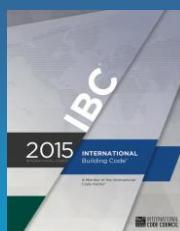




**BCS**  
Building  
Consultation  
Services



## Expediting Plan Reviews



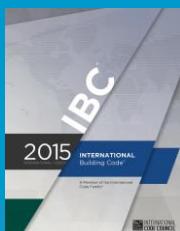
2015 INTERNATIONAL Building Code  
A Uniform Building Code®  
INTERNATIONAL CODE COUNCIL



NEBOEA Seminar  
October 7-9, 2019  
UMass, Amherst, MA

Presented by Erik C. Wight, CBO

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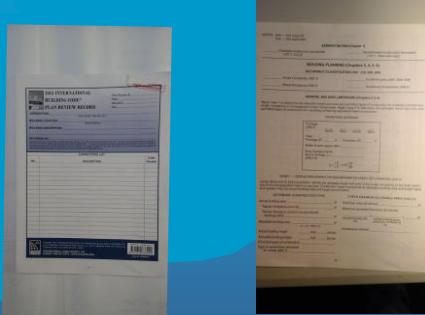
- This presentation is an independent project of the instructor. It is not intended to be a design manual, but is to be utilized an educational tool leading to a better application and understanding of the code.

2

2

## Learning Objectives

- Understand the plan review process
- Identify critical items to be included on plan submittals
- Identify items to be deferred submittals
- Gain a better understanding of the intent and rationale of the Code.



3

## OUTLINE

- Construction Documents
- Site Plans
- Geotechnical Report
- Structural Calculations
- Statement of Special Inspections
- Use Groups & Construction Types
- Height & Area Calculations
- Life Safety sheets
- Single Use Group & Mixed Use Groups
- Occupancy Loads
- Accessibility Features
- Incidental Areas
- Fire-resistant ratings
- Door & Window Schedules
- Firestopping
- Deferred Submittals
- Shop Drawings
- Base Buildings (Shell, Vanilla Box)
- Fire Protection Documents (Fire Alarm, Fire Sprinkler)
- Submittal list
- 10 Common Plan Approval Mistakes
- Common Omissions
- Upcoming Seminars & Services

4

5



5

### Plan Review Submittals

- Clarify acceptable submittal format: Paper /electronic
  - Recommend pre-construction meeting with OAC to go over procedure, etc.
  - Request copies of all transmittals, attendance at jobsite meetings?....
- 
- Project specifications/ manual
  - CSI format
  - Legible construction documents, minimum size 18" x 24"
  - Signed and sealed by RDP ( WET stamps or electronic)

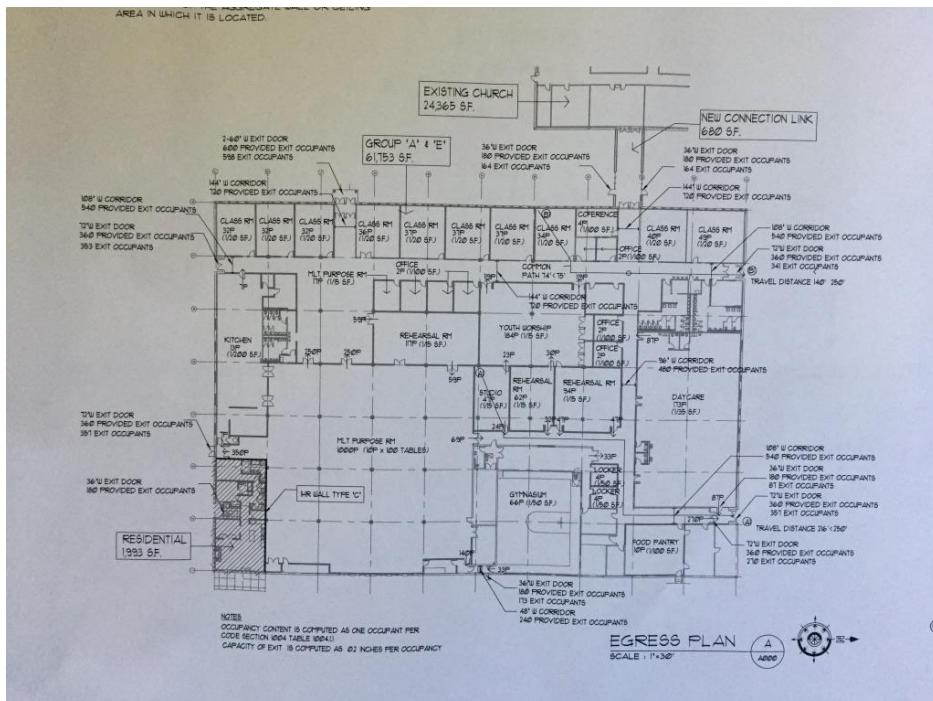
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## CONSTRUCTION DOCUMENTS

- 3 copies of construction documents:

1. Building Department (Inspectional Services)
  2. Field Copy
  3. Fire Department

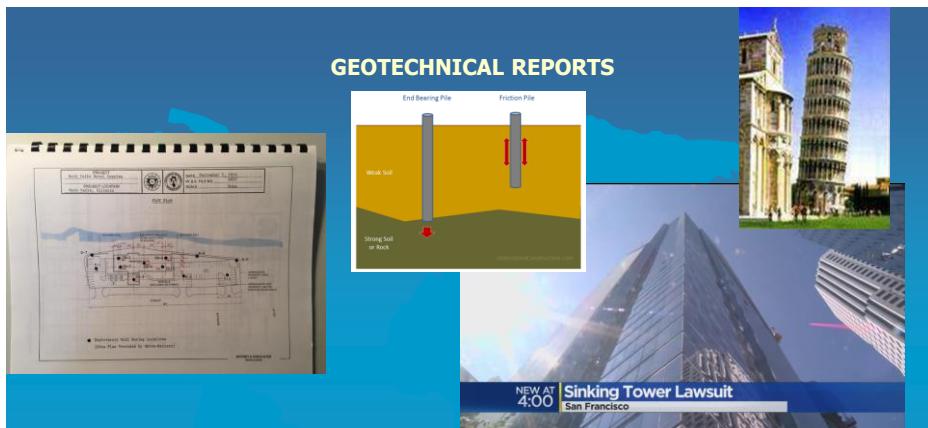
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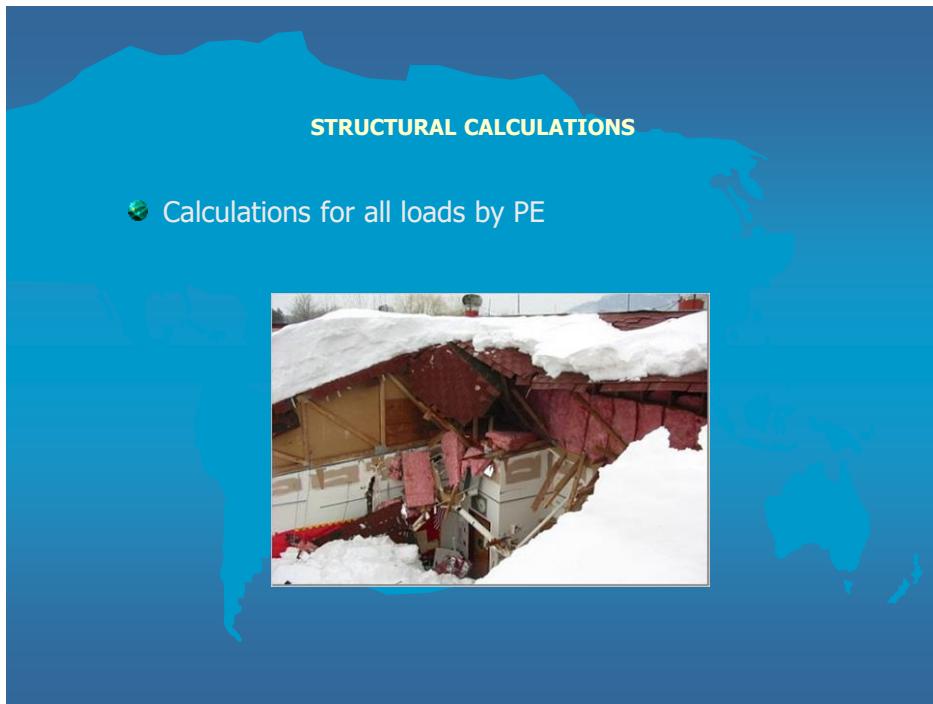


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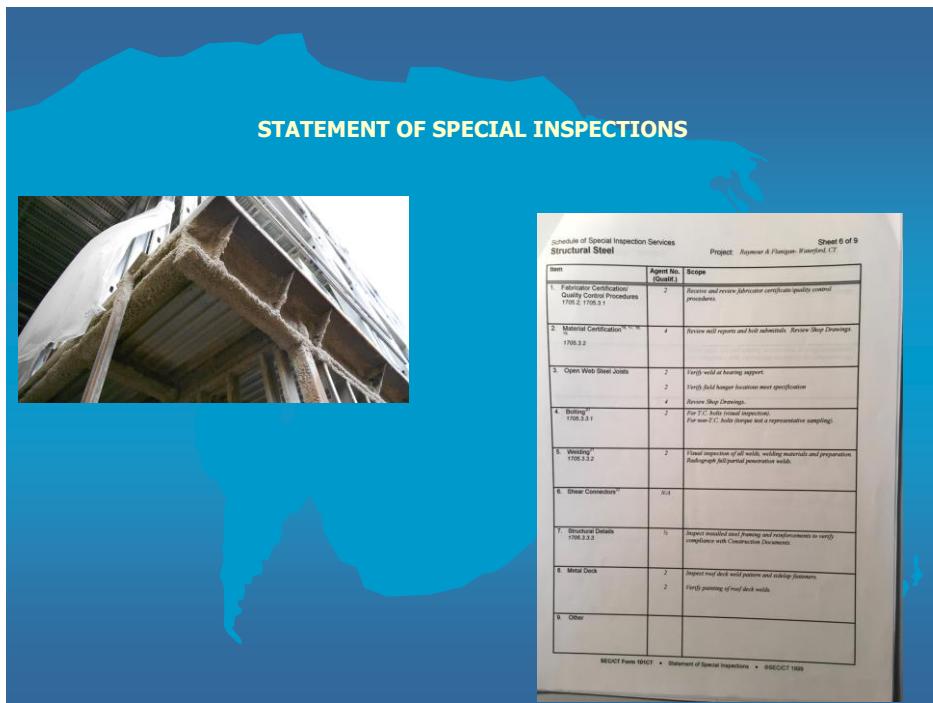


The Millennium's engineers anchored the building over a thick concrete slab with piles driven roughly 80 feet into dense sand. "To cut costs, Millennium did not drill piles to bedrock," or 200 feet down, the transit center authority said in its statement. Had it done so, the agency said, "the tower would not be tilting today"

10



11



12

SINGLE USE GROUP & MIXED USE GROUPS

**7 CRITERIA FOR DETERMINING USE GROUPS**

- 1. Physical and Mental Characteristics**
- 2. Age**
- 3. Agility**
- 4. Self-Preservation**
- 5. Awareness**
- 6. Training**
- 7. Special Knowledge and Beliefs**

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TYPES OF CONSTRUCTION

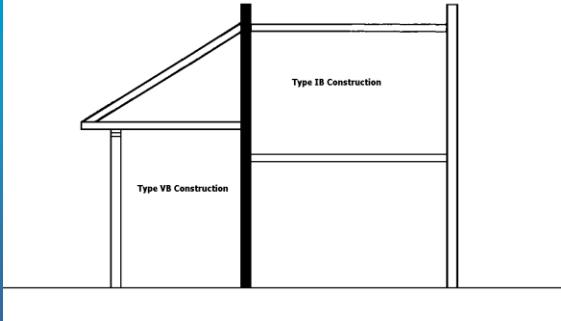


14

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**Types of construction**

► BECAUSE THE BUILDING IS CONSIDERED OF TWO TYPES OF CONSTRUCTION, THE CODE REQUIREMENTS FOR TYPE 5-B (LESSER TYPE) APPLY TO THE ENTIRE BUILDING. AN ALTERNATIVE IS TO CONSTRUCT A FIRE WALL AND MAKE TWO SEPARATE BUILDINGS. THEN, THE CONSTRUCTION TYPE FOR EACH BUILDING WOULD GOVERN.



15

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**HEIGHT & AREA CALCULATIONS**

- Frontage Increase- Section 506.3

Equation:  $If = [F/P - 0.25] W/30$



If=Area factor increase due to frontage  
 F=Building perimeter fronts public way or open space( $\geq 20'$ )  
 P=perimeter of entire building (ft)  
 W=width of public way or open space (to exceed 30)

- Now height and area limitations are embedded in Tables

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## • FIRE SPRINKLER INCREASES

Now height and area limitations determined by Sections 504 & 506

- NS = Buildings not sprinklered
- S = NFPA 13 sprinklered buildings
- S13R = NFPA 13R sprinklered buildings
- SM = NFPA 13 Sprinklered multi-story

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## LIFE SAFETY SHEETS

- Life safety sheets: depict travel distances, exits, portable fire extinguishers, egress widths, dead ends, common paths of travel, capacity of exits (stairs / doors /corridors), exit convergence
- Occupancy calcs.
- Egress widths / capacity of exits (stairs /doors /corridors)
  - ID and use of each room (accessory use or not)

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**Mixed Occupancies**

**MIXED OCCUPANCIES - Section 508**  
What is a Mixed Use?

**THE FOUR OPTIONS**

1. **Non-Separated Uses - Section 508.3**  
 Highest Degree of Construction &  
MOST RESTRICTIVE USE GOVERNS - Table 506.2
2. **Separated Uses - Section 508.4**  
 Fire Partition / Fire Barrier (Tested lab approval #'s)  
 Each area complies with code based on use of the space  
 ➤ Sum of ratio /floor ≤ One (1)
3. **Separate Buildings - Section 506**  
 Fire Walls / Party Walls
4. **Incidental Use Areas - Table 509**

• **ACCESSORY USES – Limited to 10 % of Tabular Area (Section 508.2)**

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Single Occupancy, Multi-Story Single Occupancy

**Aa = [ At + ( NS x If )] x Sa**

Aa=allowable building area  
 NS = non sprinklered tabular area  
 If = increase for open perimeter  
 Sa = # stories above grade (x 3 non sprinklered; x 4 sprinklered)

20

20

Single Occupancy & Non-Separated Mixed- Occupancy, 1 Story Building

**Aa = [At + (NS x If)]**

Total Building Area = Aggregate sum of Actual area per story/allowable area of such stories

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**Mixed Occupancies**  
**508.4 - Separated Uses, continued**




**MIXED USE UNITY FORMULA**

$$\frac{\text{Actual Area}}{\text{Allowable Area}} + \frac{\text{Actual Area}}{\text{Allowable Area}} + \frac{\text{Actual Area}}{\text{Allowable Area}} = \leq 1$$

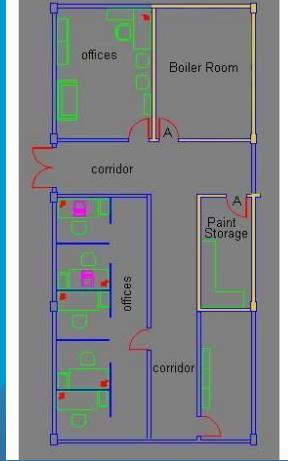
USE                    USE                    USE

22

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**Mixed Occupancies**  
**508.4 - Separated Uses, continued**

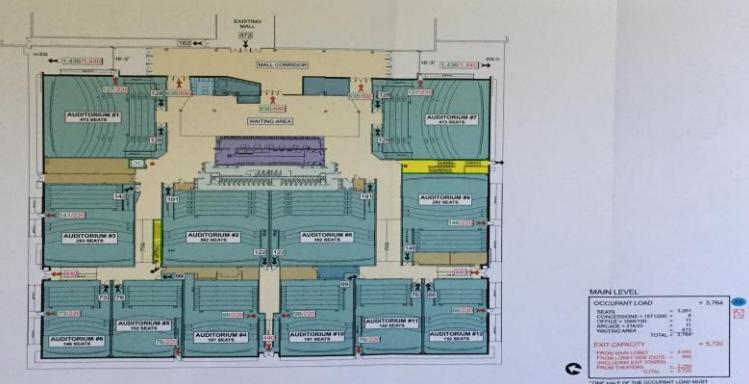
- Each fire area complies with Code based on use of that space
- Each fire area complies with height limitations based on the type of construction
- Sum of Ratios/Floor < One (1) (i.e.: M Use = 30% S USE = 70%)



23

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**Occupancy Loads**



MAIN LEVEL	OCCUPANT LOAD
EXITS	3,764
CONCESSIONS - 181 SEATS	3,282
RESTROOMS - 1	1
WAITING AREA	1,400
TOTAL	8,267

MAIN LEVEL  
EXIT CAPACITY  
PERSONS EXITING FROM MAIN LEVEL  
ONE HALF OF THE MAIN LEVEL LOAD MUST  
EGRESS FROM THE MAIN ENTRANCE / EXIT HALF  
OF THE MAIN LEVEL LOAD MUST  
EGRESS FROM THE OTHER HALF OF THE  
MAIN LEVEL LOAD

2

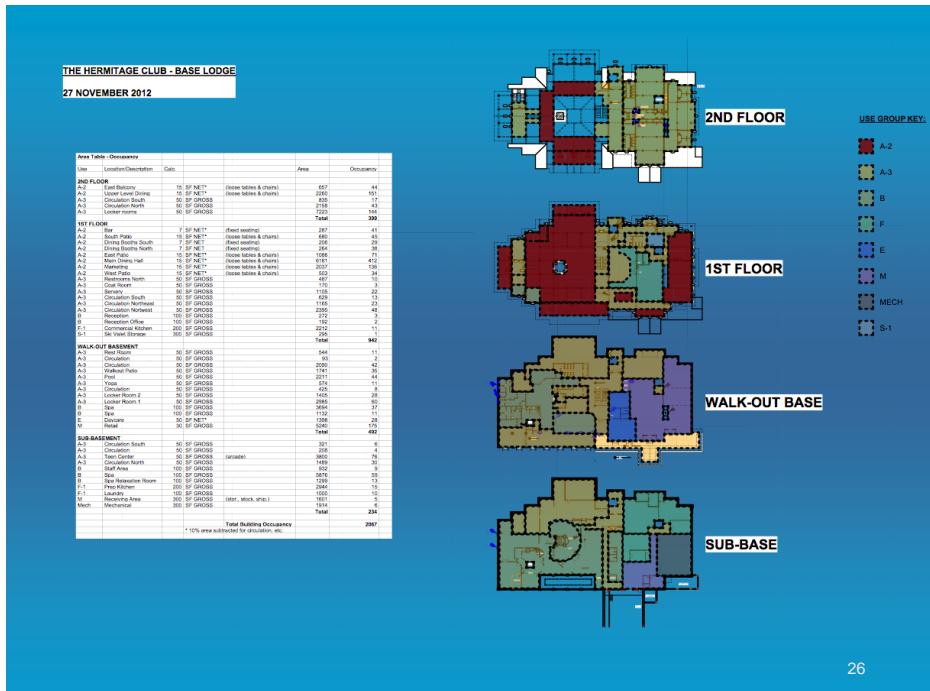
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Table 1004.1.2  
Maximum Floor Area Allowances Per Occupant

Function of Space	Floor Area in Sq. Ft. Per Occupant	Function of Space	Floor Area in Sq. Ft. Per Occupant
<b>Accessory storage areas, mechanical equip. room</b>	<b>300 gross</b>	<b>Exercise rooms</b>	<b>50 gross</b>
<b>Agricultural building</b>	<b>300 gross</b>	<b>H-5 Fabrication &amp; manufacturing areas</b>	<b>200 gross</b>
<b>Aircraft hangars</b>	<b>500 gross</b>	<b>Industrial areas</b>	<b>100 gross</b>
<b>Airport terminal</b>		<b>Institutional areas</b>	
<b>Baggage claim</b>	<b>20 gross</b>	<b>Inpatient treatment areas</b>	<b>240 gross</b>
<b>Baggage handling</b>	<b>300 gross</b>	<b>Outpatient areas</b>	<b>100 gross</b>
<b>Concourse</b>	<b>100 gross</b>	<b>Sleeping areas</b>	<b>120 gross</b>
<b>Waiting area</b>	<b>15 gross</b>	<b>Kitchen, commercial</b>	<b>200 gross</b>
<b>Assembly – Gaming floors (keno, slots, etc.)</b>	<b>11 gross</b>	<b>Library</b>	
<b>Assembly w/ fixed seats</b>	<b>See Sect. 1004.4</b>	<b>Reading rooms</b>	<b>50 net</b>
<b>Assembly without fixed seats</b>		<b>Stack areas</b>	<b>100 gross</b>
<b>Concentrated (chairs only, not fixed)</b>	<b>7 net</b>	<b>Locker rooms</b>	<b>50 gross</b>
<b>Standing space</b>	<b>5 net</b>	<b>Mercantile</b>	<b>60 gross</b>
<b>Unconcentrated (tables &amp; chairs)</b>	<b>15 net</b>	<b>Storage, stock, shipping areas</b>	<b>300 gross</b>
<b>Bowling centers, allow 5 persons for each lane, including 15 feet of runway, and additional areas</b>	<b>7 net</b>	<b>Parking garages</b>	<b>200 gross</b>
<b>Business areas</b>	<b>100 gross</b>	<b>Residential</b>	<b>200 gross</b>
<b>Courtrooms – other than fixed seating areas</b>	<b>40 net</b>	<b>Skating rinks, swimming pools</b>	
<b>Day care</b>	<b>35 net</b>	<b>Rink and pool</b>	<b>50 gross</b>
<b>Dormitories</b>	<b>50 gross</b>	<b>Decks</b>	<b>15 gross</b>
<b>Educational</b>		<b>Stages and platforms</b>	<b>15 net</b>
<b>Classroom area</b>	<b>20 net</b>	<b>Warehouses</b>	<b>500 gross</b>
<b>Shops &amp; other vocational room areas</b>	<b>50 net</b>		

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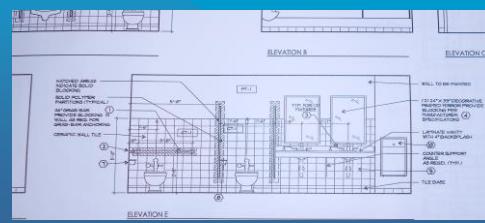
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## ACCESSIBILITY FEATURES

- Ramps
  - Stairs
  - Elevators
  - Restrooms
  - Counter heights
  - All applicable elevations
  - Parking spaces
  - Signage



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## INCIDENTAL AREAS

- Areas that are specific hazards that require FRR or sprinkler protection.

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tions in buildings of Type IIB, IIIB and VB construction is

TABLE 509  
INCIDENTAL USES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour or provide automatic sprinkler system
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or provide automatic sprinkler system
Refrigerant machinery room	1 hour or provide automatic sprinkler system
Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Incinerator rooms	2 hours and automatic sprinkler system
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours, or 1 hour and provide automatic sprinkler system
In Group E occupancies, laboratories and vocational shops not classified as Group H	1 hour or provide automatic sprinkler system
In Group I-2 occupancies, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
In ambulatory care facilities, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
Laundry rooms over 100 square feet	1 hour or provide automatic sprinkler system
In Group I-2, laundry rooms over 100 square feet	1 hour
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops	1 hour
In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater	1 hour
In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet	1 hour or provide automatic sprinkler system
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet	1 hour
Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterruptible power supplies	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.

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## FIRE-RESISTANT RATINGS

- Fire-resistant rated assemblies (indicate UL approved tested hourly rating / # and location of all FRR assemblies)
- Firewalls and method of construction

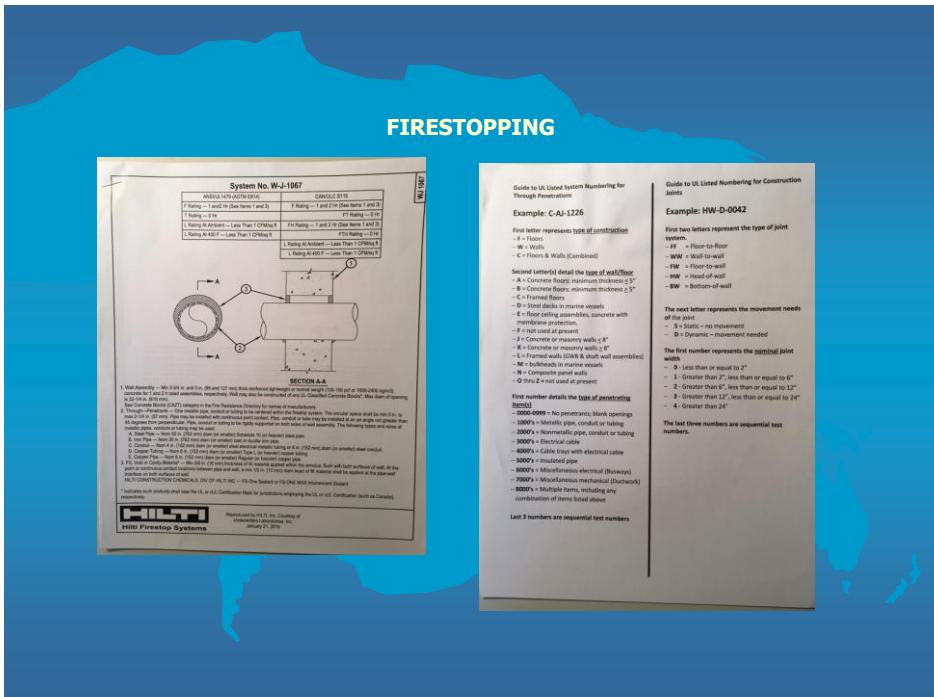


- Are the UL tested assemblies Proprietary or Generic?

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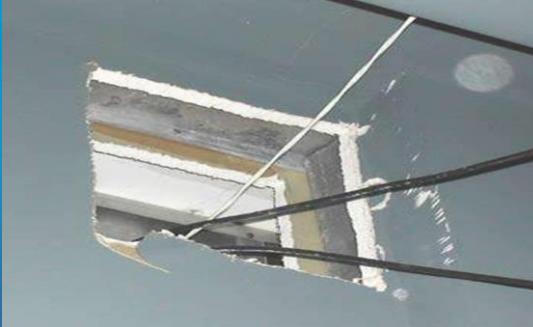
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**FIRESTOPPING**

- ➊ FIRESTOPPING – “F” RATING
- ➋ TEST STANDARDS: ASTM E-814 / UL 1479
- ➌ ENGINEERING JUDGEMENTS (EJS)



**Engineering Judgment Request Form**  
Through Penetration

Phone: 1-800-879-8800  
Fax: (919) 254-1679  
Email: [ejssubmissions@us.hilti.com](mailto:ejssubmissions@us.hilti.com)

Date:	Hilti Installer's Name:	Fax/Email:
DNV/AT or Call #:		
Project Name:		
Contractor:	Contact:	
Phone #:	Fax/Email:	

1. **Wall/Floor thickness of wall or floor penetrated (ex. 4 1/2" Concrete Floor):** \_\_\_\_\_

2. **TYPE and SIZE of penetrating item (ex. 4" steel pipe, 3/8" T):** \_\_\_\_\_

3. **Size and shape of opening (if desired, specify type and size):** \_\_\_\_\_

4. **Adjacent space (yes and no):**  
5. **Fire rating (yes):**  
  - metric (ungraded product): \_\_\_\_\_  
  - English: \_\_\_\_\_

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Integrity • Commitment • Teamwork

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**DEFERRED SUBMITTALS**

- ➊ What items Can be deferred?

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**Fire Resistant Materials**

● **Exterior Wall Fire Ratings** – Section 705

- ◆ **Exterior wall rating requirements originate Chapter 6 – Table 602 – details and opening requirements in Chapter 7 – Section 705**
- ◆ **Less attention to distances; more emphasis on construction class**
- ◆ **No reduction in rating for sprinklers**




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**Fire Protection Documents**

● **RATIONALE FOR FIRE PROTECTION SYSTEMS**

- ◆ **Life Safety**
- ◆ **Fire And Rescue Access**
- ◆ **Probability Of Fire**
- ◆ **Property Conservation**




**PRINCIPLES OF FIRE SPRINKLER SYSTEMS**

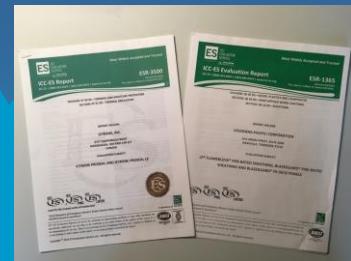
<b>Cools The Burning Surface</b>	<b>Prevents Flame Spread</b>
<b>Cools The Structure</b>	<b>Provides Time For Firefighting</b>

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## **SUBMITTAL LIST**

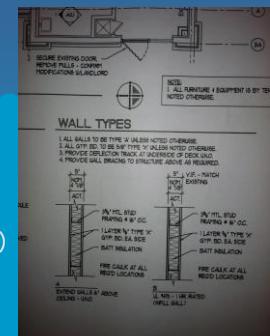
- Codes utilized
  - Specifications or project manual
  - Geotechnical report
  - Use Group (single or mixed- separated or nonseparated)
  - Type of Construction
  - Height limitations (Proposed / Allowed)
  - Open perimeter calculations
  - Fire Resistance Ratings (UL listed assembly numbers)
  - Firestopping assemblies (listed assembly numbers)
  - Fire Protection Systems (Type required)
  - Occupant Loads (of all areas)



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## **SUBMITTAL LIST**

- Length of Travel (Proposed / Allowed)
  - Number of Exits (Proposed / Allowed)
  - Egress Components Capacity (Proposed / Allowed)
  - Floor plans each level (square ft)
  - Sections (Wall / floor/ foundation / ceiling /roof)
  - Wall types
  - Door & Window Schedules (ratings as applicable)
  - Structural Calculations that indicate all design loads (live, dead, wind, snow, drift, seismic, combination loads)
  - Accessible details (route / interior & exterior / parking / signage/ restrooms / counter heights / door hardware / ramps / stairs)
  - Energy Conservation data (COMcheck compliance certificates)



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**SUBMITTAL LIST**

- Deferred Submittal List (ie: Fire Sprinkler & Fire Alarm drawings, roof & floor shop drawings, structural steel shop drawings)
- Fire Protection Plans (sprinkler piping layout, pipe sizes, hanger details, seismic bracing, design data, water flow test, fire pump summary)
- Roof plan (fire classification, slope, primary & secondary drainage)
- Exterior envelope details
- Shell (Vanilla Box) – Tenant fit-out SEPARATE PERMIT
- Masonry (ties, weep holes, control joints, materials, beam & column locations)
- Pre-engineered Buildings (Engineer's certification)
- Applicable manufacturer's cuts
- Flood plain data



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**THE 10 MOST COMMON MISTAKES IN PLAN APPROVAL**

1. **USE GROUP** – What is the primary use of the building, not the specific tenant. What if it is a "shell building"?
2. **CONSTRUCTION TYPE** – Did you calculate the allowable area using the least restrictive construction type? Did you over design? The code only requires minimum construction requirements.
3. **HEIGHT / AREA LIMITATIONS** – Did you take all the increases for open area and fire sprinklers (both height and area)?
4. **OCCUPANCY LOAD** – Is there sufficient floor area (Net vs. Gross) for the maximum number of people? Are there any "mixed use" occupancy?
5. **EXITS** – Are there enough? Are they remote? What kind of hardware are you using? What about EXIT signs?

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6. **FIRE RATINGS** – Have you indicated the design number on all assemblies. Have you considered using Chapter 7 (Prescriptive) alternate designs?
7. **OPENING PROTECTIVES** – Are you penetrating any walls or rated assemblies? Have you specified the correct fire dampers, doors and windows?
8. **STRUCTURAL LOADS** –Have you indicated live, dead, snow and seismic?
9. **FIRE PROTECTION SYSTEMS** – Have you taken all the trade-offs and options for fire sprinklers (area & height increase, reduced construction type, increased occupancy load)?
10. **LOCAL CODES** – Check the local amendments in the code. Do not assume they are the same in adjoining municipalities.

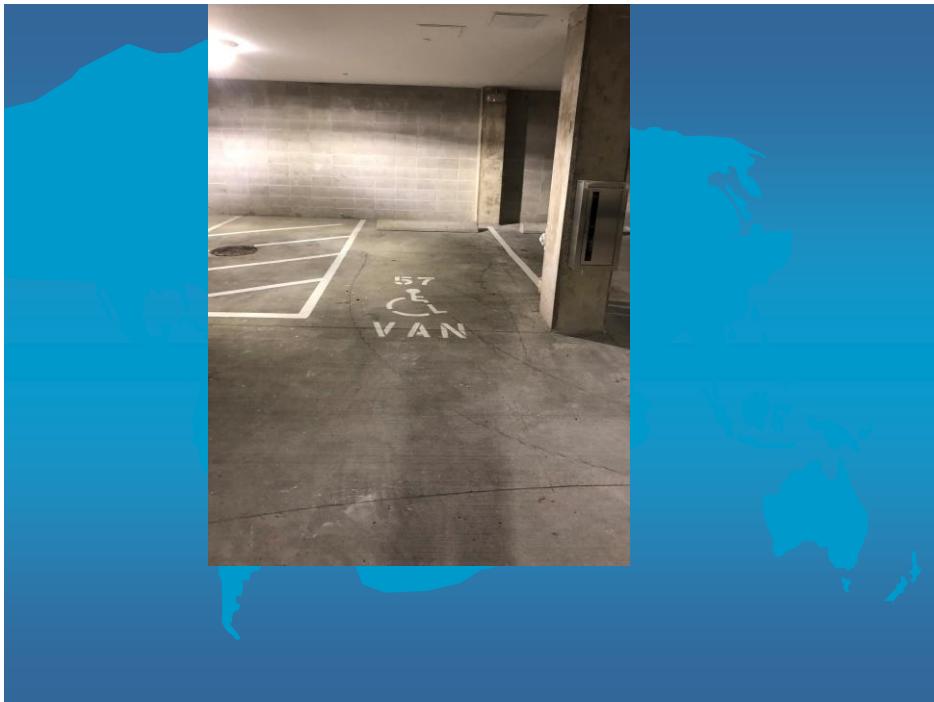
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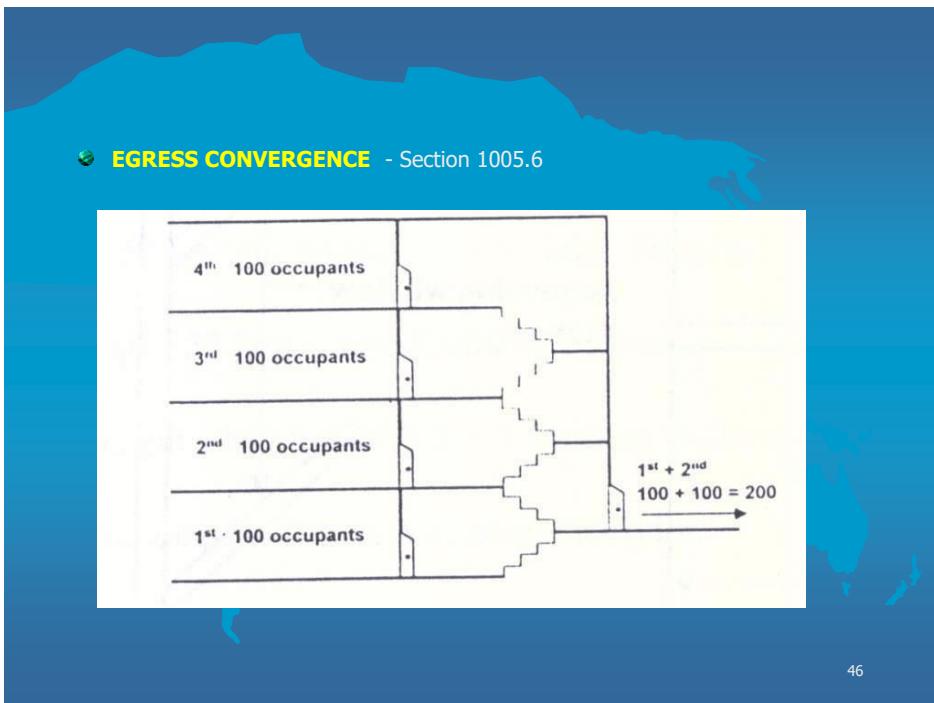
#### Common Omissions



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Minimum Corridor Width – Section 1020.2				
24 Inches	36 Inches	44 Inches	72 Inches	96 Inches
Equipment rooms	Less than 50; Dwelling units	Minimum: more than 50 people	E – more than 100; I – Surgical Care	1-2 moving beds

→ Objects can be located within a corridor or aisle way as long as the required width is NOT restricted.

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**Means of Egress**

**• EXIT DESIGN PER FLOOR - Section 1004.1.1**

300 Occupants
200 Occupants
100 Occupants
100 Occupants

What if the occupancy load increases?




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**• EXIT SIGNS AND LIGHTS - Section 1013; 1008**




When are EXIT signs required?  
The "50 RULE"

- ❖ Not More Than 100 Feet  
Visible In The **Exit Access**
- ❖ No Longer Required To Be  
Internally Illuminated

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**Exits** must be readily distinguishable from surroundings & recognizable as a door



\*\* This is a similar idea as to what we want to do with the walls. We will not be painting the hinges or push bar on the door\*\*

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- **DOOR HARDWARE** - Section 1010.1.9
- **ACCEPTABLE** - Thumb Turn, Twist Knob, Time Delay Release System, Automatic Flush Bolts
- **Panic hardware 50 or More Person**

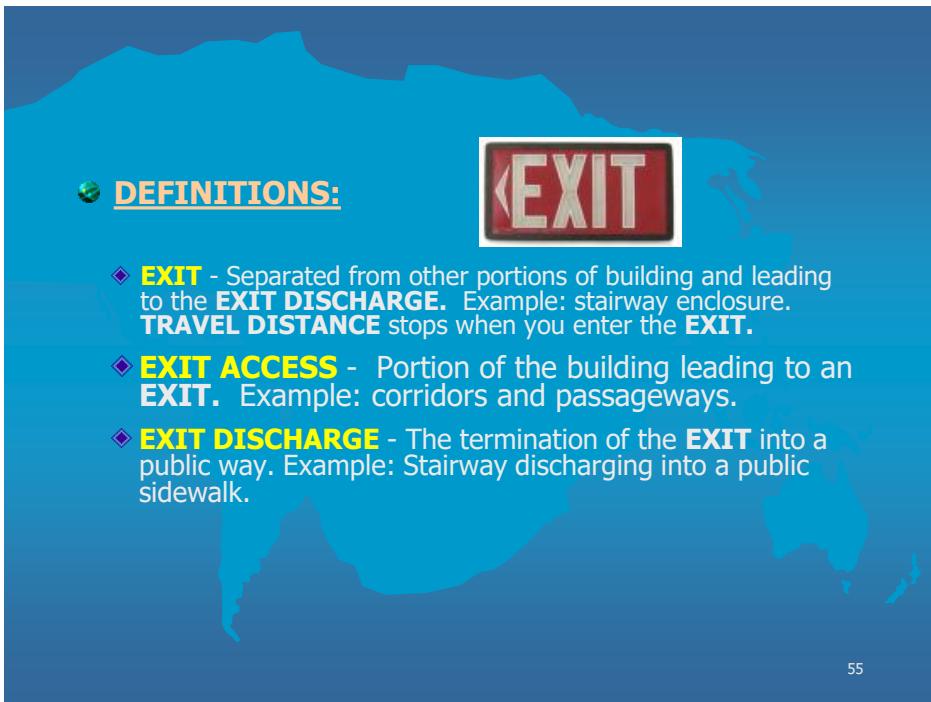
In **A, E and H** Use Groups **ONLY** & **electric Equipment rooms** over 1,200 amp. or over 6 ft. wide. Push pad type OK for balanced door

♦ **NOT ACCEPTABLE** - Double Cylinder Dead Bolt, Draw Bolts, Hooks, Cross Bars, Chains, Padlocks, Manual Flush Bolts.



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● **DEFINITIONS:**

- ◆ **EXIT** - Separated from other portions of building and leading to the **EXIT DISCHARGE**. Example: stairway enclosure. **TRAVEL DISTANCE** stops when you enter the **EXIT**.
- ◆ **EXIT ACCESS** - Portion of the building leading to an **EXIT**. Example: corridors and passageways.
- ◆ **EXIT DISCHARGE** - The termination of the **EXIT** into a public way. Example: Stairway discharging into a public sidewalk.

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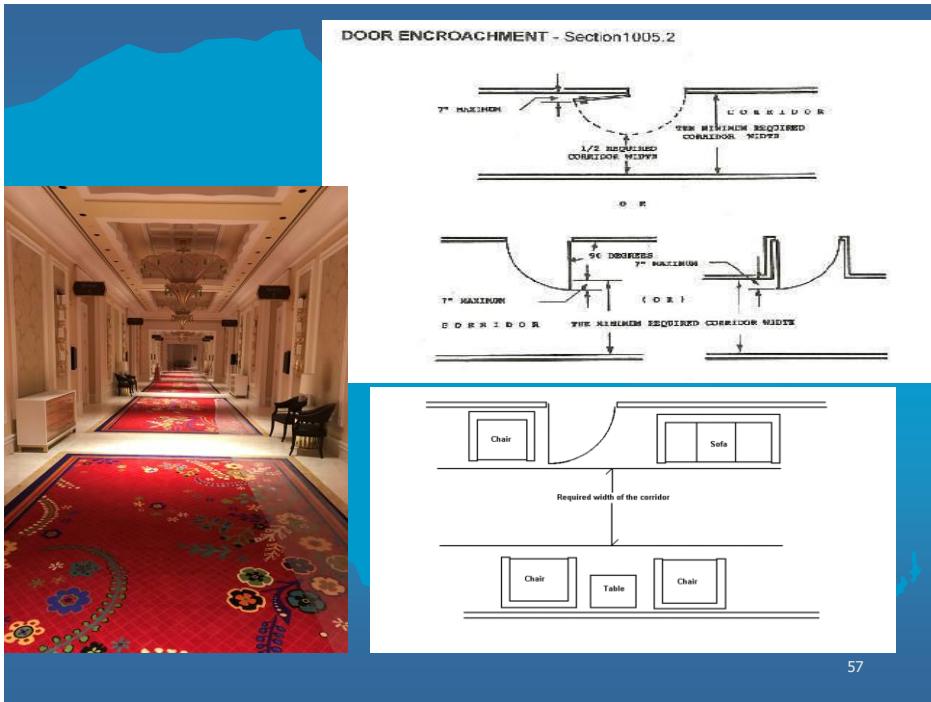
**Fire Resistant Materials**

**MEASURING FIRE SEPARATION DISTANCES**

- **Distance to lot line**
- **Distance to middle of street or right-of-way**
- **Distance between buildings on same lot line**
- **“Imaginary” lot line**

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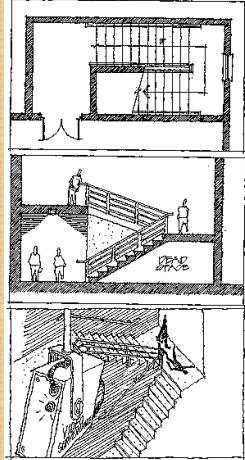
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**STAIRWAY ENCLOSURES -**

Section 1023

- ◆ Minimum Fire Rating Of 2 Hours -
- ◆ 1 Hour Rating If Connecting Less Than Four Stories
- ◆ **fire rating of enclosure must equal fire rating of floor assembly penetrated**
- ◆ ONLY exit doors can open into a stairway enclosure - NO closets, storerooms
- ◆ Space Under The Stairs Must Be Kept Open Or Fully Enclosed To Prevent Storage
- ◆ Exterior Stairs: Protect from snow and ice accumulation



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**Use Groups**



**Assembly Uses - high occupant loads -  $\geq 50$  people + Specific Activity + Less Than 750 sq. ft. accessory**

- ◆ **A-1** - Usually with fixed seating and including stage & movie theaters, Symphony & concert halls & television & radio studios admitting an audience

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**Use Groups**




● **A-2** - Food and Drink consumption: banquet halls, night clubs, restaurants, taverns and bars. Night clubs and dance halls are not defined, but their use is determined by low lighting levels, dense occupancy and loud music and sounds.

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**Use Groups**

● **A-3** – Worship, recreation or amusement and other assembly uses not classified elsewhere in Group A: Churches, courtrooms, dance halls (no food/drink), funeral parlors, bowling alleys, indoor swimming pools and tennis courts w/o spectator seating.




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**Use Groups**

• **A-4** – Intended for indoor viewing of sporting events and activities with spectator seating: Arenas, Skating rinks, Swimming pools, Tennis courts



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**Use Groups A Occupancies, continued**

• **A-5** – participation in or viewing of outdoor activities including amusement park structures, bleachers, grandstands and stadiums.



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**Use Groups**

● **B - BUSINESS USE GROUP** - Section 304

● Offices, banks, **educational occupancies above the 12th grade**, government buildings (although the court room and council chambers may be **A-3** based on occupancy load), and out-patient clinics.





◆ **Outpatient Clinic is considered B use group, NOT I use group.**

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**Use Groups**

● **F - FACTORY & INDUSTRIAL** - Section 306

Manufacturing, assembling, packaging or repair operations **other than H use group**.



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**Use Groups**



- **F-1 - Moderate Hazard** processes such as typical manufacturing, bakeries, factories, laundries, printing and publishing, woodworking (cabinet). Beverages over 16% alcohol.

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**Use Groups**



- **F-2 - Low Hazard** primarily consisting of non-combustible products such as glass, ceramics, metal fabrication, foundries. **Beverages up to and including 16% alcohol.**

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**Use Groups**




**H - HIGH HAZARD -**  
Section 307 - Hazardous materials due to ignition, conflagration, detonation or toxicity. Refer to Tables 307.1 (1) and 307.1 (2) for maximum amounts



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**Use Groups**



**H-2** - Deflagration hazard or a hazard from accelerated burning such as combustible dusts, flammable gases, water reactive materials, Class 3.

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**Use Groups**





● **H-3** – Structures support combustion such as fireworks, flammable solids, combustible fibers. One example is a newspaper recycling center that compresses and bundles the waste paper. Large accumulations of dust particles from the paper fibers can accumulate and create a fire hazard or dust explosion.

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**Use Groups**





● **H-4** - Personnel health hazards such as corrosives and toxic materials, (i.e.: chlorine storage)

● **H-5** - Semiconductor fabrication (HPM) - Shall be designed to Section 415.11

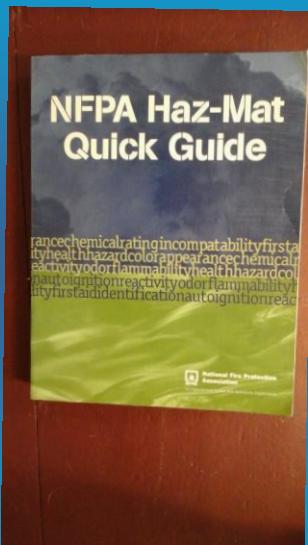
● Hazardous Materials (Section 414) and H-1 to H-5 (Section 415)

● Control Areas (Table 414.2.2)

72

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## Use Groups



73

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## Use Groups



● **I - INSTITUTIONAL** - Section 308

- Persons with physical limitations, difficulty in self-preservation or incarcerated.

- **I-1** - More than 16 persons on a 24-hour basis in a supervised residential environment that provides personal care. Examples are group homes, half-way houses, rehab centers.

74

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**Use Groups**



• **I-2** - More than 5 persons on a 24-hour basis **not capable of self-preservation** such as a hospital, nursing home, custodial care, Alzheimer's residential care.

♦ Less than 5 persons can be R-3 or use the International Residential Code.

75

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**Use Groups**



• **I-3** - More than 5 persons who are restrained in jails and prisons. Under this classification there are five (5) sub-conditions relating to the degree of restraint afforded each occupant, from minimum to maximum security.

76

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**Use Groups**

● **R - RESIDENTIAL** - Section 310 - A building or structure designed for sleeping accommodations when not classified as use group I.

◆ **R-1** - Tenants are transient in nature, less than 30 day stay such as hotels, motels, boarding houses.

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**Use Groups**

● **R-2** - More than two dwelling units with permanent tenants such as apartments, dormitories, frat and sorority houses.

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**Use Groups**



● **S- STORAGE** - Section 311 - Storage of any products or materials not classified as use group **H**.

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**Use Groups**



● **S-1 - Moderate Hazard Storage** such as Level 2 & 3 aerosols, furniture, general warehousing, lumber, motor vehicle repair garages that comply with MAQ of hazardous materials and do repairs, aircraft hangars. A body shop with a spray paint operation is still considered S-1 and not H use group. The spray paint operation is classified as hazardous, not the entire building.

● < 100 square feet can be accessory to that occupancy

80

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**Use Groups**

- **S-2 - Low Hazard Storage** for non-combustible materials with negligible amount of plastic trim, such as knobs, handles or film wrapping ("Negligible" is NOT defined). Examples such as food products, frozen food lockers, metals and metal parts, open and enclosed parking structures without fuel dispensing or repair services. A food products general warehouse would be considered use group S-1 due to the combination of materials being stored.



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**Use Groups**

- **S-2 - Low hazard storage, continued**
  - ◆ Beverages up to and including 16% alcohol in metal, glass or ceramic containers.



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**Use Groups**

• **U - UTILITY & MISCELLANEOUS** - Section 312 - Agricultural buildings, barns, carports, fences over 6 ft. high, greenhouses, private garages. Check local ordinances for backyard storage sheds that may require a permit for setbacks and anchoring requirements.

**Federal Communications Act**  
**cellular towers**



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**Use Groups**

**Classroom Quiz**  
Match the Use Groups with the function description.  
(Insert the correct group in Column 1)

1. Community College		A-1
2. Auto Body Shop		B
3. Department Store		B
4. Motion Picture Theater		H-3
5. Storage of Baled Wastepaper		M
6. Outpatient Clinic		S-1
7. Cellular Tower		U

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**Use Groups**

**Classroom Quiz**

Match the Use Groups with the function description.  
(Insert the correct group in Column 1)

1. Community College	<b>B</b>	<b>A-1</b>
2. Auto Body Shop	<b>S-1</b>	<b>B</b>
3. Department Store	<b>M</b>	<b>B</b>
4. Motion Picture Theater	<b>A-1</b>	<b>H-3</b>
5. Storage of Baled Wastepaper	<b>H-3</b>	<b>M</b>
6. Outpatient Clinic	<b>B</b>	<b>S-1</b>
7. Cellular Tower	<b>U</b>	<b>U</b>

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**Construction Classifications**

Types I and II	Non-Combustible
Types III, IV and V	Combustible




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Non-Combustible		Combustible	
I	A & B	III	A & B
II	A & B	IV	Heavy Timber
		V	A & B



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## DEGREES OF FIRE RESISTANCE

- ◆ **A** = High Fire Resistance
- ◆ **B** = Low Fire Resistance

✓ **What's the difference between A and B fire resistance?**

► **Non-metallic ducts, combustible piping materials and wiring methods with combustible insulation permitted by limitations of the International Mechanical Codes and the International Plumbing Code. Sections 603.1.1; 603.1.2; 603.1.3**

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### Submittals

- Wall sections (materials /sizes / constr. / FRR)
- Masonry (type of brick / spacing of wep holes / control joints / flashing / reinforcement)
- Hazardous control areas / fire barriers / FRR / MSDS
- Floor vapor barrier
- Foundation waterproofing / waterstop
- Firestopping tested assemblies
- Penthouse / mezzanines

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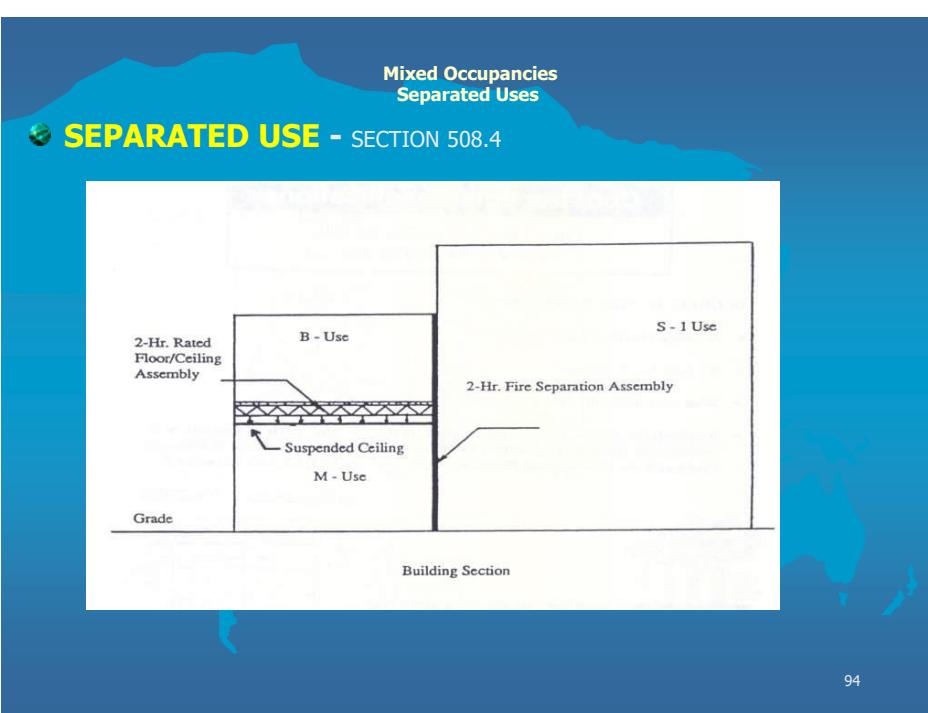


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Means of Egress

### THE THREE ELEMENTS OF A MEANS OF EGRESS

**THE “50 RULE”** – When you have 50 or more occupants, the following code requirements apply: Minimum of two exits; doors swing in the direction of egress travel (all H); illuminated exit signs required.



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## TRAILER SLIDES

- Under Construction (ONGOING.....)



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**UPCOMING SEMINARS & SERVICES**

**SEMINARS**

- Podium Buildings (2 hours)
- Conducting Commercial Plan Reviews (6 hours)
- Communication Techniques for Construction Management (4 hours)

**SERVICES**

- Code Hotline
- Code Consulting
- Plan Reviews
- Technical Seminars

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**BCS**

**QUESTIONS ?**

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