

18. Fire Safety Plan and Code Summary



WHIPPLE-CALLENDER ARCHITECTS

3.26.18 – 28 VANNAH STREET CODE REVIEW SUMMARY- INCLUDES REFERENCE TO PORTLAND ZONING REGS., FIRE DEPARTMENT INFORMATION, IBC 2009, NFPA 2009

Portland Zoning- 2009- Relevant sections:

14-250 Dimensional Req.:

B-1 Neighborhood Business zone- permitted uses, new Apartment/ multifamily (7 units) and Commercial space for business use.

No minimum lot size

Setback requirements

Street frontage 20' min. We are in excess of 20'

Front setback- Average neighboring depth

Side setback- 10' max.

Rear yard- 10' abutting residential zone

Max. permitted imperv. surface – 90%

Max. permitted bldg. height is 35'

Parking- 17 total spaces

IBC- 2009- Relevant sections:

The building use is defined as Business for the Commercial space and R-2 Apartments.

Per table 503 the Type V - R/A structure (with associated B space at grade) can have 12,000 s.f. per floor and be 3 stories while remaining un-sprinkled. WE ARE SPRINKLED, WILL PROTECT AND DRAFTSTOP THE WOOD FRAME, AND DO NOT EXCEED THE S.F. LIMITS

Table 508.4 indicates 1 hr. separation between Business and Residential uses in sprinkled facilities. WE COMPLY

Table 601 - The new structure is sprinkled, Type V-A protected. Protected elements including framing, all bearing walls, floor construction and roof construction.

Section 709 - The walls are fire partitions and the floors horizontal assemblies.

709.3 Fire resistance rating- Fire partitions shall be rated one hour. WE COMPLY

709.4 Continuity- Fire assemblies shall be rated one hour. WE COMPLY

709.4 Fire-blocking- All walls separating dwelling units and stairs shall be fire-blocked at the top of the demising partition typical. WE COMPLY

712.4 Continuity (horizontal)- Assemblies between apartments, storage and ground floor commercial shall be rated one hour. WE COMPLY

713 Penetrations at Walls and Assemblies- Seal to maintain rating of Fire Partition and Assemblies. WE WILL COMPLY



WHIPPLE-CALLENDER ARCHITECTS

Fire Department checklist- please refer to plan for travel distance, smoke detectors, CO2 detectors, alarm panel

KNOX BOX SHALL BE PROVIDED

1. Owner- **The 28 LLC**
2. Architect- **Whipple Callender Architects, PO Box 1276 Portland, Maine 04101 (775-2696)**
3. Proposed use- **R-2 Apartments and ground floor Commercial**
4. Square footage of structure- **3,240 s.f. gross s.f. per floor**
5. Elevation of all structures **10' floor to floor**
6. Proposed fire protection of all structures- **fully sprinkled- 13 R**
7. Hydrant Locations- **Toward back cove, opposite side at 55 Vannah St.**
8. Water main sizes and locations- **Size unknown- main on opposite side of street.**
9. Access to any Fire Department Connections-**Connection will be provided at parking side**
10. Access to all structures (2 sides Min.)- **Clear access to 3 sides**
11. A code summary shall be included referencing NFPA and all fire department technical standards- **Attached**

NFPA 101-2009 – Chapter 30: New Apartment Buildings (In this case, three stories, seven total apartments and ground floor Commercial space).

Table 6.1.14.4.1 (b) Required Separation of Occupancies

The Table indicates a separation between Business and Apartment uses of 1 hr. when the building is protected throughout by an approved sprinkler system. **A 1 HR. SEPARATION BETWEEN APARTMENT AND BUSINESS/ COMMERCIAL WILL BE PROVIDED.**

30.1 General Requirements

30.1.1.1 The requirements of this chapter shall apply to new apartment occupancies.

30.1.2 Multiple Occupancies

30.1.2.2.1 In buildings protected by an automatic sprinkler system in accordance with 9.0, dwelling units of an apartment building shall be permitted to have their sole means of egress pass through a non residential occupancy in the same building provided the following criteria are met:

1. The dwelling unit of the apartment building shall comply with Chapter 30
2. The sole means of egress shall not pass through a high hazard contents area.

WE MEET THE CRITERIA.

30.1.2.3 Multiple dwelling units shall be permitted to be located above a nonresidential occupancy only where one of the following conditions are met.

1. Where the dwelling units of the residential occupancy and exits therefrom are separated from the non-residential occupancy by construction having a 1 hour fire rating.
2. Where the nonresidential occupancy is protected throughout by an approved supervised automatic fire alarm system per 9.7

WE MEET BOTH CONDITIONS.

30.2 Means of Egress Requirements

30.2.1.1 Means of escape from a dwelling unit to the outside of the building shall be in accordance with Chapter 7 and this chapter. **WE COMPLY WITH CHAPTER 7- REFER TO STAIR DETAILS**



WHIPPLE-CALLENDER ARCHITECTS

30.2.1.2 Means of escape within a dwelling unit shall comply with the provisions of Section 24.2 for one and two family dwellings. WE MEET EGRESS REQUIREMENT WITH TRAVEL DISTANCE, PRIMARY EGRESS STAIR AND SECONDARY WINDOW AS MEANS OF EGRESS.

30.2.2.3.1 Stairs complying with 7.2.2 shall be permitted. MIN. 3'8" WIDE WITH 11" FIN. TREAD, 7" RISER AND COMPLIANT HANDRAIL BOTH SIDES.

30.2.4 Number of Exits

30.2.4.3 A single exit shall be permitted in buildings where the total number of stories does not exceed four, provided all the following conditions are met:

1. The building is protected throughout by an approved, supervised automatic sprinkler system in accordance with 31.3.5
2. The exit stairway does not serve more than ½ of a story below the level of exit discharge.
3. The travel distance from the entrance door to any dwelling unit to an exit does not exceed 35 feet.
4. The exit stairway is completely enclosed or separated from the rest of the building by barriers having a minimum 1 hour fire resistance rating.
5. All openings between the exit stairway enclosure and the rest of the building are protected by self closing doors having a minimum 1 hr. fire resistance rating.
6. All corridors serving as access to the exits have a min. ½ hr. fire resistance rating.
7. Horizontal and vertical separation having a min. ½ hr. fire resistance rating is provided between dwelling units. WE MEET THE ABOVE CONDITIONS 1 THRU 7.

7.3 Capacity of Means of Egress

7.3.4.1 In existing buildings, the width of exit access shall be permitted to be not less than 36" EXIT ACCESS WILL TYPICALLY BE IN EXCESS OF 28".

30.2.9 Emergency lights shall be provided in buildings 4 or more stories in height or with more than 12 dwelling units, unless each unit has a direct exit to the outside of the building at grade level- WE ARE NOT REQUIRED TO HAVE EMERGENCY LIGHTS AS WE ARE 3 STORIES, LESS THAN 12 DWELLING UNITS.

30.2 Means of Egress Components

30.2.2.1.2 In buildings protected throughout with an approved, supervised automatic sprinkler system in accordance with 30.3.5 , exit enclosures shall have a minimum 1 hr. fir resistance rating and doors shall have a minimum 1 hr. fir resistance rating . WE WILL PROVIDE SEPARATIONS & DOORS AS REQUIRED

30.2.2.2 Doors

30.2.2.2.1 No door in any means of egress shall be locked against egress when the building is occupied. EGRESS DOORS WILL ALWAYS BE OPERABLE FROM INSIDE THE APARTMENT & GROUND FLOOR VESTIBULE.

30.2.2.3 Stairs

30.2.2.3.1 Stairs complying with 7.2.2 shall be permitted. WE WILL COMPLY WITH THE REQUIREMENTS OF 7.2.2 – 7" MAX. RISER, 11" FIN. TREAD AND 3'8" MIN. FIN. EGRESS WIDTH.

30.2.5 Arrangement of Means of Egress

30.2.5.1 Access to all required means of egress shall be in accordance with Section 7.5



WHIPPLE-CALLENDER ARCHITECTS

30.2.5.3.2 No common path of travel shall exceed 50' in buildings protected throughout by an approved, supervised automatic sprinkler system installed in accordance with 30.3.5. Travel within a dwelling unit shall not be included when calculating common path of travel. OK- NO COMMON PATH

31.2.6.2 Travel distance, from areas other than those within a living units, to the exit, shall not exceed to a corridor door shall not exceed 125 feet in buildings protected throughout by an approved, supervised automatic sprinkler system installed in accordance with 30.3.5. NO TRAVEL DISTANCE- SINGLE EGRESS STAIR

30.2.6.4 Travel distance within a dwelling unit to a corridor door shall not exceed 250 feet in buildings protected throughout by an approved, supervised automatic sprinkler system installed in accordance with 30.3.5. OUR MAXIMUM TRAVEL DISTANCE WITHIN AN APARTMENT IS APPROXIMATELY 40'

30.2.9 Emergency lights shall be provided in buildings 4 or more stories in height or with more than 12 dwelling units, unless each unit has a direct exit to the outside of the building at grade level- WE ARE NOT REQUIRED TO HAVE EMERGENCY LIGHTS AS WE ARE 3 STORIES, LESS THAN 12 DWELLING UNITS.

30.3.2.1.1 Boiler rooms, Laundry and storage areas require 1 hr. rated separation.- WE WILL PROVIDE 1 HR. SEPARATION AT BOILER ROOM, LAUNDRY AND STORAGE AREAS.

30.3.3.2 Interior wall and ceiling finish- WE WILL APPLY CLASS A INTERIOR PAINTS AND FINISHES TYPICALLY.

30.3.4.1 Detection, Alarm and Communication Systems

30.3.4.1.1 Emergency lights shall be provided in buildings 4 or more stories in height or with more than 11 dwelling units shall be provided with a fire alarm system in accordance with Section 9.6 WE ARE NOT REQUIRED TO HAVE EMERGENCY LIGHTS AS WE ARE 3 STORIES, LESS THAN 11 DWELLING UNITS.

30.3.4.2 Initiation

30.3.4.2.2 Initiation of the required fire alarm system by manual means shall not be required in buildings 4 or fewer stories in height, containing not more than 16 dwelling units and protected throughout by an approved, supervised sprinkler system installed in accordance with 30.4.2.2. THE ALARM SYSTEM SHALL NOT HAVE MANUAL PULL STATIONS

30.3.4.3 Notification

30.3.4.2.1 Occupant Notification shall be provided automatically in accordance with Section 9.6.2 and the following shall also apply:

1. Visible signals shall be installed in units for the visually impaired. HORNS AND STROBES WILL BE INSTALLED AT BEDROOMS AND LIVING AREAS TYPICALLY
2. Positive alarm system in accordance with 9.6.3.4 shall be permitted.

30.3.4.3.4 Annunciation and annunciation zoning shall not be required in buildings 4 or fewer stories in height containing not more than 16 units and protected throughout by an approved, supervised automatic alarm system in accordance with 30.3.5. NO ANNUNCIATOR PANEL WILL BE INSTALLED

30.3.4.3.5 Fire Department notification shall be accomplished in accordance with 9.6.4. WE WILL PROVIDE NOTIFICATION PER OPTIONS LISTED IN 9.6.4



WHIPPLE-CALLENDER ARCHITECTS

31.3.4.4.2 Automatic smoke detection shall be installed as follows:

1. Smoke detectors shall be installed in all common areas and work spaces outside the living unit such as exit stairs, egress corridors, lobbies, storage rooms, equipment rooms, and other tenantless spaces in environments that are suitable for proper smoke detector operation.
2. Heat detectors shall be located within each room of the living unit.

WE PLAN ON INSTALLING HARD WIRED SMOKE DETECTORS AND CO2 DETECTORS AS REQUIRED.

30.3.4.5 Smoke Alarms

30.3.4.5.2 Smoke alarms shall be required outside every bedroom per 9.6.2.10 and 31.3.5.4 . **SMOKE DETECTORS WILL BE LOCATED OUTSIDE BEDROOMS AND ALL LEVELS INCLUDING THE BASEMENT**

30.3.2.1.1 Hazardous Area Protection

Boiler and fuel fired heating rooms serving more than a single dwelling unit. 1 hour or sprinklers. **THE BOILER ROOM & MECHANICAL SPACES WILL BE PROTECTED WITH 1 HR. RATED WALLS AND CEILING AND SPRINKLER COVERAGE.**

NFPA 101-2009 – Chapter 38: New Business Occupancies- LIMITED GROUND FLOOR SPACE WITH 2 MEANS OF EGRESS

38.1 General Requirements

38.1.1.1- The requirements of this chapter shall apply to existing buildings or portions thereof currently occupied as business occupancies.

38.2- Means of Egress Requirements

38.1.2.1.1- All means of egress shall comply with Chapter 7 and this chapter. . **WE COMPLY**

38.2.2 Means of Egress Requirements- . **WE COMPLY- PROVIDE 2 MEANS AT GRADE**

38.2.4 Number of Exits- **WE COMPLY- PROVIDE 2 MEANS AT GRADE**

38.2.4.1 Exits shall comply with the following, except as otherwise permitted by 38.2.4.2 through 37.2.4.5. **WE WILL PROVIDE 2 MEANS OF EGRESS FROM THE BUSINESS SPACE, BOTH TO EXTERIOR GRADE**

38.2.5 Arrangement of Means of Egress- refer to 38.2.4.1 above

38.3.4 Detection, Alarm and Communication Systems

38.3.4.1 General. A fire alarm system in accordance with Section 9.6. shall be provided in all business occupancies where any one of the following conditions exist.

1. The building is 3 or more stories in height
2. The occupancy is subject to occupancy by 50 or more occupants above or below the level of exit discharge.
3. The occupancy is subject to 300 or more total occupants.

NONE OF THE CONDITIONS EXIST, THE FIRE ALARM WILL BE ACITIVATED BY THE SPRINKLER SYSTEM.

38.3.4.2 Initiation. Initiation of the fire alarm system shall be by one of the following means: (2) Approved automatic sprinkler system that complies with 9.6.2.1(3) and provides protection throughout the building , plus a minimum of one manual fire alarm box in accordance with 9.6.2.6. **THE FIRE ALARM WILL BE ACITIVATED BY THE SPRINKLER SYSTEM.**



WHIPPLE-CALLENDER ARCHITECTS

38.3.4.3- Occupant Notification- During all times that the business occupancy is occupied, the required fire alarm system, once initiated, shall activate an alarm in accordance with 9.6.3 throughout the building , and positive alarm sequence in accordance with 9.6.3.4 shall be permitted. FINAL NOTIFICATION PER FIRE ALARM PERMIT TO BE FILED WITH THE CITY OF PORTLAND