

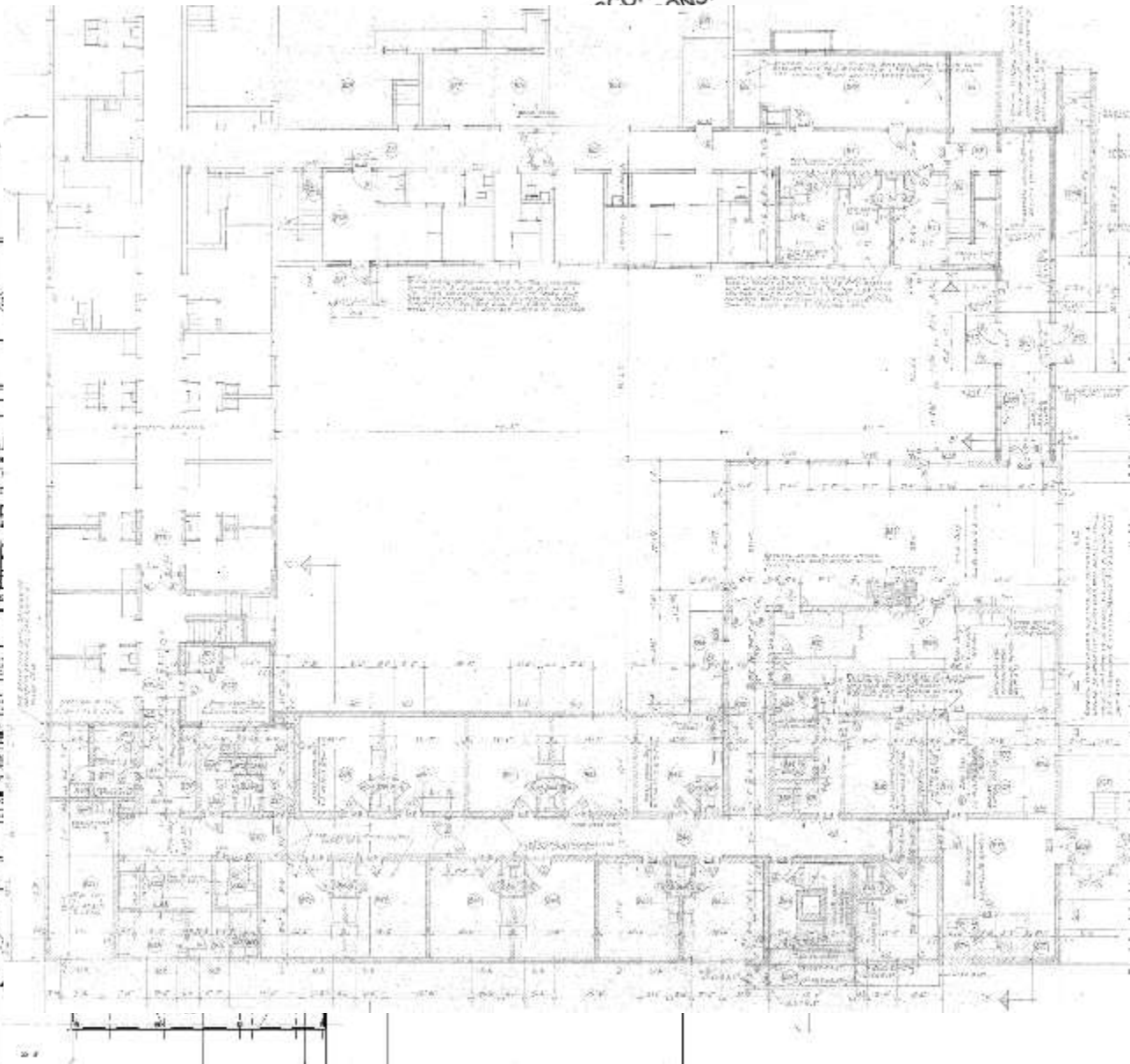
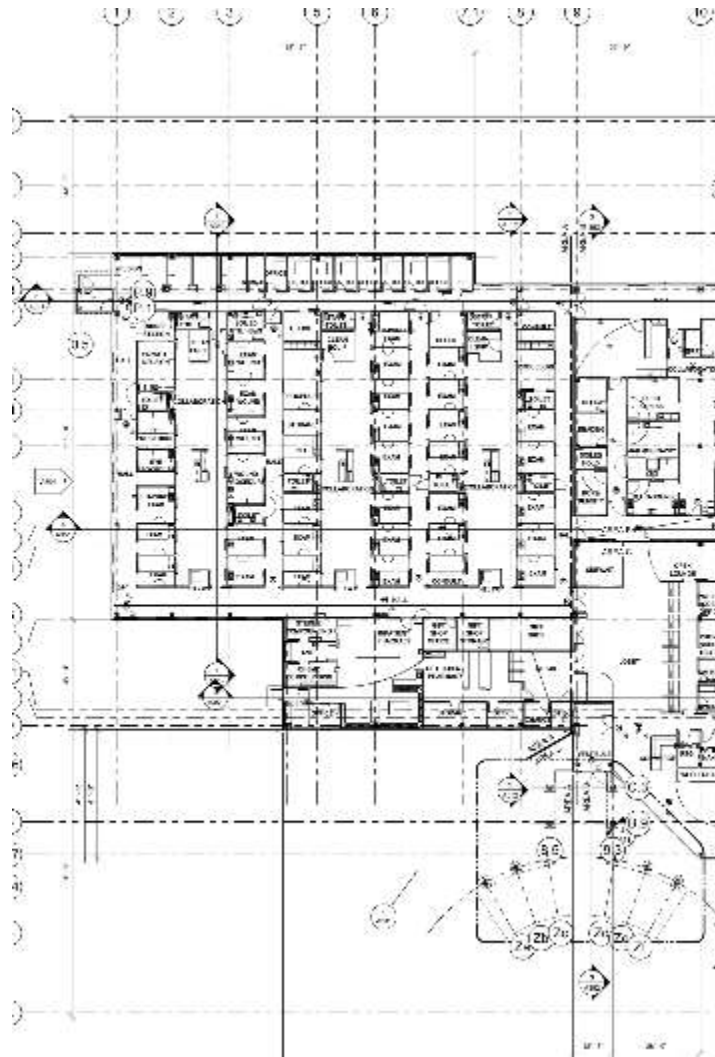
# Fire Resistive Wall Construction

A look at features of fire protection.  
Definitions. Applications. Requirements. Challenges. Examples.

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# Definitions









# Definitions

Number	Subject	Pages	K Tag
S&C-02-24	Recalled Sprinkler Head clarification	2	1
S&C-03-21	Adoption of the 2000Life Safety Code with amendments	3	
S&C-04-14	Critical Access Hospitals will be permitted to increase the number of acute care beds to 25	1	
S&C-04-15	Major vs. Minor rehabilitation of a building	2	
S&C-04-23	Procedures in the Event of a Fire in a Medicare- or Medicaid-Certified	2	

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State of Wisconsin  
Department of Safety and Professional Services

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### Code Archives

The user of this website is informed that by clicking on the links below, only past versions of the Wisconsin Code will be available for viewing. Some of these documents are complete sets of the Code, while some are simply changes that went into effect at that point in time. If you select a "partial" code, search back in time to view the next full version of Code.

For a list of current statutes and codes pertaining to the trades program, please visit the DSPS Administrative Rules and Statutes page.

- Amusement Rides
- Boilers and Pressure Vessels
- Commercial Buildings
- Electrical and Lighting
- Elevators and Conveyances
- Energy

NFPA.org Catalog NFPA LINK™ Xchange

NATIONAL FIRE PROTECTION  
The leading information and knowledge

## CODES & STANDARDS

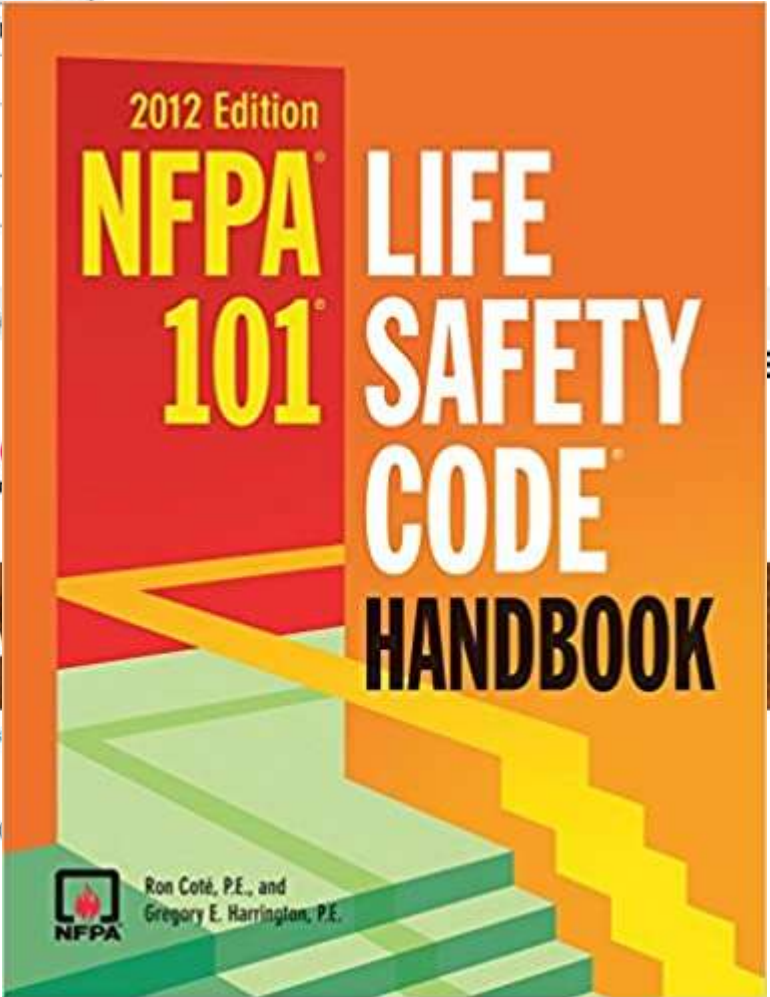
Codes & Standards / All codes & standards / List of Codes and Standards

### NFPA 101®

View in CodeFinder™

### Life Safety Code®

The Life Safety Code is the most widely used source for strategies to protect people based on building construction, protection, and occupancy features that minimize the effects of fire and related hazards. Unique in the field, it is the only document that covers life safety in both new and existing structures.



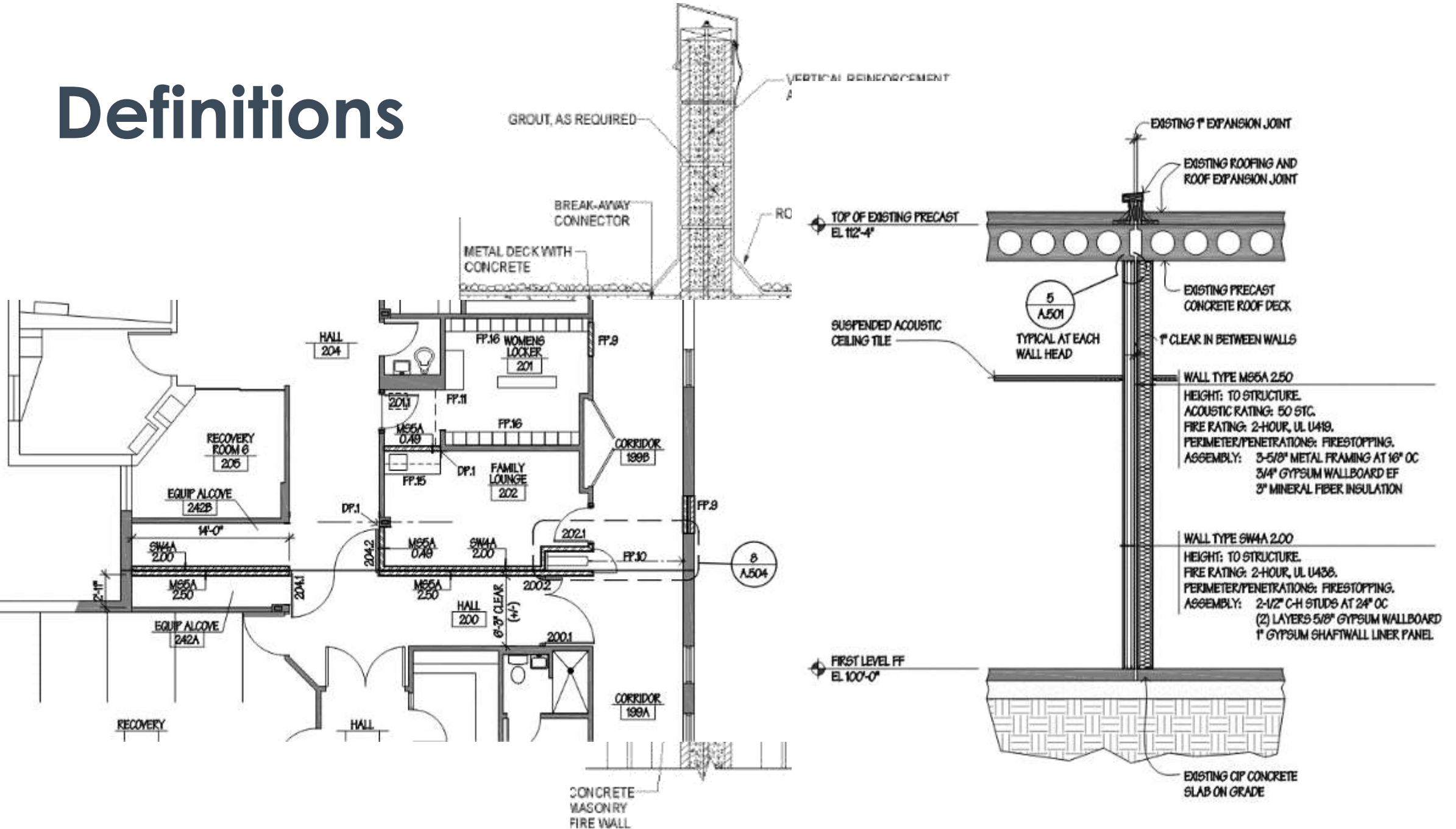
S&C-07-10	Medical Gas Storage and Usage Considerations	2	K76
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Some Resources:

<https://dsps.wi.gov/Pages/Programs/CodeArchives.aspx>

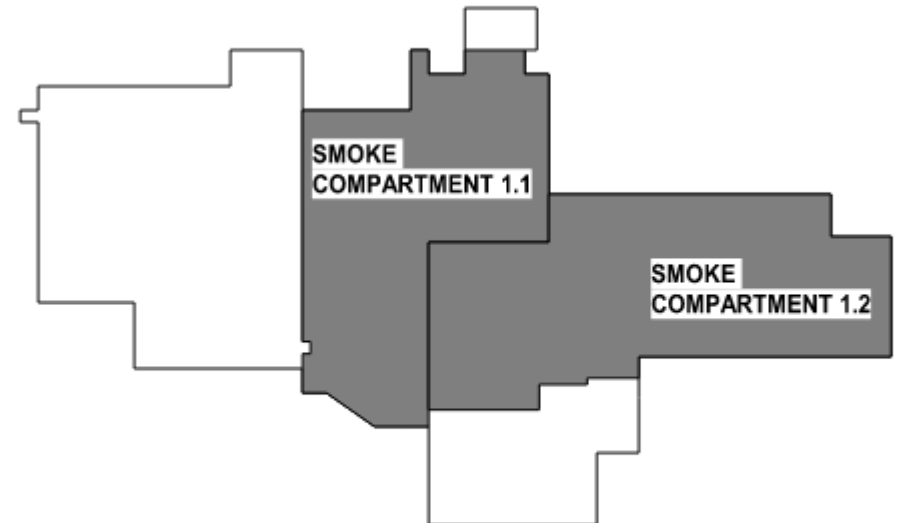
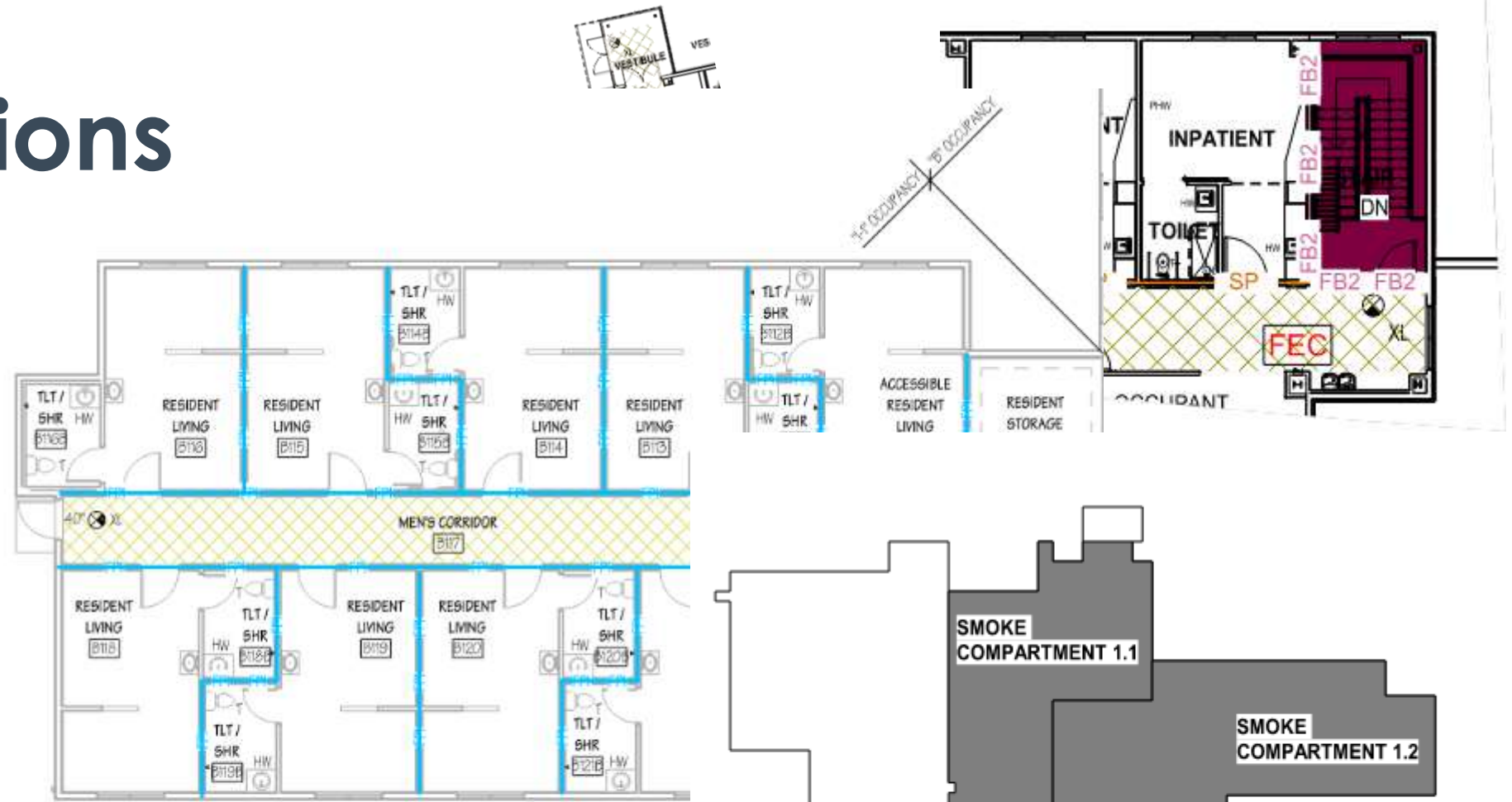
<https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=101>

# Definitions





# Definitions



MAIN LEVEL - SMOKE COMPARTMENT KEY PLAN

NTS



# Function/Use

## DESIGNATIONS AND SYMBOLS

AS NOTED ON DRAWINGS.

### FIRE WALLS

2-HOUR = FW2 = FW2 = FW2 =

3-HOUR = FW3 = FW3 = FW3 =

4-HOUR = FW4 = FW4 = FW4 =

### FIRE BARRIERS

1-HOUR = FB1 = FB1 = FB1 =

2-HOUR = FB2 = FB2 = FB2 =

### SMOKE BARRIERS

1-HOUR = SB1 = SB1 = SB1 =

### SMOKE PARTITIONS

N/A = SP = SP = SP =

### EXITING

SUITE = ST = ST = ST =

(CONSTRUCTED THE SAME AS A SMOKE PARTITION)

### OCCUPANCY SEPARATION (SEE PLAN FOR OCCUPANCY)

R R R

I-2 I-2 I-2

### BUILDING LIMITS

EXIT ACCESS CORRIDOR



EXIT PASSAGEWAY



HALLWAY / EXIT ACCESS



EXIT STAIRS



OPEN CONVENIENCE STAIR



2 HR FIRE RATED SPACES



SUITE



EXIT LIGHT



FIRE EXTINGUISHER

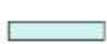


### HAZARDOUS AREAS:

NEPA LSC 101, 2000: 3.3, 13.2 AND 18.3.2

ROOM PROTECTED BY 1-HOUR

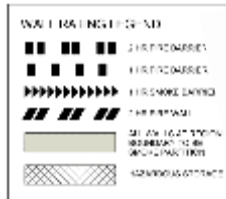
FIRE RESISTIVE CONSTRUCTION



STORAGE >50 SF AND <100 SF

NO RATING, POSITIVE LATCH

AND CLOSING DEVICE



## LIFE SAFETY PLAN LEGEND

- 1 HOUR FIRE & SMOKE BARRIER - 1" Hour Wall Rating  
Wall Penetration - 1" Hour Rating  
Door - 45 minute (20 min)  
Positive Latch - Required (NAC, Hardware)  
Door Closure - Required
- 2 HOUR FIRE & SMOKE BARRIER - 2" Hour Wall Rating  
Wall Penetration - 2" Hour Rating  
Door - 60 minute (20 min)  
Positive Latch - Required  
Door Closure - Required
- 2 HOUR FIRE & SMOKE BARRIER - 2" Hour Wall Rating  
Wall Penetration - 2" Hour Rating  
Door - 60 minute (20 min)  
Positive Latch - Required  
Door Closure - Required
- 2 HOUR FIRE & SMOKE BARRIER - 2" Hour Wall Rating  
Wall Penetration - 2" Hour Rating  
Door - 60 minute (20 min)  
Positive Latch - Required  
Door Closure - Required
- 2 HOUR FIRE & SMOKE BARRIER - 2" Hour Wall Rating  
Wall Penetration - 2" Hour Rating  
Door - 60 minute (20 min)  
Positive Latch - Required  
Door Closure - Required

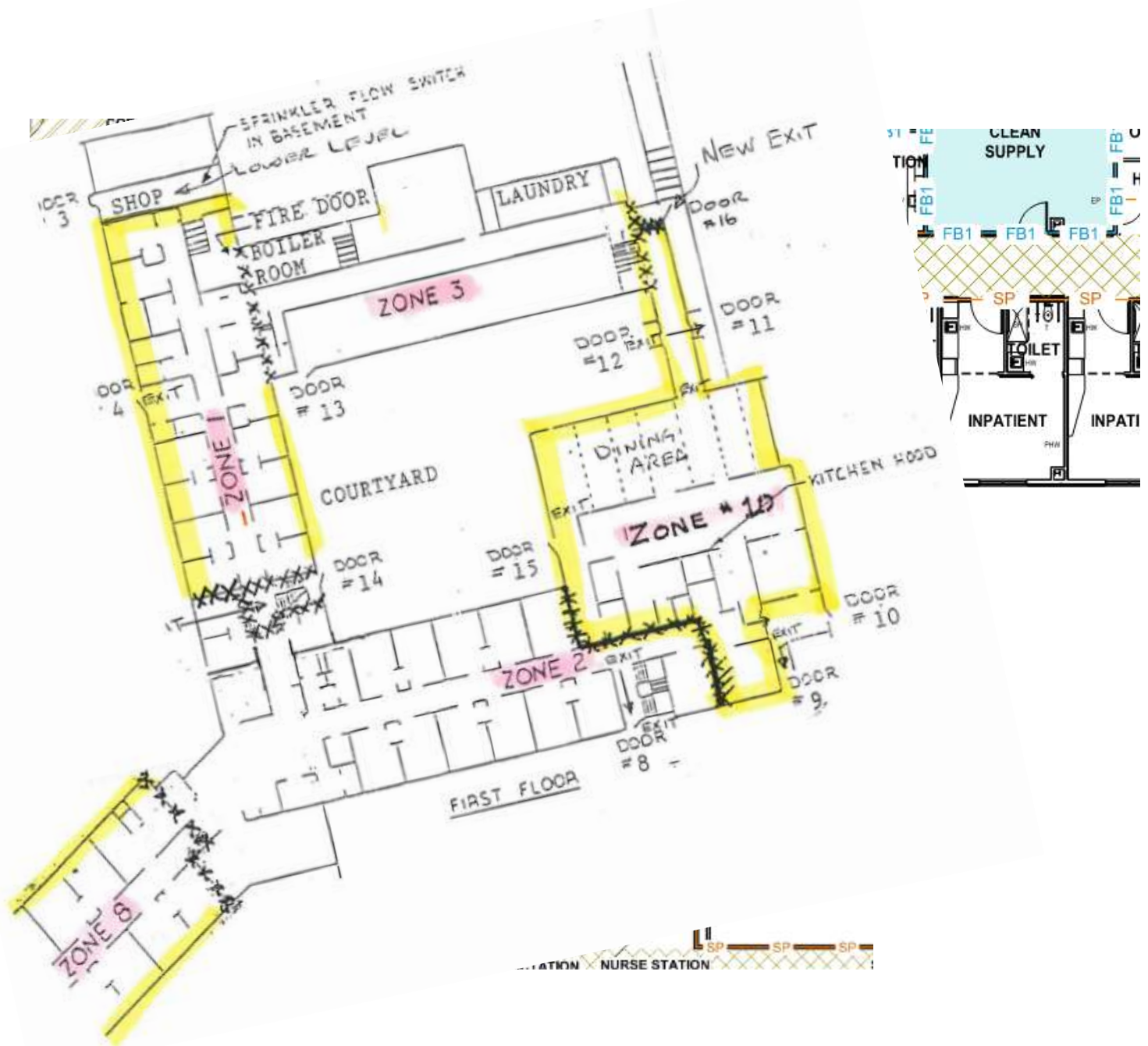
### HAZARDOUS ROOM TYPE KEY

All hazardous rooms identified with one of the following:

SU - Surgical Unit

CM - Chem/Medical Supplies

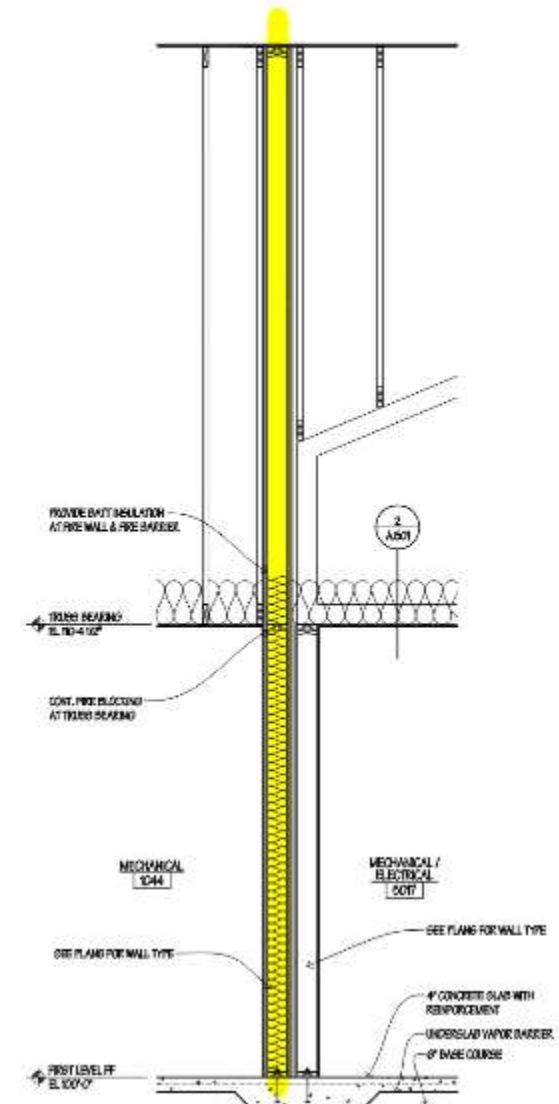
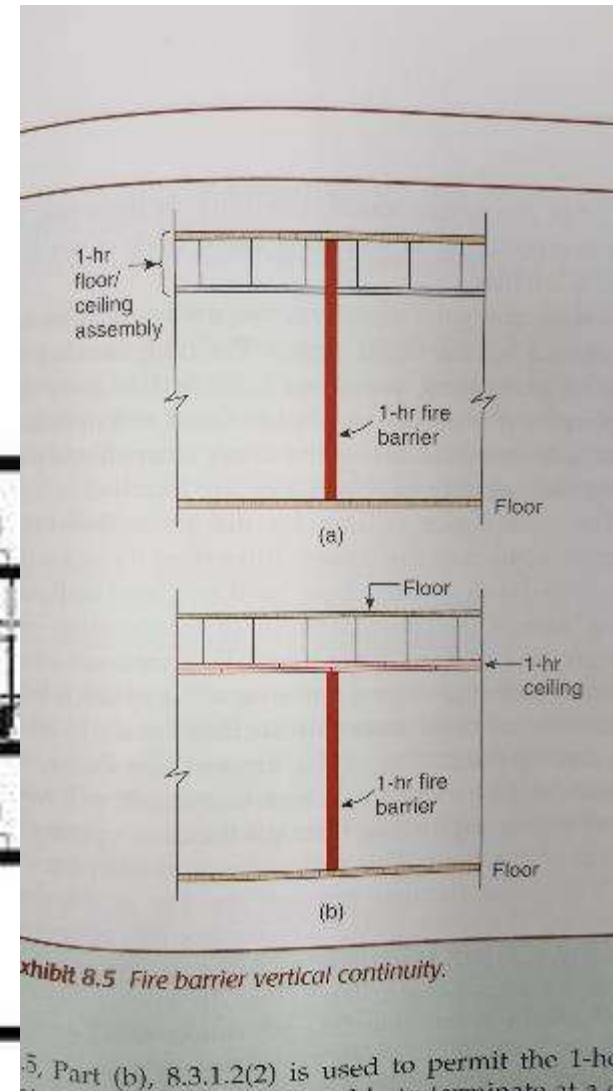
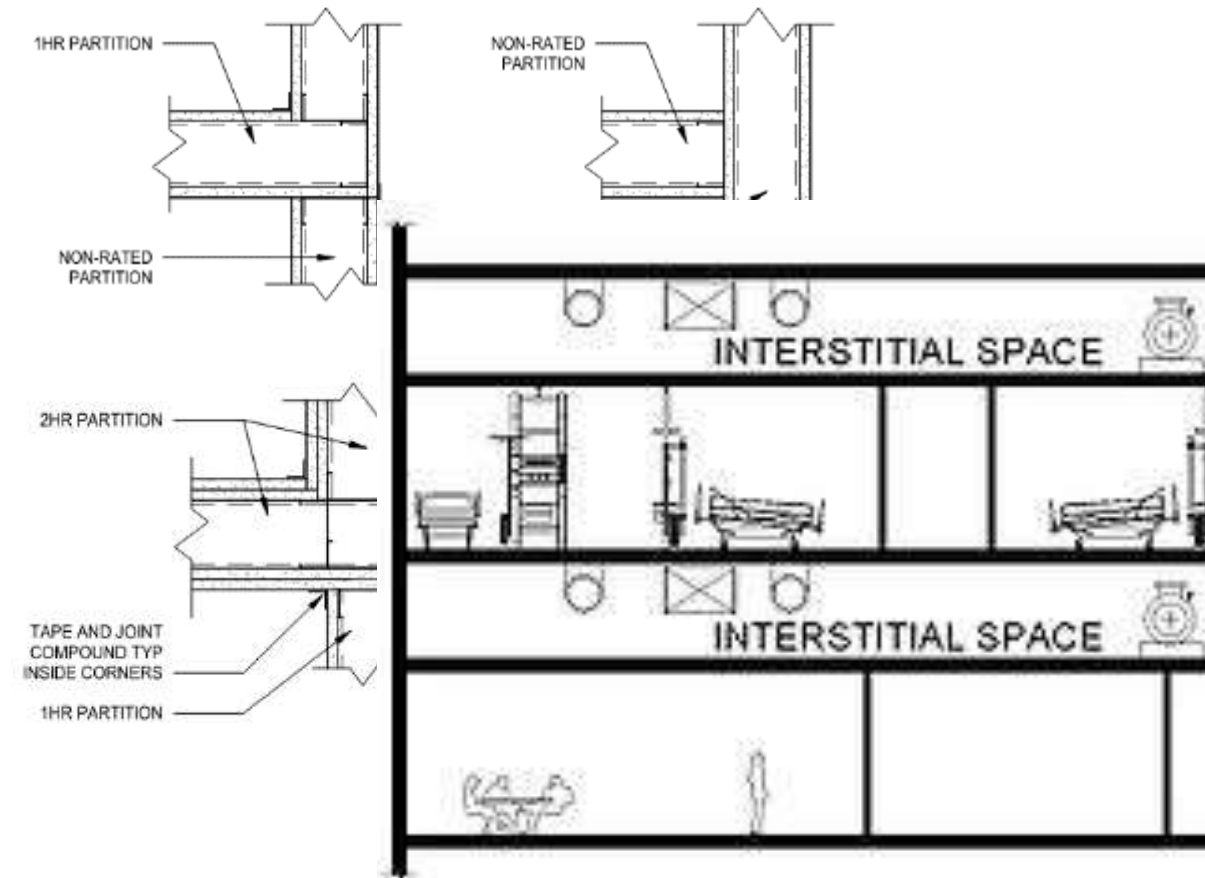
HC - Hazardous Chemical



# Continuity

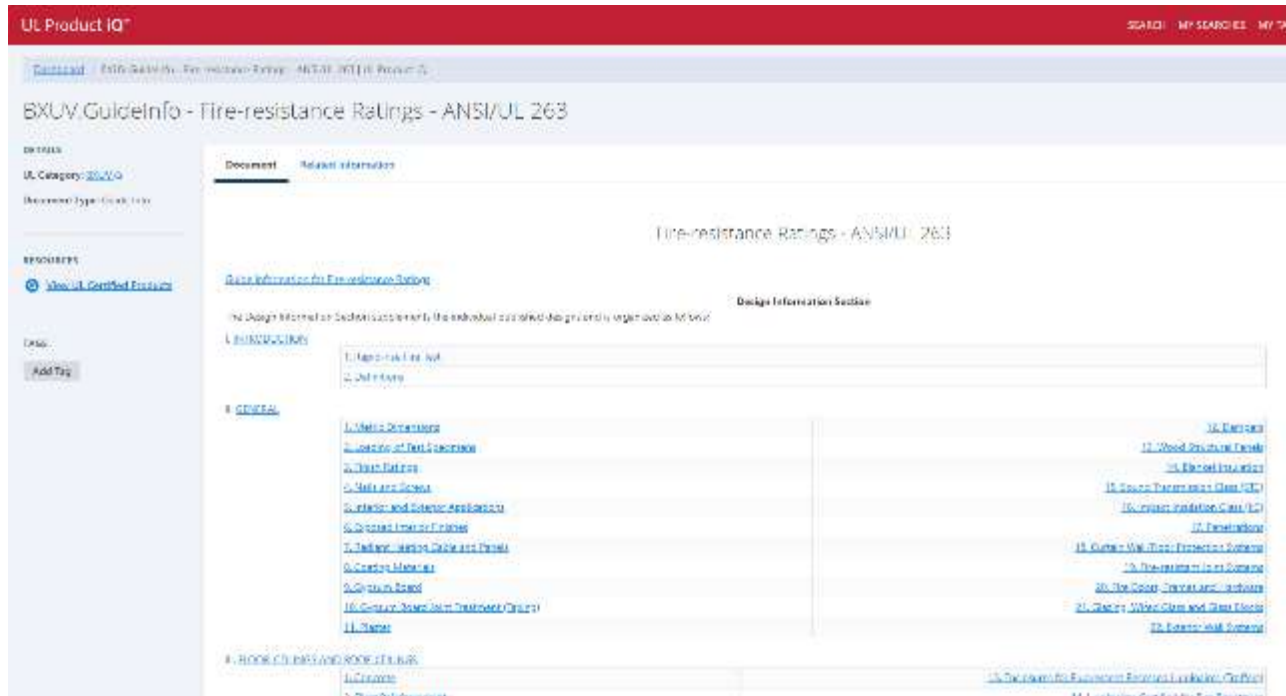
## Horizontal Continuity

## Vertical Continuity





# Construction



### Some Resources:

<https://iq.ulprospector.com/en/profile?e=206790>

<https://gypsum.org/2019/04/ga-600-2018-fire-resistance-and-sound-control-design-manual/>

[http://www.usg.com/content/dam/USG\\_Marketing\\_Communications/united\\_states/product\\_promotional\\_materials/finished\\_assets/us](http://www.usg.com/content/dam/USG_Marketing_Communications/united_states/product_promotional_materials/finished_assets/us)

[g-fire-resistant-assemblies-catalog-en-SA100.pdf](#)

# Construction

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire Resistance Ratings - ANSI/UL 263 Certified for United States

Design Limits and Allowable Variance

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

Design Limits and Allowable Variance

3<sup>7</sup>/<sub>8</sub> IN. 16 GA. NONCOMBUSTIBLE  
STUDS AT 16 IN. O.C.

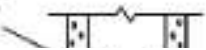


TABLE 722.2.1.4(2)

TIME ASSIGNED TO FINISH MATERIALS ON FIRE-EXPOSED SIDE OF WALL

FINISH DESCRIPTION	TIME (minutes)
Gypsum wallboard	
3 <sup>7</sup> / <sub>8</sub> inch	10
1 <sup>1</sup> / <sub>2</sub> inch	15
5 <sup>5</sup> / <sub>8</sub> inch	20
2 layers of 3 <sup>7</sup> / <sub>8</sub> inch	25
1 layer of 3 <sup>7</sup> / <sub>8</sub> inch, 1 layer of 1 <sup>1</sup> / <sub>2</sub> inch	35
2 layers of 1 <sup>1</sup> / <sub>2</sub> inch	40
Type X gypsum wallboard	
1 <sup>1</sup> / <sub>2</sub> inch	25
5 <sup>5</sup> / <sub>8</sub> inch	40

## 1 Hour Fire-Rated Construction Detail

### Construction Detail

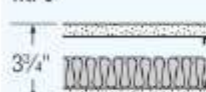
wt. 6



wt. 5



wt. 6



is Canada), respectively.

(Stud Size) with min 1 in. long legs attached to floor and ceiling

(5 in. min base plate; minimum) galvanized steel, attached to

DMPCWES L.L.C. — ProTRAK

MBA METAL FRAMING — ProTRAK

RAM SALES L.L.C. — Ram ProTRAK

STEEL STRUCTURAL PRODUCTS L.L.C. — min 1/4 in. thick



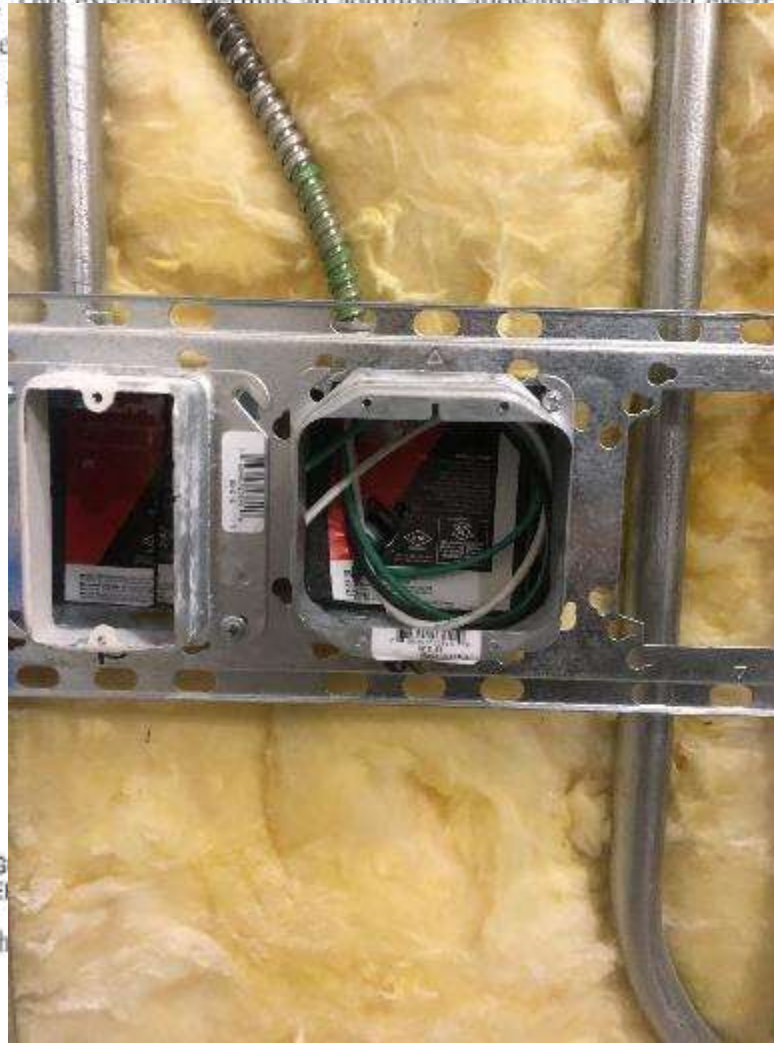
# Construction



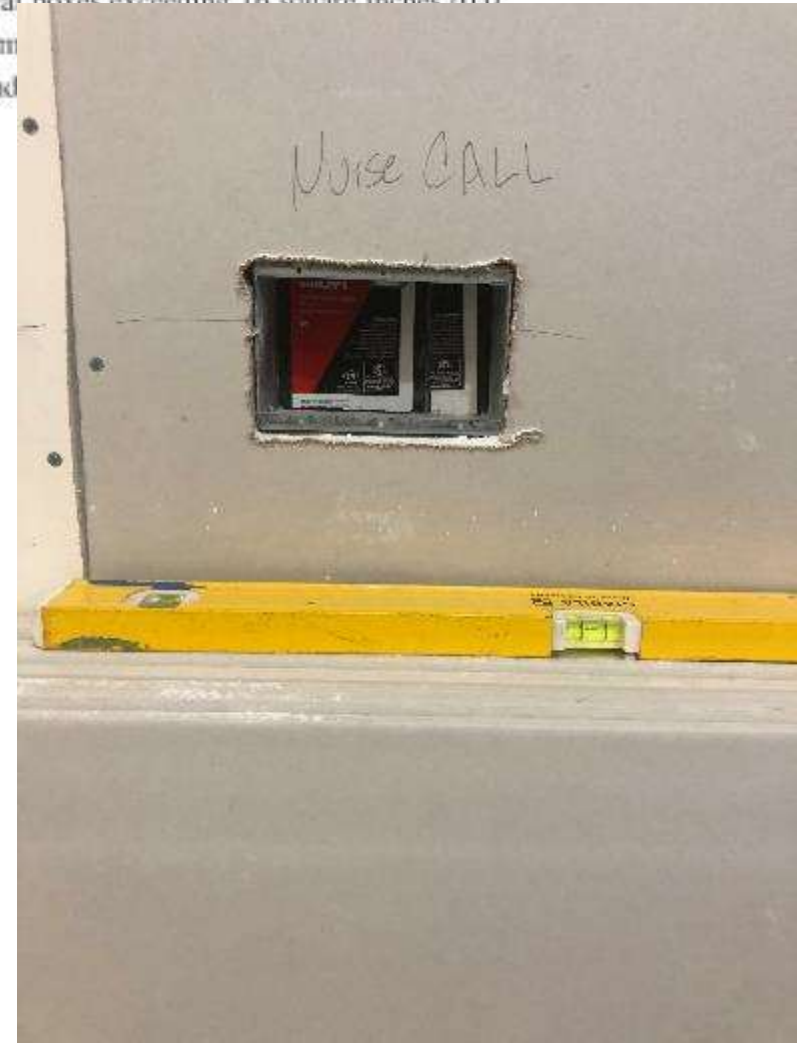
**Ducts and Air-Transfer Openings**  
**IBC Sections 717.5 & 717.6**  
 The following is a summary of the required locations, limitations, testing requirements & ratings for fire & smoke dampers as of 5/1/18. See footnotes.

Item	IBC Sec.	Fire Dampers IBC 717.3.1 IBC 717.3.2.1 IBC 717.3.3.1 IBC 717.3.3.3		Smoke Dampers IBC 717.3.1 IBC 717.3.2.3 IBC 717.3.3.2 IBC 717.3.3.3		Radiation Dampers IBC 717.3.1 717.3.3.4	
		<u>Nonspr.</u> Penetrations Not Allowed	<u>Spr.</u> Penetrations Not Allowed	<u>Nonspr.</u> Penetrations Not Allowed	<u>Spr.</u> Penetrations Not Allowed		
Fire Wall (Party Wall) (FW)	706.1.1 717.5.1	Yes	Yes	Yes	Yes	No	No
Fire Wall (NOT a Party Wall) (FW)	706.8 706.11 717.5.1	Yes	Yes	Yes	Yes	No	No
Horizontal Exit (FW or FB)	706.8 & 707.6 707.3.5 717.5.1.1 717.5.2.1 1025.2	Yes	Yes	No	No	Yes (horizontal membrane penetrations)	Yes
Fire Area Separation (FW, FB or HA)	706.8, 707.6 711.2.4.6 717.5.1 717.5.2 & 717.6.1 & 2 SPS 362.0202(2)(d)	Yes (1)(6)	Yes (1)(6)	(6)	(6)	(6)	Yes (6)
Atrium Enclosure (FB)	404.6 707.3.6 717.5.2	(2)	(2)	(2)	(2)	(2)	Yes
Exit Passageway (FB)	707.3.4 707.7.1 717.5.2, 1023.5 & 1024.6	Yes (1)	Yes (1)	No	No	No	Yes
Incidental Use (FB-vertically, HA- horizontally)	509.4.1 707.6 711.2.4.5 717.5.2 717.6	Yes (1)	Yes (1)	No	No	No	Yes
Separated Use (FB-vertically, HA- horizontally)	508.4 707.6 711.2.4.5 717.5.2 717.6	(2)	(2)	(2)	(2)	(2)	No
Smokeproof Enclosure (FB)	707.4 717.5.2 1023.5 & 1023.11	(2)	(2)	No	Yes (7, 9)	Yes (7, 9)	No
Enclosures for Exit Access Stairways (FB) Corridors-Fire Rated Only (FP, HA)	707.3.2 1023.5 & 6 708.1 & 9 711.2.4.6	Yes (3 & 5)	Yes (3 & 5)	No	Yes (7, 9)	Yes (7, 9)	No

# Construction



OUTLET BOXES IN RATED ASSEMBLIES

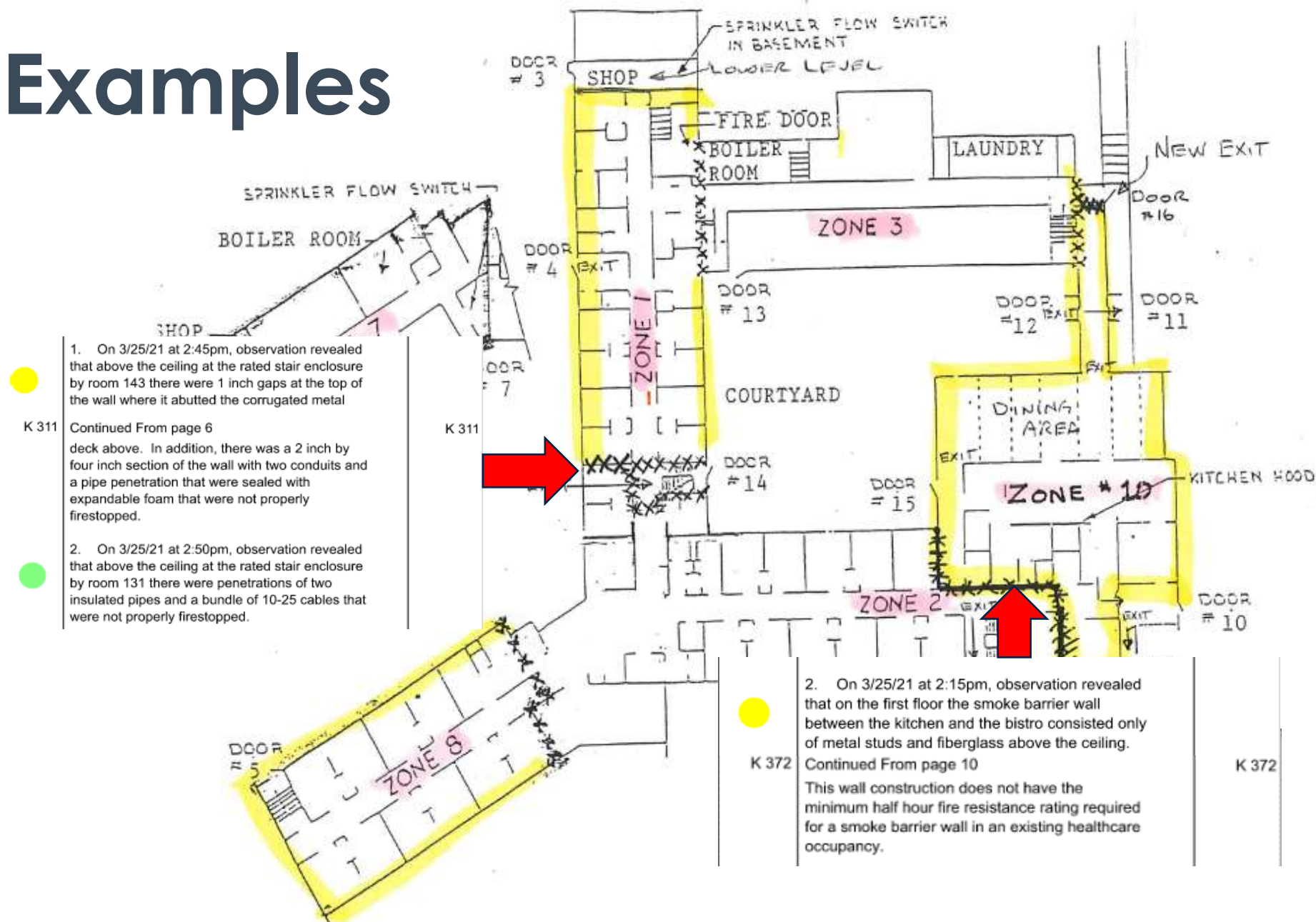




# Construction

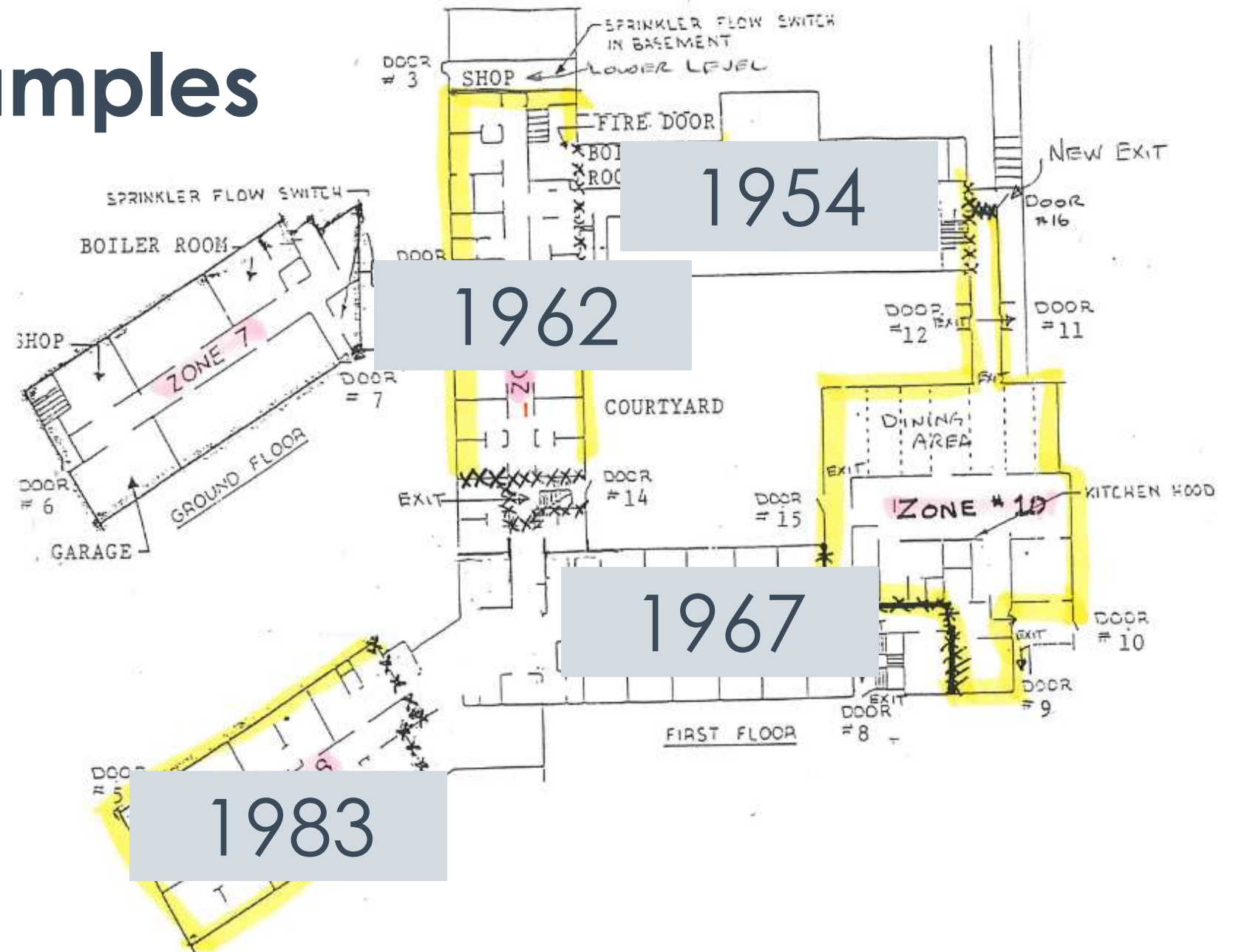


# Case Examples

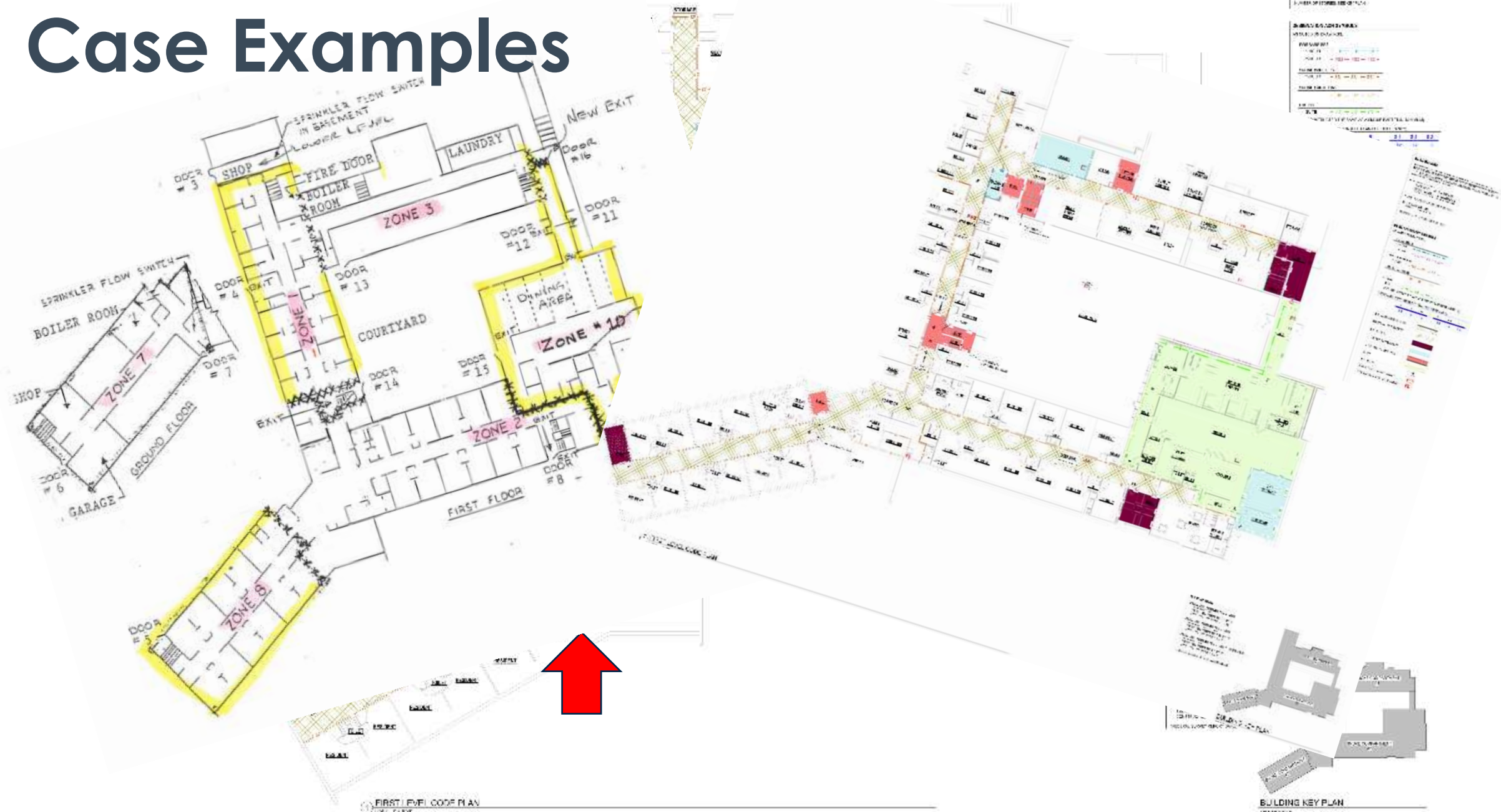




# Case Examples



# Case Examples





# Thank you.

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