

**\*\* Clarification of Residential Occupancy**

By definition we fall under R-1 Occupancy: "residential occupancies containing sleeping units where occupants are primarily transient in nature..." (section 310.1/IBC)

By definition we also are categorized as Congregate Living: "a building or part thereof that contains sleeping units where residents share bathrooms and/or kitchen facilities" (section 310.2/IBC)

Section 310.1, under R-1, states that: "congregate living facilities (transient) with 10 or fewer occupants are permitted to comply with the construction requirements for Group R-3"

**PROJECT SUMMARY:**

Tenant fit-up plan within a 5 Story office building. This tenant will take half of the third floor and the entire fourth floor.

**NFPA 13 Sprinkler**

TYPE 1A Construction on 1st Floor  
Type 2B Construction on 2nd - 5th Floors  
Design based on Section 509.2 - Horizontal Building Separation Allowance

**CODE SUMMARY :**

**Chapter 3- Use and Occupancy Classification Mixed Use)**

**1st Floor Potential Uses**

- 304.1 - Business Group B
303.1 - Assembly Group A-2
309.1 - Mercantile Group M

**2nd Floor - 5th Floor**

**304.1 Business Group B**

310.1 Residential Group R Congregate living facilities (transient) with 10 or fewer occupants are permitted to comply with the construction requirements for Group R-3"

**Chapter 5- General Building Heights and Areas**

**Table 503 Allowable Heights and Areas**

Table with 4 columns: (2B) Group B, (1A) Group A-2, (1A) Group M, (2B) Group R-3, (1A) Group S-2, 4 Stories w/sprinkler, UL, UL, 4 stories, UL, 23,000 SF, UL, UL, UL, UL

Proposed Height -- 5 Stories (4+1)

Proposed Area -- 10,712 square feet

**504.2 Automatic Sprinkler System Increase (Building Height)**

In buildings equipped with an NFPA 13 automatic sprinkler system, the maximum building height is increased by 20 feet and the maximum number of stories is increased by one.

Note: All Use Groups compatible for area

**Table 508.3 Nonseparated Occupancies**

508.3.1 Occupancy Classification Nonseparated Occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space except that the most restrictive applicable provisions of Section 503 and Chapter 9 shall apply.

**508.3.2 Allowable Building Area and Height**

The allowable building area and height of the building or portion thereof shall be based on the most restrictive allowances for the occupancy groups under consideration for the type of construction.

Table with 4 columns: Occupancy/Const. Type, Allow. Area/Height, Actual Area/Height, R3/2B, B/2B, UL/4, 23,000/3+1, 1,370 SF/2, 10,712 SF/3

508.3.3 Separation No separation is required between nonseparated occupancies.

Exception 2: Groups R-1, R-2 and R-3 dwelling units and sleeping units shall be separated from other dwelling or sleeping units and from other occupancies contiguous to them in accordance with the requirements of Section 420.

**-Section 420.2 Separation Walls**

Walls separating dwelling units the same building, walls separating sleeping units in the same building and walls separating dwelling or sleeping units from other occupancies contiguous to them in the same building shall be constructed as fire partitions in accordance with Section 709.

**-Section 420.3 Horizontal Separation**

Floor assemblies separating dwelling units in the same building, floor assemblies separating sleeping units in the same building and floor assemblies separating dwelling units or sleeping units from other occupancies contiguous to them in the same building shall be constructed as horizontal assemblies in accordance with Section 712.

708.4 Shaft enclosures shall have a 2 hour fire resistance rating where connecting 4 stories or more, and shall have a fire resistance rating not less than the floor assembly penetrated but not exceeding 2 hours.

708.8.1 Penetrations other than those necessary for the purpose of the shaft shall not be permitted.

**708.14.1 Elevator Lobby Enclosure**

Not required per exception no. 4... "building is protected by an automatic sprinkler system in accordance with section 903.3.1.1"

**709 Fire Partitions**

**709.1 General**

- The following wall assemblies shall comply:
1. Walls separating dwelling units in the same building
2. Walls separating sleeping units in the same building
3. Corridor Walls

**709.3 Fire-resistance Rating**

Exception: -Corridor walls permitted to have a 1/2 hour fire-resistance rating by Table 1018.1. -Dwelling unit and sleeping unit separations in buildings of Type IIB Construction shall have fire-resistance ratings of not less than 1/2 hour in buildings equipped throughout with automatic sprinkler system in accordance with section 903.3.1.1

**712 Horizontal Assemblies**

712.3 Fire-resistance Rating The fire-resistance rating of floor and roof assemblies shall not be less than that required by the building type of construction.

No rating required per Type 2B construction.

713.1.1 Penetrations of fire resistance-rated walls by ducts (not protected by dampers): Sleeves through walls, in cavity construction, shall be securely fastened (a fire stop assembly is required between sleeve and pipe/duct).

713.3.2 Membrane penetrations shall be limited to 16 square inches each and an aggregate of 100 square inches/100 sf of wall. - Offset boxes by 24" on opposite sides of wall. - Not required at sprinklers with escutcheon plate

**714.1 Individual Protection**

Supporting more than 2 floor, and required to support a load bearing wall, shall be provided with individual encasement protection on all sides for the full length.

714.4 Where fire resistance rated floor/ceiling assemblies are required, voids along curtain wall and floors shall be sealed with an approved system, matching the fire resistance rating of the floor system.

**715.4 Fire Door and Shutter Assemblies**

**Table 715.4**

Table with 4 columns: Type of Assembly, Required Assembly Rating, Min Door Assembly Rating (hrs), Fire Barriers (2 Hr), Other Fire Barriers, Exterior Walls, 2 hours, 1 hour, 2 hours, 1-1/2 hours, 3/4 hour, 1 1/2 hours

**509 Special Provisions**

**509.2 Horizontal Building Separation Allowance**

A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of fire walls, limitation of number of stories and type of construction where all of the following conditions are met: (see diagram on cover sheet explaining how all conditions are met)

- 1. The buildings are separated with a horizontal assembly having a min. 3-hr fire-resistance rating.
2. The building below the horizontal assembly is no more than one story above grade plane.
3. The building below the horizontal assembly is of Type 1A construction.
4. Shaft and stairway enclosures through the horizontal assembly shall have not less than a 2-hr fire-resistance rating.
5. The building above the horizontal assembly shall be permitted to have multiple Group A occupancy uses, each with an occupant load of less than 300, or Group B, M, R or S occupancies. The building below the horizontal assembly shall be protected throughout by an approved automatic sprinkler system, and shall be permitted to be any of the following occupancies: Group M - eash with occupant load less than 300 Group B, M, R
6. The maximum building height shall not exceed the limits set forth in section 503.
7. The maximum building height shall not exceed the limits set forth in section 503.

**Chapter 8- Interior Finishes**

**Table 803.9 Interior Wall and Ceiling Finish Requirements**

Table with 4 columns: Group, Exit Enclosures, Corridors, Rooms and Enclosed Spaces, Class B, Class C, Class C, Class C

**Chapter 9- Fire Protection Systems**

**903.3.1.1 NFPA 13 Sprinkler Systems**

The building will be equipped throughout with an automatic sprinkler system in accordance with NFPA 13.

903.4 Valve controlling water supply for automatic sprinkler system shall be electronically supervised by a fire alarm control unit.

**905 Standpipe Systems**

905.2 Standpipe Systems will be provided in accordance with NFPA 14

905.3.1 Height- Class 1 Standpipes are allowed in buildings equipped throughout with an automatic sprinkler system.

905.4 Class I standpipe hose connections shall be provided in the following locations:

- In every stairway at an intermediate floor level between floors, unless otherwise approved by the fire code official
- Where roof slope is less than 4:12 each standpipe shall be provided with a hose a connection either on the roof or the highest landing of a stairway with stair access to roof.
- On each side of the wall adjacent to exit opening of horizontal exit (Not required where hose stream is reachable).

906 Portable Fire Extinguishers- Required in Group A, B, M, R-2, and S occupancies: provided in accordance with NFPA 10

Exception: in Group A and B occupancies extinguishers only required on each floor.

**907 Fire Alarm and Detection Systems**

**907.2 Where Required-New Buildings and Structures**

Exception 2: Automatic heat detection is not required in buildings with automatic sprinkler system

**1016 Exit Access Travel Distance**

**Table 1016.1 Exit Access Travel Distance**

Table with 3 columns: Occupancy, Max. Distance Sprinklered, Actual Distance, B-Business, R3-Residential, 300', 250', 81', 95'

**1027 Exit Discharge**

1027.1 A maximum of 50 percent of the number and capacity of the exit enclosures is permitted to egress through areas on the level of discharge provided all of the following are met:

- 1. Such exit enclosures egress to a free and unobstructed path of travel to an exterior exit door and such exits readily visible and identifiable from the point of termination of the exit enclosure.
2. The entire area of the level of exit discharge is separated from areas below by construction conforming to the fire-resistance rating for exit enclosure.
3. The egress path from the exit enclosure on the level of discharge is protected throughout by an approved automatic sprinkler system.

**1027.5 Egress Courts**

1027.5.1 - Width the width of egress courts shall not be less than 44"

1027.5.2 Construction and Openings where an egress court serving a building of portion thereof is less than 10' in width, the egress court walls shall have not less than the 1-hour fire-resistance-rated construction for a distance of 10' about the floor of the court. Openings within such walls shall be protected by having a fire protection rating of not less than 3/4 hour.

**Chapter 6- Types of Construction**

**Table 601 - Fire Resistance Ratings for Building Elements**

Table with 4 columns: Building Element, Type 2B, Type 1A, Primary Structural Frame, Bearing Walls, Exterior Walls, Interior Walls, Non-Bearing Walls and Partitions, Exterior, Non-Bearing Walls and Partitions, Interior, Floor Construction and Secondary Members, Roof Construction and Secondary Members, 0 hour, 0 hour, 0 hour, 0 hour, (See Table 602), (See Table 602), 0 hour, 0 hour, 0 hour, 0 hour, 3 hour, 3 hour, 3 hour, 3 hour, 1 1/2 hour

**602.2 Type I And 2 Construction**

Noncombustible materials. Fire retardant treated wood (FRTW) is permitted in limited uses. Other combustible materials are permitted as outlined in Section 603.1.

**Chapter 7- Fire and Smoke Protection Features**

**705 Exterior Walls**

705.2.1 Projections from walls of Type I or II construction shall be of noncombustible materials

**705.5 Fire Resistance Ratings**

Fire Separation Distance of greater than 10 feet, at exterior walls, shall be rated for exposure from the inside. Fire separation less than 10' shall be rated for fire exposure from both sides.

705.6 Exterior walls shall have sufficient structural stability to remain in place for duration of the time required by the fire resistance rating.

- Supporting elements must be fire resistance rated
- Band joist, or supporting beam, must be fire rated
- Only the structural element within the floor system that supports the vertical load of the wall must be fire resistance rated construction

907.2.2 Group B: Not required where combined Group B occupancy load is less than 500

**Chapter 10- Means of Egress**

**1004 Occupant Load**

Table with 4 columns: Table 1004.1 Maximum Floor Area Allowances per Occupant, Business, Residential, 100 gross sf, 200 gross sf, 9,292/100=92, 1,420/200=7, 3rd Floor, 4th Floor, 10,712/100=107, N/A

**1005 Egress Width**

Table with 4 columns: Function of Space, Location, Floor Area, Occupants, Business, Levels 2-5, 10,712 SQFT, 107, 32.1"

Notes: 1. A minimum of 2 egress or stair locations provided at each floor (36" wide doors and 44" wide stairs)

**1007 Accessible Means of Egress**

1007.2.1 Elevators Required. In buildings where a required accessible fire four or more stories above a level of exit discharge, at least one accessible means of egress shall be an elevator. (Backup Generator Req'd).

**1007.3 Stairways**

Clear width 48". Not Required in buildings with automatic sprinkler system. Exception no. 2

1007.4 Elevators Exception 2: Area of refuge not required if building equipped with automatic sprinkler system.

1007.8 Two-way communication system shall be provided at each elevator landing.

1007.10 Directional signage shall be provided at elevator landings.

**1008 Doors, Gates and Turnstiles**

1008.1.1 Size of Doors- Minimum Clear width = 32", maximum leaf width 48" Note: Non-egress doors are sized to meet Accessibility requirements per 521 CMR.

1008.1.5 Provide a level landing on each side of door, except at exterior locations with 2% slope pitch for drainage.

1008.1.8 48" plus door width required minimum space between doors in series.

1008.1.9.10 Interior stairway means of egress doors shall be openable from both sides Exception 1: Stairway discharge doors shall only be locked from the opposite side.

1008.1.10 Doors serving an occupancy load of 50 or more in Group A shall be provided with panic hardware. Electrical rooms with equipment rated at 1200 amps or more will also require panic hardware.

**1009 Stairways**

1009.1 Stairway width- Minimum required width of 44" is provided.

1009.12 Handrails required on each side of stair.

1009.13. Stairway to Roof- In buildings four or more stories in height, one stairway shall extend to the roof surface. In buildings without an occupied roof, access to the roof from the top story shall be permitted to be by an alternating tread device.

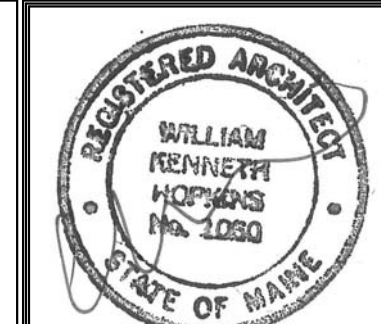
1013.1 Guard (rails) are required at stairs more than 30" above the floor and within 36" horizontally to the edge of the open side.

**1015- Exit and Exit Access Doorways**

1015.1 Two exits required from any space except as permitted by Table 1015.1

1015.2.1 Two Exits or Exit Access Doorways= Exit doors shall be placed not less than 1/3 (exception #2) the length of the maximum overall diagonal dimension.

Table with 4 columns: Fire Area, Max. Diagonal, 1/3 Min., Actual, 3- 10,712sf, 4- 10,712sf, 168'-0", 168'-0", 56'-0", 56'-0", 58'-2", 58'-2"



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CS1.2