Fire area defined

Chapter 9 – Fire Protection Systems:

- **Lincoln Municipal Code - 903.2.8 – Group R Sprinkler Requirements – 8 Plex with separate exits** (no change – but let's review anyway)

Example of non-sprinkled apartments:

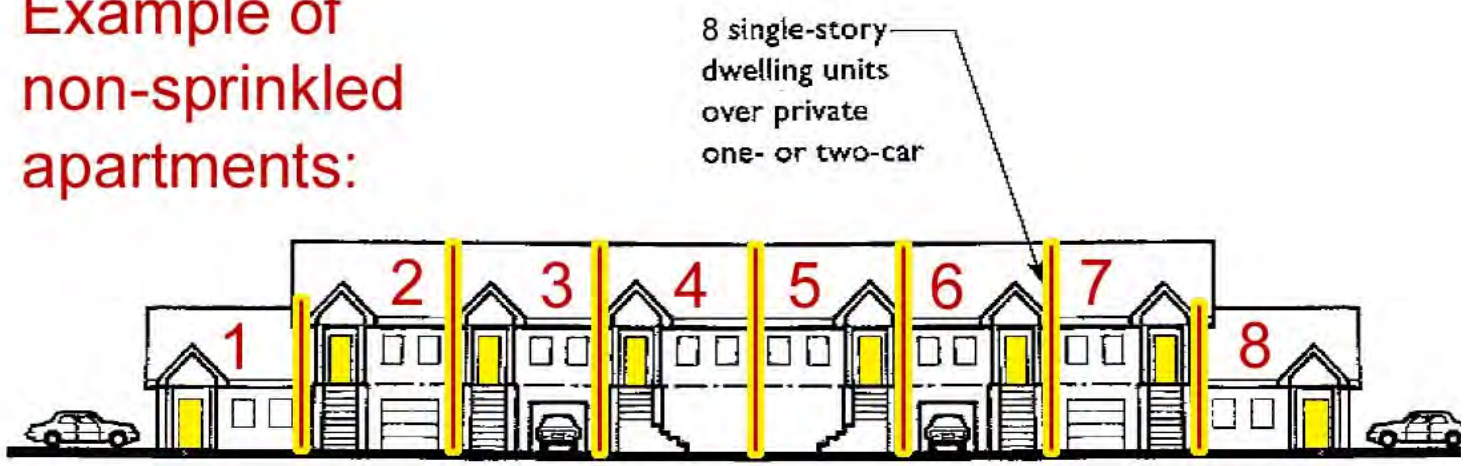


R-2 apartments containing 8 or fewer units

Chapter 9 – Fire Protection Systems:

- **Lincoln Municipal Code - 903.2.8 – Group R Sprinkler Requirements – 8 Plex with separate exits** (no change – but let's review anyway)

Example of non-sprinkled apartments:

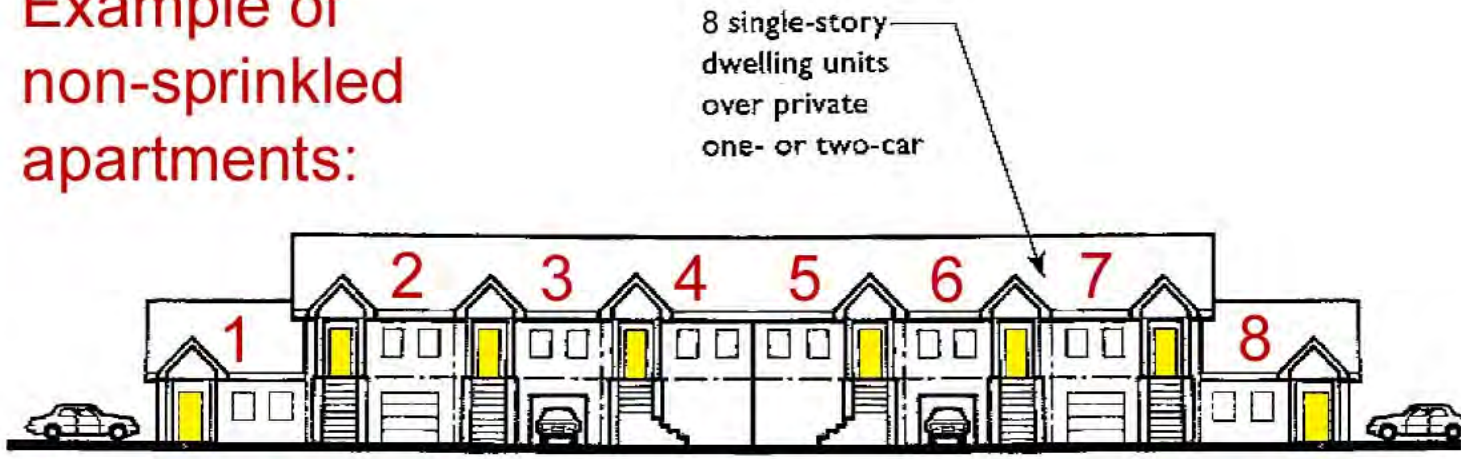


A 1 hour-rated fire partition must separate units

Chapter 9 – Fire Protection Systems:

- **Lincoln Municipal Code - 903.2.8 – Group R Sprinkler Requirements – 8 Plex with separate exits** (no change – but let's review anyway)

Example of non-sprinkled apartments:



Each living unit has its own separate exit access

Chapter 9 – Fire Protection Systems:

- **Lincoln Municipal Code - 903.2.8 – Group R Sprinkler Requirements – 8 Plex with separate exits** (no change – but let's review anyway)

L.M.C.

Chapter 9 – Fire Protection Systems:

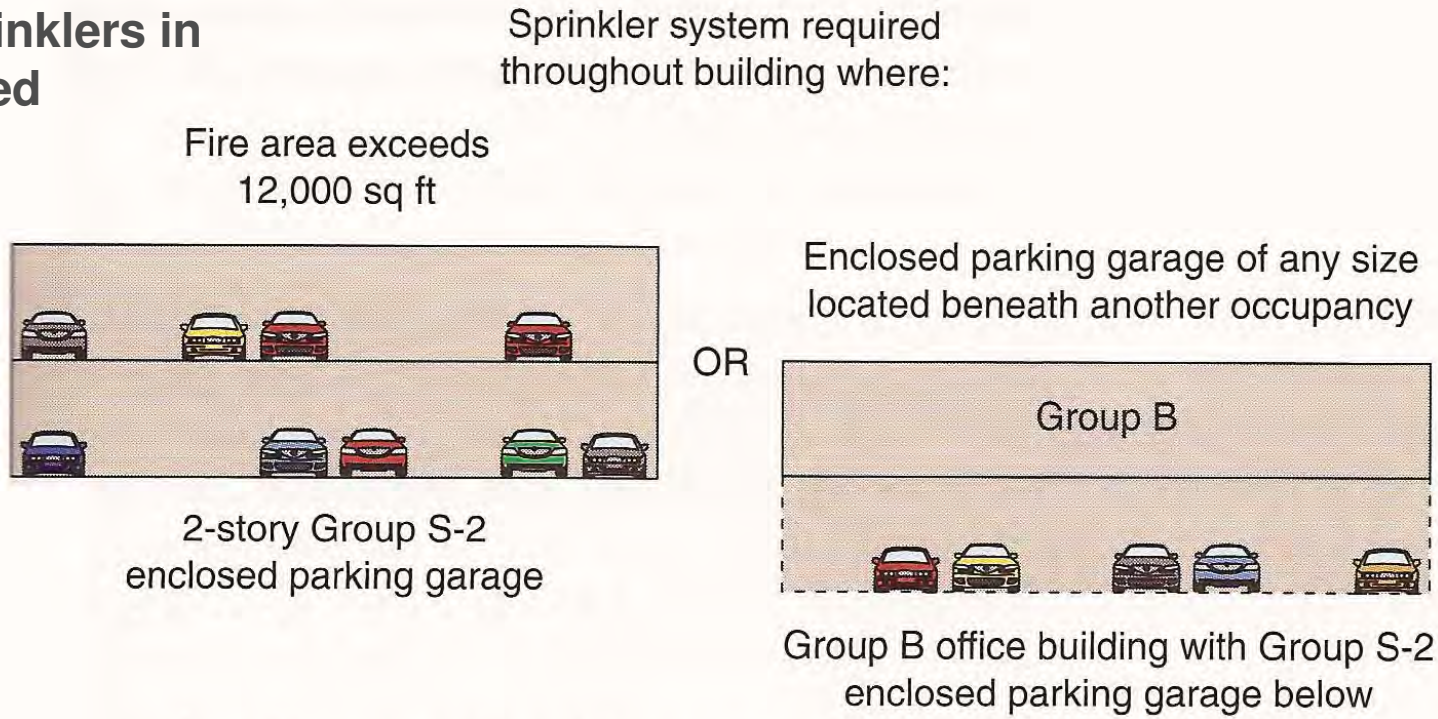
- *903.2.7 – Sprinkler System in Group M Furniture Stores – New change has been <u>deleted</u> by the code-review-task-force. Businesses with upholstered furniture (thrift stores) will not need to be equipped with a fire sprinkler system. L.M.C. 20.08.225 – March 2011*

- **903.2.10 – Sprinklers in Group S-2 Enclosed Parking Garages –** Sprinklers provided throughout buildings classified as enclosed parking garages where the fire area of the parking garage exceeds 12,000 S.F.; or where the enclosed parking garage is located beneath other groups.

Sprinklers not required for businesses with upholstered furniture unless greater than 12,000 square feet

Chapter 9 – Fire Protection Systems:

- **903.2.10 – Sprinklers in Group S-2 Enclosed Parking Garages**

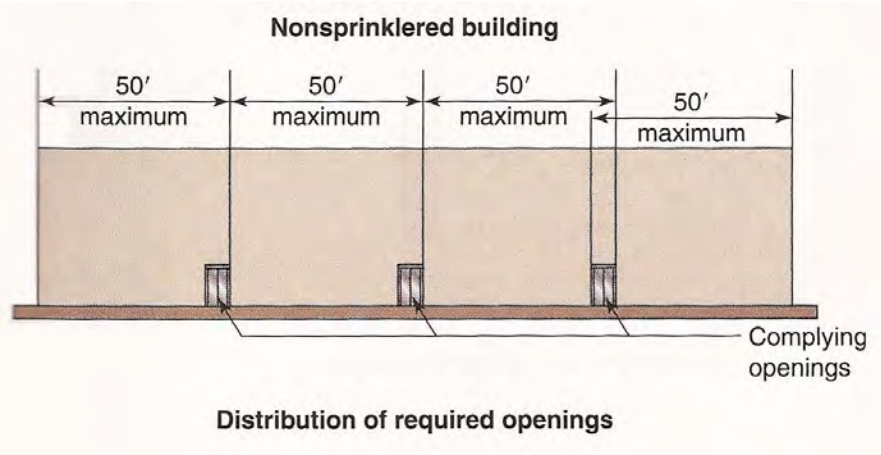


Sprinkler protection of Group S-2 enclosed parking garages

Chapter 9 – Fire Protection Systems:

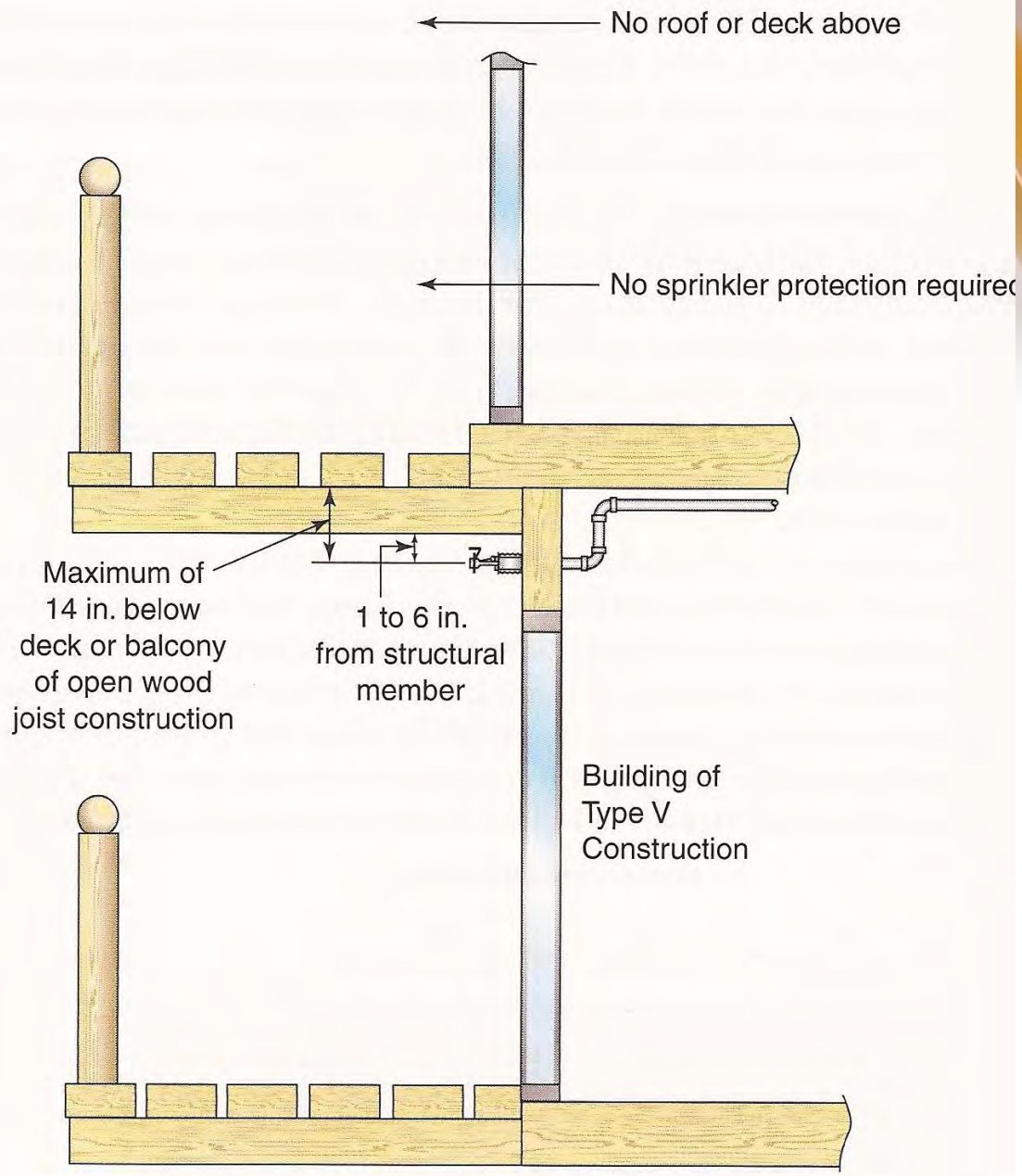
- **903.2.11.1 – Stories Without Adequate Exterior Openings -** shall be sprinkled if the floor area exceeds 1,500 sq.ft. and where there is not provided at least one of the following types of exterior wall openings:

1. Minimum one opening in each 50 linear feet of exterior wall… maximum 50 ft. between openings
2. 20 sq.ft. of opening in each 50 linear feet…maximum 50 ft. between openings.



Chapter 9

- **903.3.1.2.1 – Sprinkler Protection of Residential Balconies and Decks**



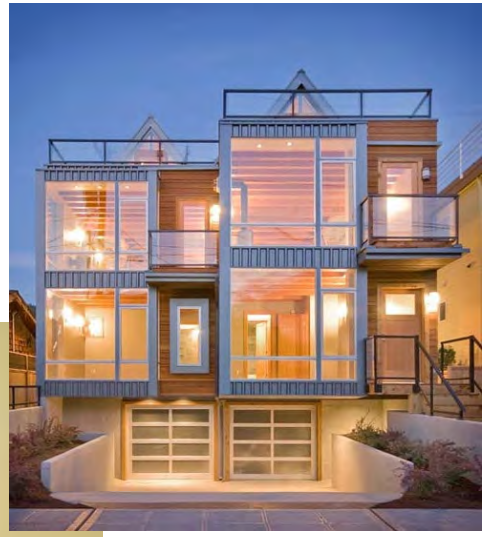
Protection of residential deck

Image Source: Douglas Thornburg, AIA

Chapter 9 – Fire Protection Systems:

- **903.3.1.3 – NFPA 13D Sprinkler Systems**

- The reference to NFPA 13D sprinkler systems installed in one- and two-family dwellings has been extended to include townhouses. Note that this section does not mandate a sprinkler system but if a sprinkler system is required by other sections of the code, then a 13D may be appropriate for townhouses.



- **906 – Portable Fire Extinguishers -** The list of required locations has been copied verbatim from the International Fire Code into the IBC. That list is too extensive to cover within this presentation.

Chapter 9 – Fire Protection Systems:

- **907.2, Exceptions - Manual Fire Alarm Box in Group R-2 -** unless required by local fire code official, manual fire alarm box may be removed from public areas within an apartment building because these can become a source of nuisance and false alarms when children tamper with the boxes.

- **913, 913.2.1 – Protection of Fire Pump Rooms -** 2 hour separation from all other areas of the building. 1 hour separation if building is equipped with a sprinkler system. No rated separation is fire pump unit is located outdoors and 50 ft away from building.

Chapter 9 – Fire Protection Systems:

- **914 – Emergency Responder Safety Features -** Exterior and interior access to vertical shaftways need to be clearly marked with a sign so that fire fighters do not fall into hazardous areas.

- **Fire protection equipment rooms** need to be clearly identified - red letters 6 inches in height.

2009 IBC – Significant Changes

Means of Egress & H.C. Accessibility

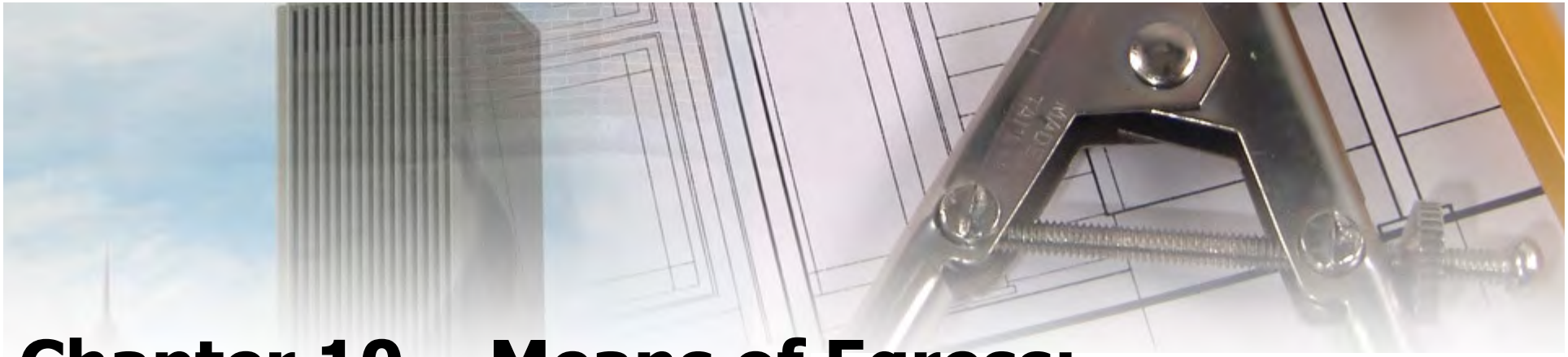
Chapters 10 and N.A.G.

Chapter 10 – Means of Egress:

- Multiple changes to add clarity to an otherwise confusing chapter.

- **1002.1 Definitions –** Ground level is now "Level of exit discharge". The story at the point at which an exit terminates and an exit discharge begins.

- Interpretation that "4 stories above the level of exit discharge" = 4 story building.



Chapter 10 – Means of Egress:

- **1005.1 Egress width** change deletes the sprinkler exception and this is now consistent with NFPA 101 Life Safety Code.
Stairways: 0.3 inches per occupant
Doorways: 0.2 inches per occupant

TABLE 1005.1
EGRESS WIDTH PER OCCUPANT SERVED

OCCUPANCY	WITHOUT SPRINKLER SYSTEM		WITH SPRINKLER SYSTEM[a]	
	Stairways (inches per occupant)	Other egress components (inches per occupant)	Stairways (inches per occupant)	Other egress components (inches per occupant)
Occupancies other than those listed below	0.3	0.2	0.2	0.15
Hazardous: H-1, H-2, H-3 and H-4	0.7	0.4	0.3	0.2
Institutional: I-2	NA	NA	0.3	0.2

For SI: 1 inch = 25.4 mm. NA = Not applicable.

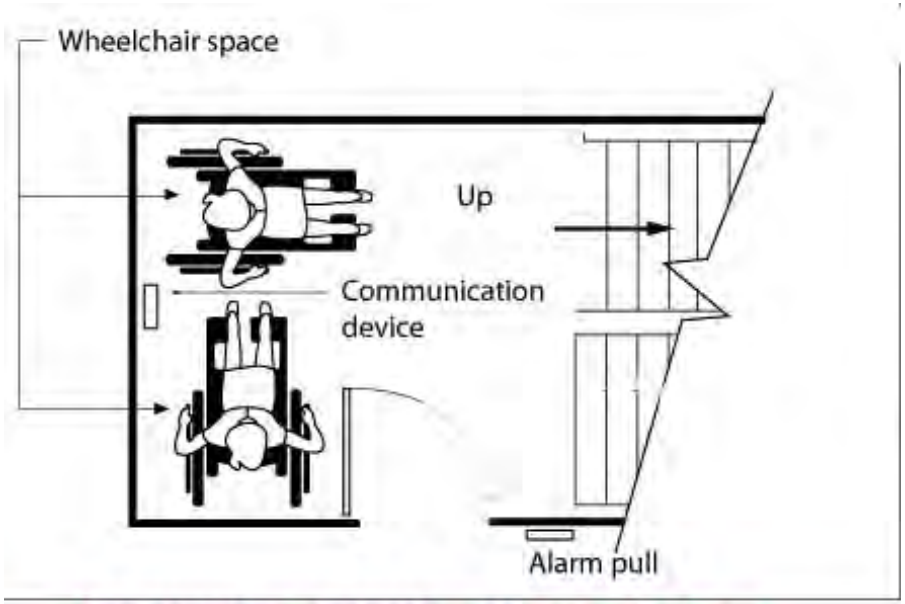
a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

Egress width change deletes the sprinkler Exception. The Life Safety criteria has been enforced in Lincoln since 1985.

L.M.C.

Chapter 10 – Means of Egress:

- *1007.3 Accessible Stairways – Sprinkler exception for area of refuge has been eliminated from the Lincoln Municipal Code because this same exception is now provided by the new 2009 IBC. Area of refuge is <u>not</u> required for sprinkled buildings.*



Non-sprinkled scenario with area of refuge

Chapter 10 – Means of Egress:

- **1008.1.2, Exception 9 Manually Operated Horizontal Sliding Doors** - now permitted as a means of egress from spaces with an occupant load of 10 or less. This allows greater design flexibility with pocket doors and patio doors considered as an acceptable means of egress.

www.brownstoner.com - permitted for occupants =/< 10

Chapter 10 – Means of Egress:

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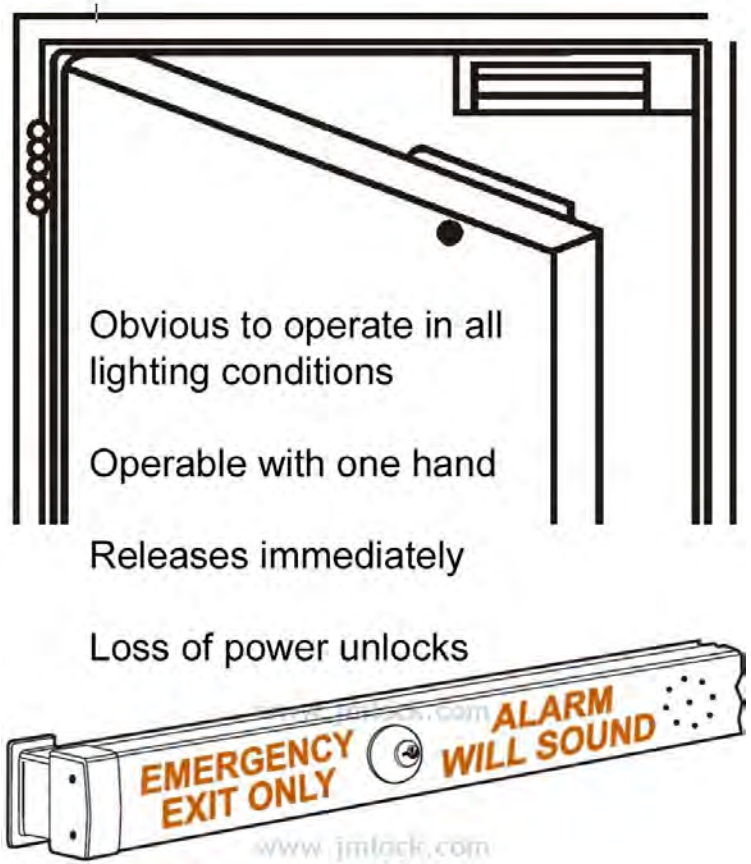


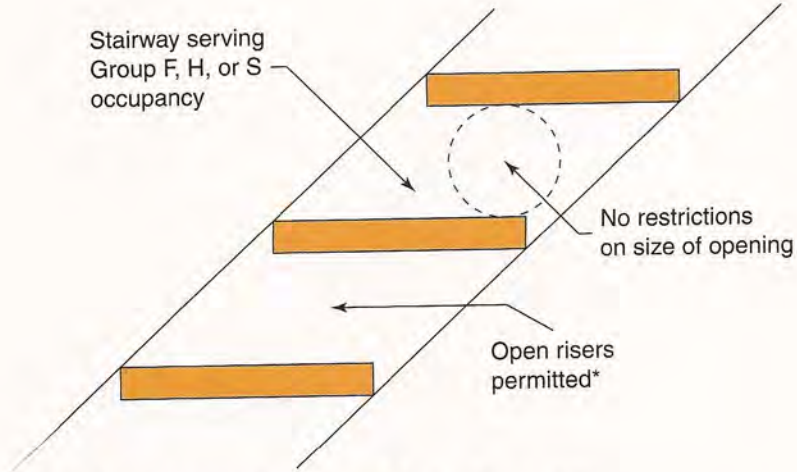
- **1008.1.9.8 Electromagnetically Locked Egress Doors** - doors that need to be secured during occupancy may be equipped with magnetic locks provided that the doors are equipped with a panic bar or similar device that releases the door easily from the inside and the door automatically unlocks in the event of a power failure.

L.M.C.

Chapter 10 – Means of Egress:

- **1009.4.5, Exception 2 Open Risers in Industrial Occupancies -** in Group I-3, F, H, and S occupancies, open risers are now permitted at stairways located in areas not accessible to the public.

- *Lincoln Municipal Code 20.08.265 - adds exception to 1009.4.2; private steps and stairways serving ancillary areas such as mechanical rooms and stairways to unoccupied roofs may be constructed with an eight-inch maximum rise and nine-inch minimum tread depth.*

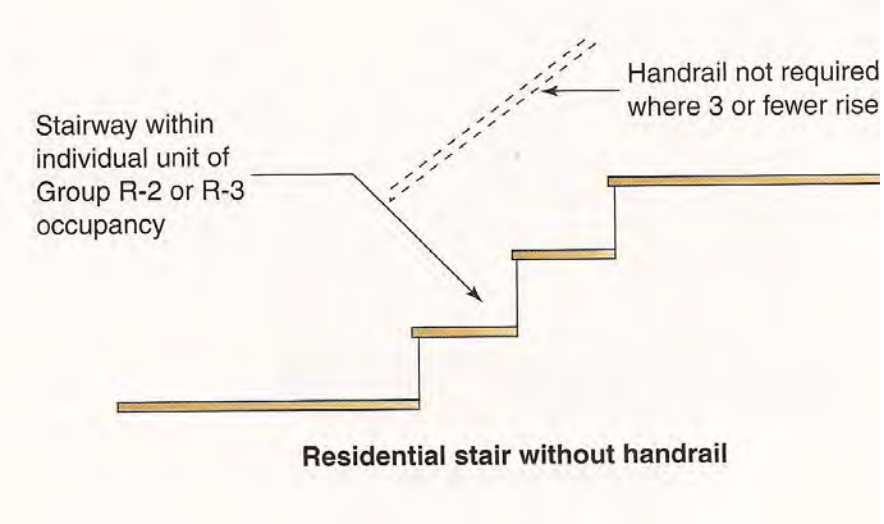


*Only in areas not accessible to the public

Open risers in Group I-3, F, H, and S occupancies

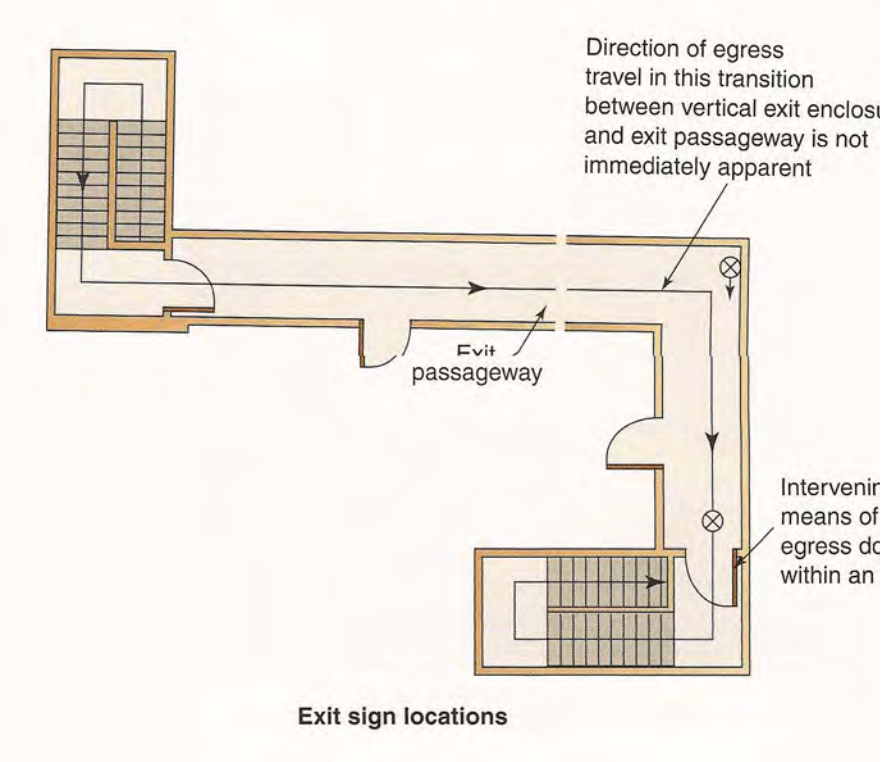
Chapter 10 – Means of Egress:

- **1009.12 Stair Handrails in Group R-2 and R-3** - within dwelling units and sleeping units of Group R-2 and R-3 occupancies, a handrail is now required only for stairs having four or more risers. Now consistent with the IRC. Previously limited to only a single riser.



Chapter 10 – Means of Egress:

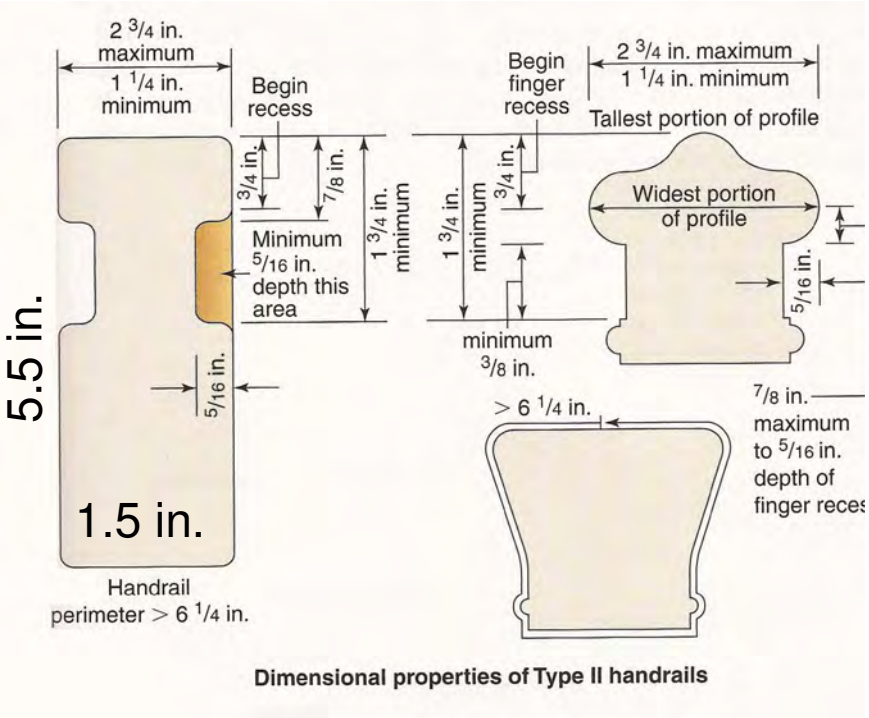
- **1011.1 Required Exit Sign Locations -** Exit signs are now required within exits and at intervening doors within exits to clearly indicate the direction of means of egress travel.



Exit sign locations

Chapter 10 – Means of Egress:

- **1012.3 Handrail Graspability -** criteria have been provided for additional complying shapes, identified as Type II handrails, which are permitted in selective residential applications. Research indicates the importance of the finger recess while attempting to resist falling.



Dimensional properties of Type II handrails

R-3 and inside R-2 dwellings
Type II handrail permitted

Chapter 10

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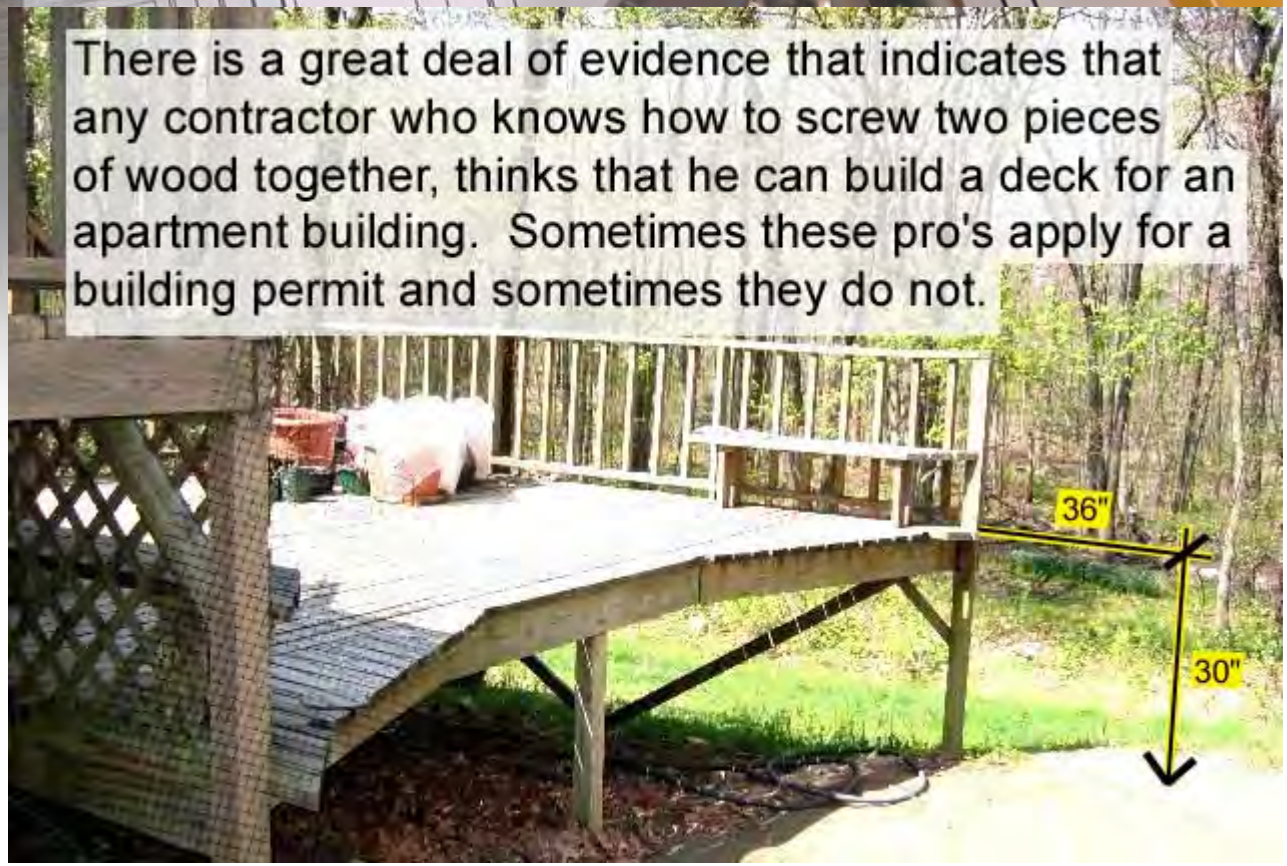


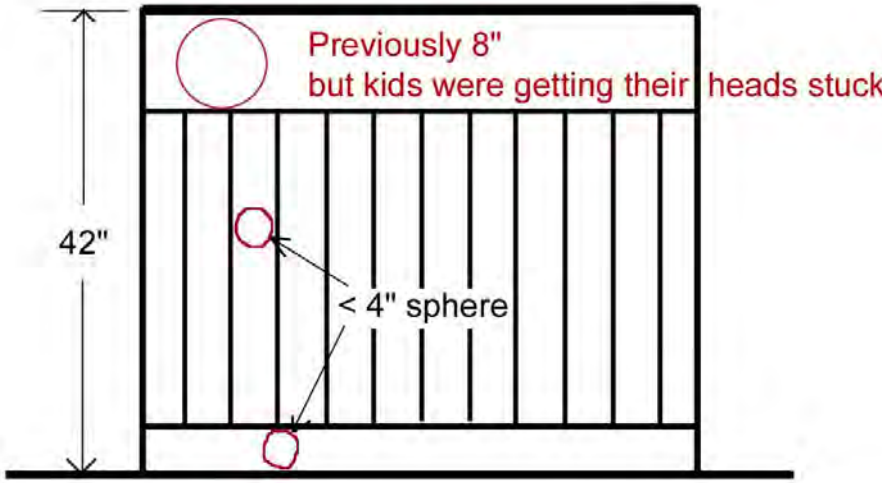
- **1013.1 Required Locations for Guards -** When determining where a guard is required, the vertical distance from the walking surface to the grade or floor below is now based on the lowest point within a 36-inch radius measured horizontally from the edge of the open-sided walking surface.

Chapter 10

- **1013.1 Required Locations for Guards -** When determining where a guard is required, the vertical distance from the walking surface to the grade or floor below is now based on the lowest point within a 36-inch radius measured horizontally from the edge of the open-sided walking surface.

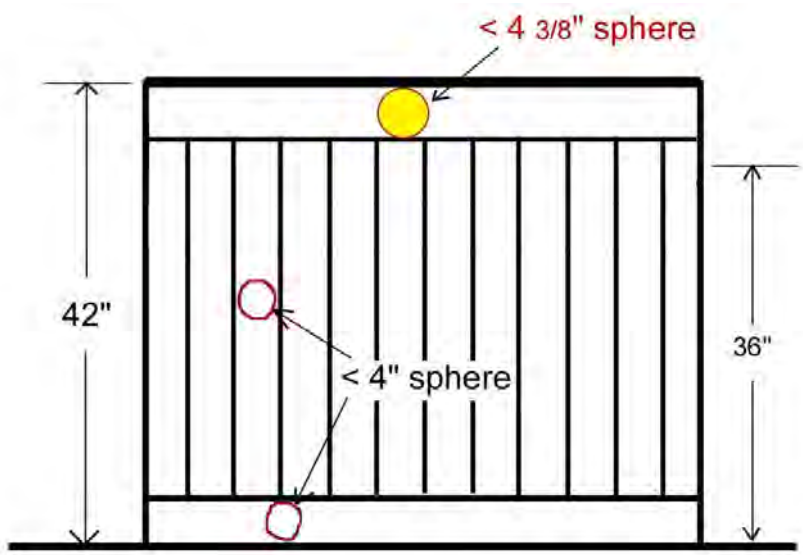
Chapter 10 – Means of Egress:

- **1013.3 Guard Opening Limitations -** The permitted maximum size of openings in the upper portion of guards has been reduced from 8 inches to 4 3/8 inches.

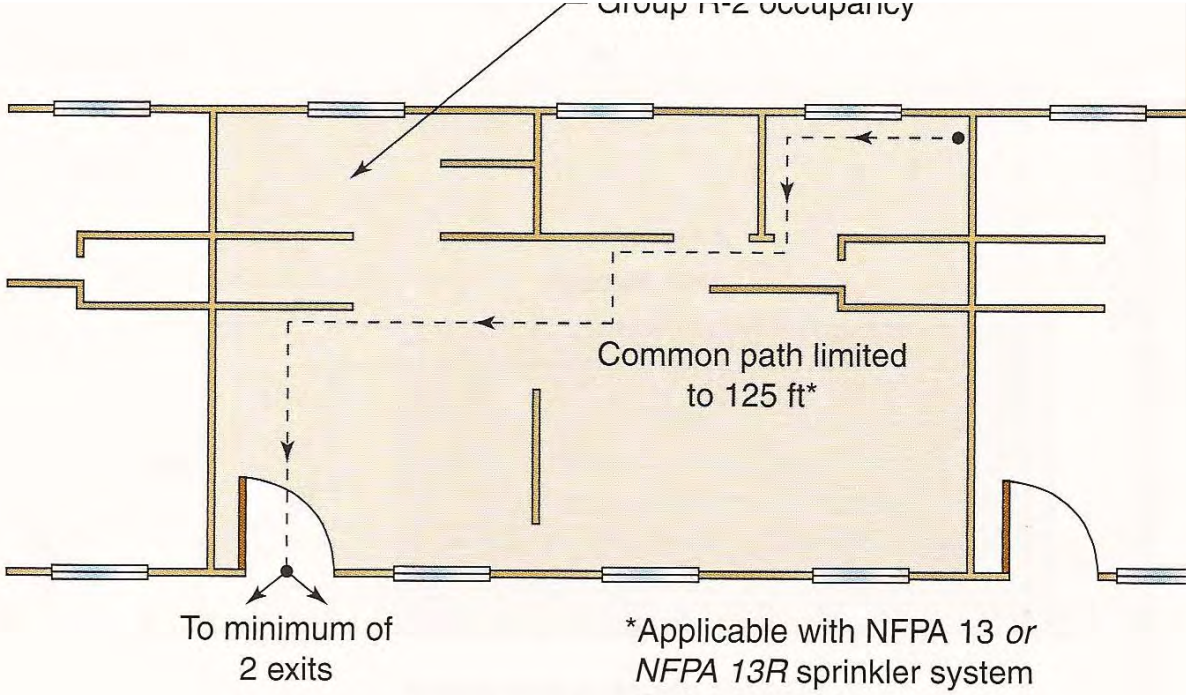


Chapter 10 – Means of Egress:

- **1013.3 Guard Opening Limitations -** The permitted maximum size of openings in the upper portion of guards has been reduced from 8 inches to 4 3/8 inches.



Chapter 10



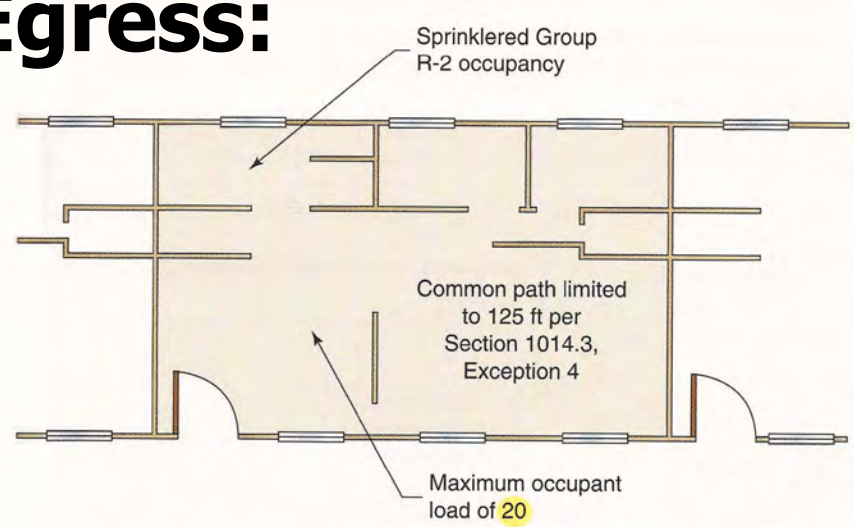
Common path of egress travel in Group R-2

• **1014.3 Common Path of Egress Travel in Group R-2 -** The allowance for an extended common path of egress travel in Group R-2 occupancies (apartments) is now available in buildings that are protected throughout with an NFPA 13**R** automatic sprinkler system.

Common path of travel for *most* non-sprinkled occupancies = 75 ft.
And for sprinkled occupancies = 100 ft.
Now apartment buildings, fraternities, sororities and hotels allow 125 ft C.P.T. with a *residential-type* sprinkler system.

Chapter 10 – Means of Egress:

- **1015.1 Single Means of Egress from Group R-2 Units -** The occupant load threshold at which a second means of egress is required from a Group R-2 occupancy has been increased from 11 to 21 in buildings in which an automatic sprinkler system is provided.



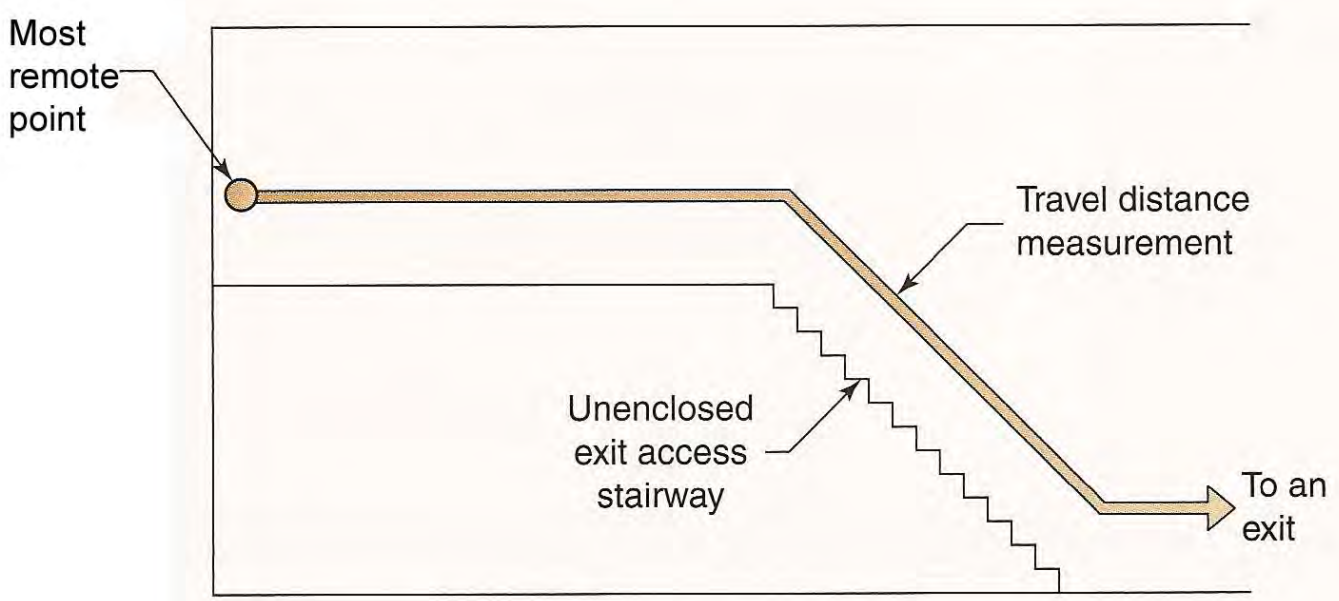
Single means of egress in Group R-2

Based on a 2003 American Housing Survey, the average occupant load per apartment unit greater than 2,000 S.F. in floor area was only 2.2 people per apartment. This new change allows for a 4,000 S.F. apartment with only one exit.

Chapter 10

- **1015.1 Single Means Group R-2 Units -** The at which a second mea from a Group R-2 occupancy has been increased from 11 to 21 in buildings in which an automatic sprinkler system is provided.

- **1016.1 Travel on Unenclosed Exit Access Stairways -** The appropriate measurement of travel distance has been *clarified* to indicate that it includes travel on unenclosed exit access stairways.

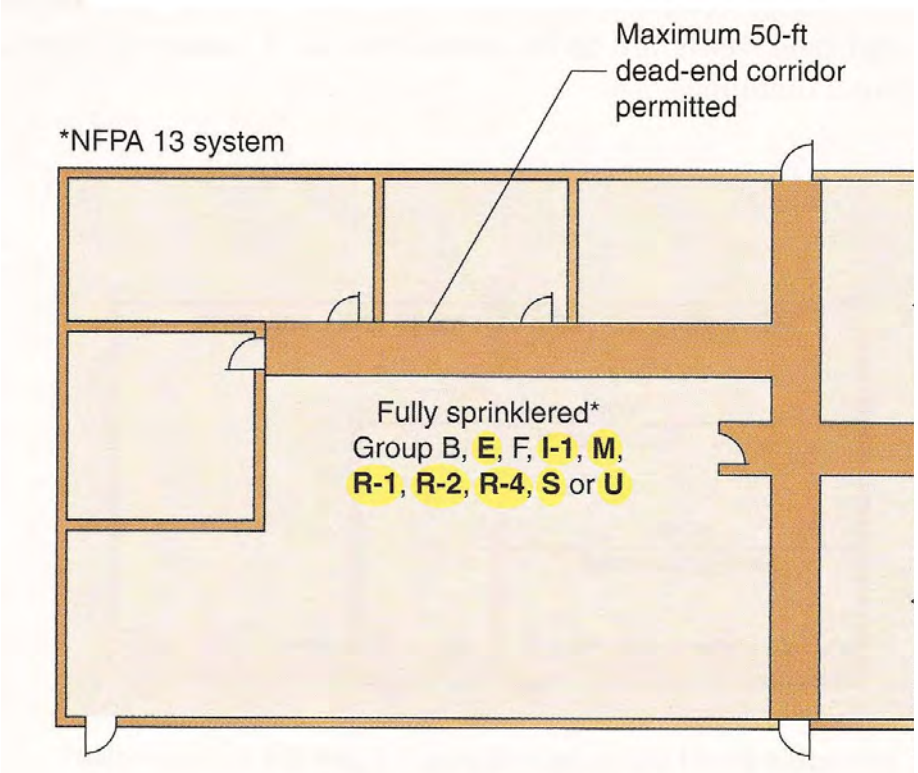


Travel distance on unenclosed stairway

Exits shall be located on each story such that the maximum length of exit access travel, measured from the most remote point within a story along the natural and unobstructed path of egress travel to an <u>exterior exit door at the level of exit discharge, an entrance to a vertical exit enclosure, an exit passageway, a horizontal exit, an exterior exit stairway or an exterior exit ramp,</u> shall not exceed the distances given in Table 1016.1

Chapter 10 – Means of Egress:

- **1018.4 Maximum Length of Dead Ends in Corridors -** The permissible length of a dead-end corridor has been extended to 50 feet in Group E, I-1, M, R-1, R-2, R-4, S, and U occupancies if the building is provided throughout with an NFPA 13 automatic sprinkler system.



Dead-end corridor limitations

Chapter 10

TABLE ~~1019.2~~ 1021.2
~~BUILDINGS~~ STORIES WITH ONE EXIT

Story	Occupancy	~~Maximum Height of Building Above Grade Plane~~	Maximum Occupants (or Dwelling Units) Per Floor and Travel Distance
First story or basement 1st	A, B[d], E[e], F[d], M, U, S[d]	~~1 Story~~	49 occupants and 75 feet travel distance
	H-2, H-3	~~1 Story~~	3 occupants and 25 feet travel distance
	H-4, H-5, I, R	~~1 Story~~	10 occupants and 75 feet travel distance
	S[a]	~~1 Story~~	29 occupants and 100 feet travel distance
Second story 2nd	B[b], F, M, S[a]	~~2 Stories~~	29 occupants and 75 feet travel distance
	R-2	~~2 Stories~~[c]	4 dwelling units and 50 feet travel distance
Third story 3rd	R-2[c]		4 dwelling units and 50 feet travel distance

For SI: 1 foot = 3048 mm

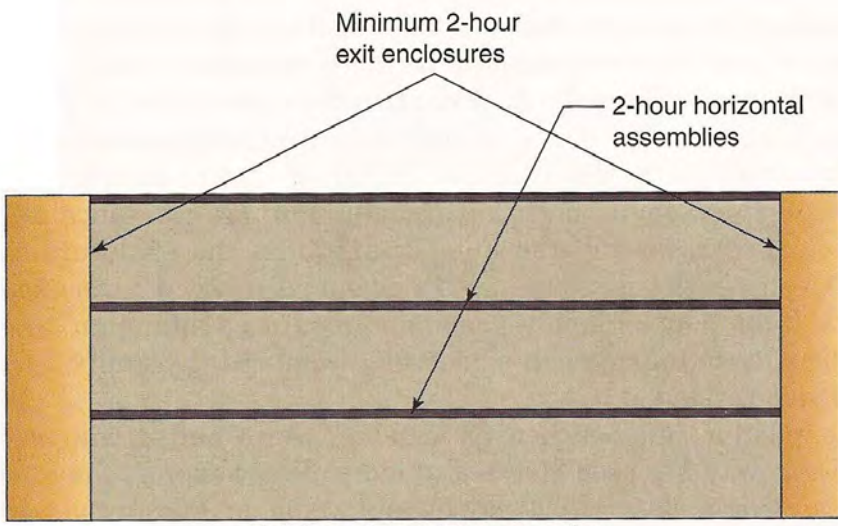
a. For the required number of exits for parking structures, see Section ~~1019.1.1~~ 1021.1.2.

Number of occupants and travel distance remains the same.

- **1021.2, Table 1021.2 Single Exits from Individual Stories -** The allowance for single-exit buildings has been clarified to address egress from individual stories within the buildings. *(not a significant change)*

Chapter 10 – Means of Egress:

- **1022.1 Fire-resistance rating of Exit Enclosure -** Consistent with the provisions for shaft enclosures, the fire-resistance rating of an exit enclosure cannot be less than the rating of the floor construction penetrated by the enclosure.



Building of Type IB construction

Enclosure of exit stairways

Chapter 10 – Means of Egress:

- **1024 Luminous Egress Path Markings -** Photoluminescent or self-luminous exit path markings are now required in exit enclosures and exit passageways of specified high-rise buildings in order to delineate the exit path.

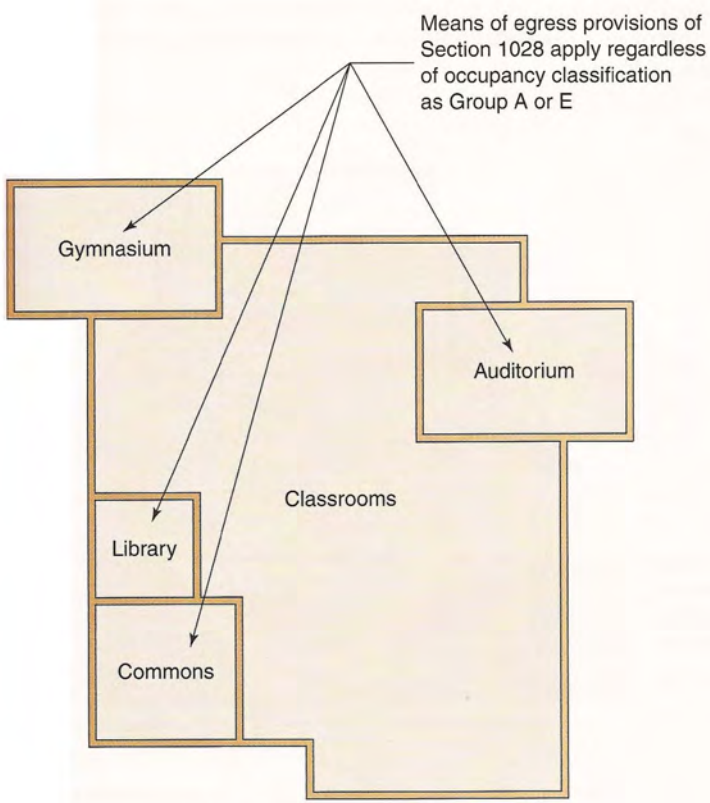
Painted handrails work better than 1” tape.
http://www.youtube.com/watch?v=mocbC9mIPKA

Photo: Courtesy of Jalite Group
IBC 2009 requires the use of luminous egress path markings in various occupancy groups with special provisions.

Chapter 10 – Means of Egress:

- **1028.1 Egress for Group E Assembly Spaces –** now school auditoriums are subject to the same means of egress requirements for assembly spaces regardless of whether the room is classified as Group A or Group E.

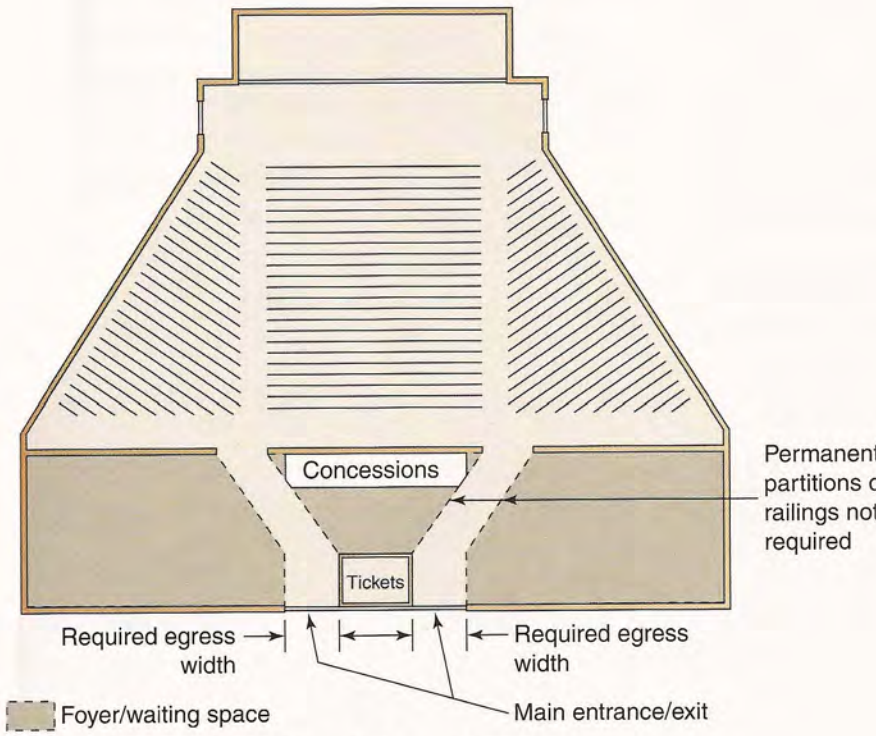
- **1028.4 Egress Through Lobbies Serving Assembly Spaces –** The physical barrier required to separate the waiting areas within lobbies of Group A-1 occupancies from the means of egress paths is no longer mandated.



Group E assembly uses

Chapter 10 – Means of Egress:

- **1028.4 Egress Through Lobbies Serving Assembly Spaces –** The physical barrier required to separate the waiting areas within lobbies of Group A-1 occupancies from the means of egress paths is no longer mandated.



Egress through Group A-I lobby

Chapter 10 – Means of Egress:

- **1028.4 Egress Through Lobbies Serving Assembly Spaces –** The physical barrier required to separate the waiting areas within lobbies of Group A-1 occupancies from the means of egress paths is no longer mandated.

Nebraska Accessibility Standards:

- Remember that the Lincoln amendments delete Chapter 11 of the IBC and make reference to the N.A.G.

- The Nebraska State Fire Marshal's office does not expect to adopt the new ADA regulations until March of 2012.

- Restrooms with multiple fixtures will require toilet partitions.

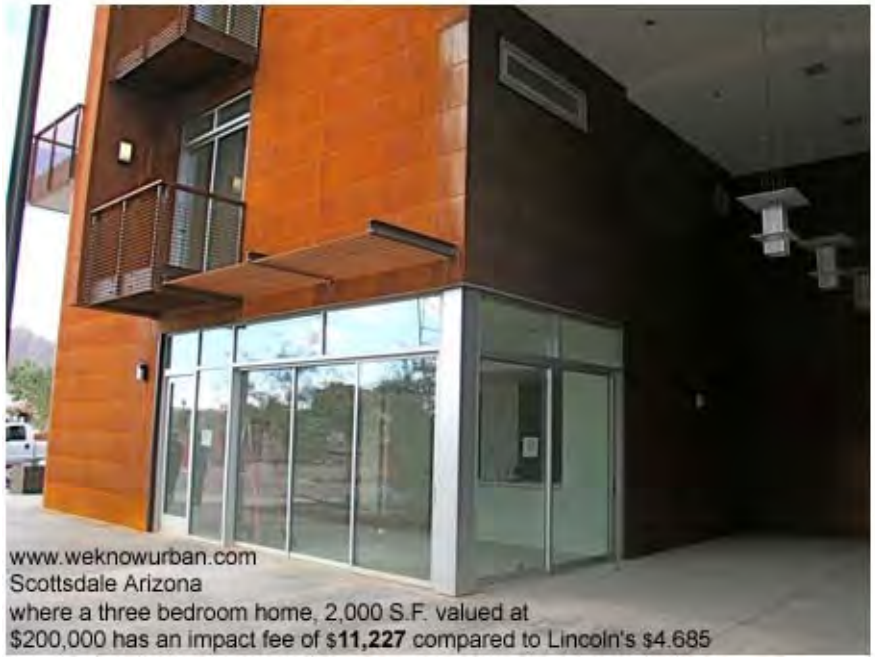
Nebraska Accessibility Guidelines:

Potential changes
March 2012

- **Scoping for Live-Work**

- **"Non Residential" to be accessible**

- **"Residential" apartments containing more than 20 dwelling units or sleeping units must have at least 2 percent Type "A" units and a larger percentage must be Type "B" units. The percentage of Type "B" units may range from 10% to 20% of the total number depending on site conditions.**


www.weknowurban.com
Scottsdale Arizona
where a three bedroom home, 2,000 S.F. valued at
$200,000 has an impact fee of $**11,227** compared to Lincoln's $4.685

- **Type "A" = fully handicap accessible**
- **Type "B" = design in accordance with federal Fair Housing Act.**

Nebraska Accessibility Guidelines: Potential changes March 2012

- **Unisex Toilet Rooms renamed to Family or Assisted-Use Toilet rooms -** these were not intended to be used as a place to *create* families but - unfortunately - some high-school teens seem to think so.

Nebraska Accessibility Guidelines:

Potential changes
March 2012

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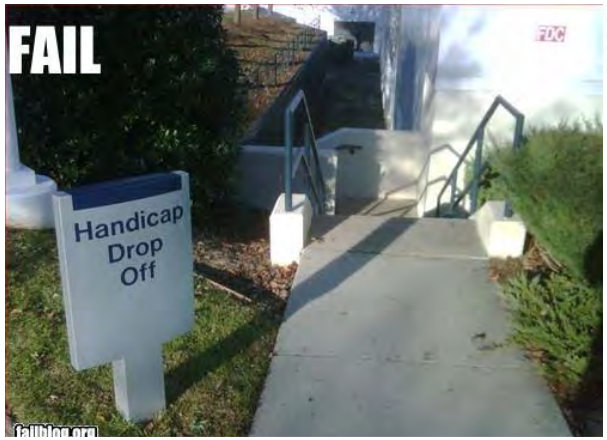
• **Enhanced Reach Range -** Where the total lavatories provided in a toilet room is six or more, at least one faucet and soap dispenser controls shall have a reach depth of 11 inches maximum or, if automatic, shall be activated within a reach depth of 11 inches maximum. Water and soap flow shall be provided with a reach depth of 11 inches maximum.

Nebraska Accessibility Standards:

- For questions related to handicap accessibility, you may call the U.S. Access Board 1-800-872-2253 for technical assistance.

- For a copy of the current Nebraska Accessibility Guidelines: http://www.sfm.ne.gov/publications/pdf/SNAG.pdf State Fire Marshal's website



2009 IBC – Significant Changes

Building Envelope
Structural Systems
Construction Materials
Elevators

Chapters 12 through 34

Ch. 12 – Interior Environ't & Ch. 13 Energy Efficiency:

- **1210.1 Wall Base Finish Materials -** nonabsorbent base for bathrooms reduced from 6" high to 4" high.

Lincoln Municipal Code –
Chapter 13 Energy Efficiency was deleted January 7, 2008.

Green Practices

General
- Understanding GREEN
- Identify team Green goals
- Construction waste management plan
  - Recycling bins with labels
  - Prohibit burying construction waste
  - Concrete dump area
- Development issues
- **Team member roles are identified with written goals and mission statement
- **A project checklist of Green practices is created, followed and completed by the team

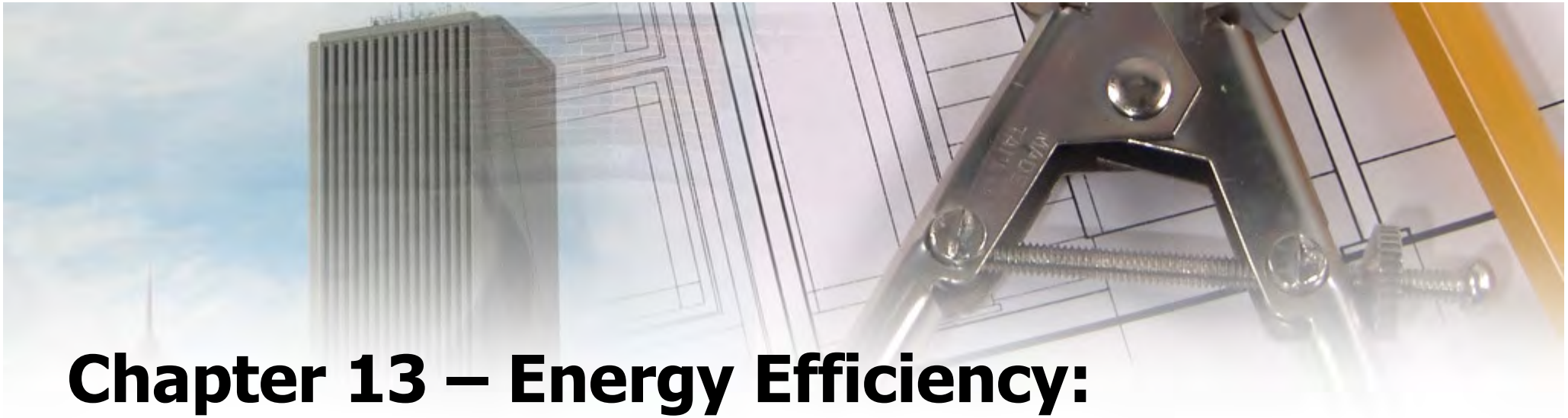
Site
- *Home orientation - east annd south side are for outdoors use
- *Home oriented so that the longest Axial dimension faces within 20 degrees of south
- *Covered outdoor living area(at least 10% of indoor area or a minumum of 150 sq.ft)
- Orientation allow s for window cross ventilation
- Passive solar
- Storm water/erosion control (**a plan is developed and managed)
- Save and reuse top soil (**covered with a trap to control erosion)
- **Reduce soil compaction of construction equipment
- Protecting trees during construction

Foundation
- **#Forms**
- Aluminum forms
- Insulated forms (ICF)

State Energy Code is enforced by Building Safety Department

- **Wind Energy Conversion Systems -** building permits are issued only for units that have been tested and approved by an agency such as U.L.

- Permits must be applied for by a licensed electrician. For those units that do not tie into the electrical panel or public power grid, these do not need an electrical permit. These stand alone units provide an inverter box and independent 110V receptacle.



Chapter 13 – Energy Efficiency:

- **Lincoln Municipal Code –**
Chapter 13 was deleted Jan 7, 2008.

- **Energy efficiency is governed by State Laws & Regulations**
but enforced by Building Safety Dept.

- **http://www.neo.ne.gov**
Nebraska Energy Office
Attn: Lynn Chamberlin
1111 "O" Street, Suite 223
Lincoln, NE 68508
402-471-2867
energy@nebraska.gov

COM*check* Software Version 3.7.0

Envelope Compliance Certificate

2006 IECC

Section 1: Project Information

Project Type: **New Construction**
Project Title : Shed

Construction Site: Owner/Agent: Designer/Contractor:

Section 2: General Information

Building Location (for weather data):	**Lincoln, Nebraska**
Climate Zone:	**5a**
Vertical Glazing / Wall Area Pct.:	**14%**
Skylight Glazing / Roof Area Pct.:	**0%**

Activity Type(s)	Floor Area
Hotel	5800
Parking Garage	900

Section 3: Requirements Checklist

Envelope PASSES: Design 9% better than code

Climate-Specific Requirements:

Component Name/Description	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
Roof 1: Attic Roof with Wood Joists	2100	38.0	0.0	0.027	0.034
Skylight 1: Vinyl Frame:Double Pane, Clear, SHGC 0.40	8	---	---	0.550	0.600
South Ext Wall 1: Wood-Framed, 16" o.c.	2000	19.0	0.0	0.067	0.089

Chapter 14 – Exterior Walls:

- **1405.3 Vapor retarders –** *(section added)*

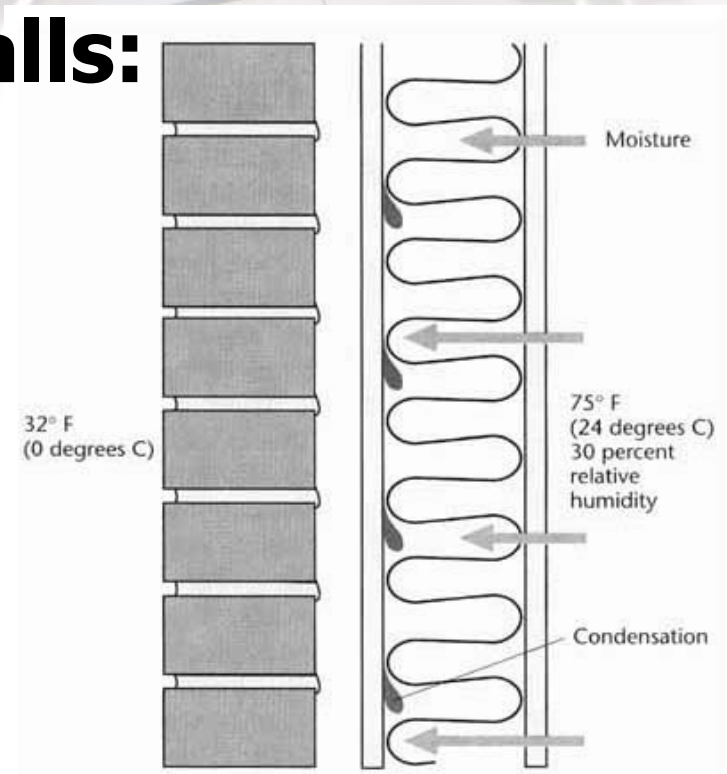
Class I or II vapor retarders shall be provided on the interior side of frame walls in Zones 5, **6**, 7, 8 and Marine 4.

- Exceptions:
  1. Basement walls.
  2. Below-grade portion of any wall
  3. Construction where moisture or its freezing will not damage the materials.

Class I: Sheet polyethylene, nonperforated aluminum foil.

Class II: **Kraft-faced fiberglass batts** or paint with a perm rating greater than 0.1 & less than or equal to 1.0

Class III: Latex or enamel paint.



< < < Kraft-face fiberglass batts recommended by experts.

L.M.C.

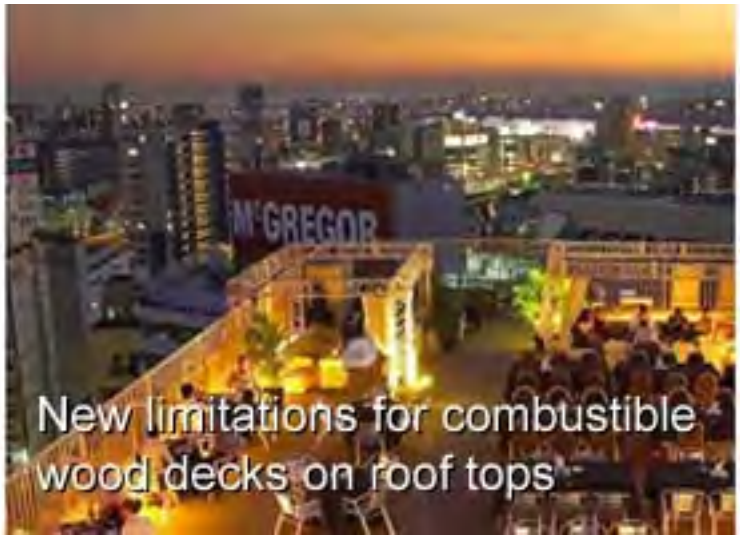
Chapter 15 – Roof Assemblies and Rooftop Structures:

- *20.08.202 Lincoln Municipal Code – 1509.6 added: Outdoor deck framing for roof top seating and assembly areas. Combustible wood framing may be permitted on roof tops of buildings provided that the roof is not located more than 75 feet above the lowest level of fire department vehicle access. In addition to this limitation, the combustible framing may not exceed 4 feet in height above the floor or deck level used as a walking surface. Similar structures that exceed 48" in height shall be of a type of construction not less in fire-resistance rating than required for the building to which it is attached. (continued…)*

L.M.C.

Chapter 15 – Roof Assemblies and Rooftop Structures:

(…continued) Occupied roofs shall be provided with exits as required for stories – regardless of whether roof top construction is enclosed or open to the sky. Any such structure that is covered shall be provided with all fire protection systems required for the building to which it is attached. All such structures intended for human occupancy shall have minimum 42" high guard rails regardless of their height above the plane of the roof. Floor deck area shall be limited to one-third total roof area.



L.M.C.

Chapter 16 – Structural Design:

- Lincoln Municipal Code 20.08.340 - Additional 5 psf rain on snow load is considered by local structural engineers as being excessive considering that the ground snow load is also increased from 25 psf to 30 psf.

Previously applied only to roofs with a slope less than 2 inches per foot. Now the 5 psf rain on snow load applies only to relatively flat roofs with a slope of ½" per foot or less, in accordance with the wind and snow loads of ASCE-7.

Amendment to IBC 1608.3 is now deleted.

Chapter 16 – Structural Design:

- Table 1607.1 – Balcony and deck live load now associated with the interior live load.

- Examples:
  outdoor deck serving office
  live load = 50 psf
  outdoor deck serving residence
  live load = 40 psf

- Definitions of “balcony” and “deck” have been deleted from the code. Previously the cantilevered balconies were designed for 100 psf.

L.M.C.

Chapter 17 – Special Inspections:

- *Lincoln Municipal Code – 20.08.353 – IBC 1704.1 Special inspections are mandatory for occupancy categories III & IV as described within IBC Table 1604.5.*
- *Type III buildings represent a substantial hazard to human life in the event of failure, including but not limited to:*
  - *assembly with an occupant load greater than 300*
  - *elementary schools, secondary schools and daycare centers with an occupant load greater than 250*
  - *health care facilities*
- *A list of approved special inspectors … online:*

www.lincoln.ne.gov/city/build/comercl/specialinspectors.pdf

Inspection of welding and bar joists for roof structure over hospital addition.

Chapter 23 - Wood:

- **2301.2 Design & Construction of Log Structures references new standard ICC-400. Previously there were no IBC guidelines.**

- **2304.6.1 & Table 2304.6.1 Wood structural panel sheathing has new guidelines and the maximum wind speed for wood structural panel wall sheathing is now clearly defined in Table 2304.6.1**

- **2304.9.5 Fasteners in Preservative-treated and Fire-retardant-treated Wood have been clarified. Both hot-dipped zinc-coated galvanized steel and** *mechanically deposited* **zinc-coated steel with coating weights in accordance with ASTM B695**

Chapter 23 - Wood:

- 2304.11.2.6 Vertical clearance between wood siding and earth shall be not less than 6 inches from earth *or less than 2 inches from concrete steps, porch slabs…* etc.

- 2306 Allowable stress design of wood structures. ASD unit shear capacity for shear walls and diaphragms are still listed in the 2009 IBC but general design requirements have been deleted and replaced with a reference to the AF&PA SDPWS standard "Special Design Provisions for Wind and Seismic" published by the American Wood Council.

Chapter 23 - Wood:

- Table 2306.6 Wind or seismic loading on shear walls of fiberboard sheathing. Modifications have been made related to nail spacing at panel edges (2”, 3”, 4”).

- 2307.1 Load and resistance factor design of wood structures refers to AF&PA Special Design Provisions for Wind & Seismic.

- 2308.2 Maximum floor-to-floor and stud height limitations are 11’-7” and 10’-0” respectively for conventional wood frame construction.

Chapter 23 - Wood:

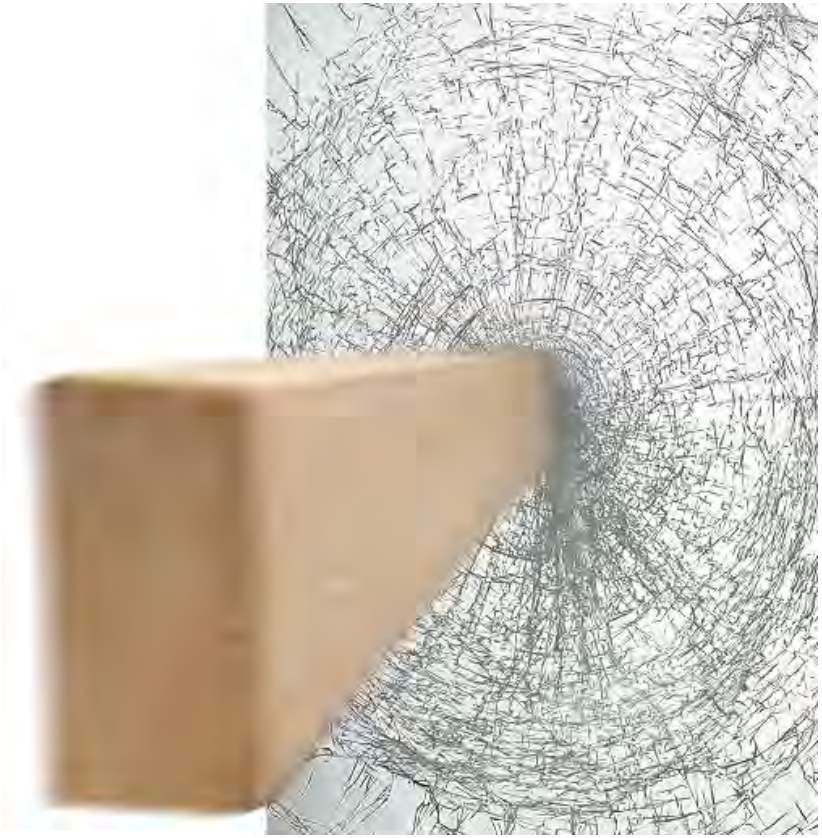
- 2308.3.2 Braced wall line connections have been clarified and include the importance of blocking for the connection of the top plate.

- 2308.6, 2308.12.8, 2308.12.9 Foundation sill plate anchorage. Strap anchors may be used in lieu of anchor bolts if their spacing provides equivalent anchorage.

- 2308.9.1 Continuous wall studs. Continuous from a support at the sole plate to a support at the top plate to resist loads perpendicular to wall.

Chapter 24 – Glass & Glazing:

- **2406.1.1, 2406.2 Safety glazing materials may now comply with ANSI Z97.1 rather than CPSC 16 CFR 1201 where used in a limited number of specified hazardous locations.**



Chapter 30 – Elevators:

- 3002.4 Elevator car size to accommodate stretcher

- 3007 Fire service access elevators

- 3008 Occupant evacuation elevators

Chapter 34 – Existing Structures:

- 3401.4 Applicability of International Existing Building Code has been added.

Appendices:

- LMC 20.08.470 IBC Appendix C; Group U – Agricultural Buildings

- LMC 20.08.475 IBC C105, Roof Snow Load = 20 psf

- LMC 20.08.480 IBC C101.2 Special Purpose Roofs

Questions ?

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