FIRE RISK MANAGEMENT, INC
1 Front St., Bath, ME 04530
207/442-7200 [207/221-1295 (fax)]
www.fireriskmgt.com

RESURGAM CITY OF PORTLAND, MAINE
Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date:
Date: 10/16/14

Memo Report

From: W. Mark Cummings, P.E.

To: Mr. Bill Hopkins; Archetype Architects

Subject: **Fire Protection & Life Safety Code Review; West Wing of the Brick North Building at Thompson's Point**

As requested, Fire Risk Management, Inc. (FRM) reviewed the updated building information you provided with regards to the plans for the renovations and initial tenant "fitout" of the West Wing of the (existing) Brick North building located at Thompson's Point in Portland, ME. It is understood that the west wing of the building is to be renovated in a couple of phases; with the initial phase consisting primarily of the 1st floor level to accommodate the area to be occupied by the Circus company [Assembly (A-4) occupancy]. However, this review continues to address the proposed design for the final configuration of the west wing; which will incorporate all phases of the proposed renovations.

The focus for this review was to evaluate the fire protection and life safety features of the proposed design for the west wing of the building to ensure that all applicable codes, regulations, and ordinances are continuing to be adequately addressed. The primary codes and regulations used as reference for this review included;

1. The Maine Uniform Building and Energy Code "MUBEC" (2009 IBC with amendments).
2. The Fire Code®, NFPA 1; 2009 ed.
3. The Life Safety Code®, NFPA 101; 2009 ed.
4. The City of Portland Code of Ordinances; primarily Chapter 10, *Fire Prevention and Protection,* (Rev. 1-20-11),
5. City of Portland Technical Manual, Section 3 – Public Safety, (Rev. 6/17/11), and
6. City of Portland Fire Department Rules and Regulations.

DISCUSSION

This specific review of the Brick North building focuses primarily on the western end (wing) of the Brick North Building and the various occupancies contained therein and therefore highlights those requirements outlined by Life Safety Code® and the MUBEC. This review is based on the drawings provided by Archetype Architects; dated 08/13/2014.

Building Information

Building Classification: Assembly, Ordinary hazard (NFPA 101 § 6.1.2.1 & 6.2.2.3)

Non-separated, mixed use: A-1, A-4, B, M, and S-1 (MUBEC 303.1, 304.1 & 311.2)

Height and Area: 29' 6" (2 Story), approx. 32,400SF (footprint area)

Construction type: Masonry, partially non-combustible, unprotected; NFPA 101 Type III (200) or MUBEC Type IIIB.

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For a two-story structure that is protected throughout by aut systems, the maximum permitted height is 3 stories, 75 ft; v permitted area of 34,000 SF, per MUBEC Table 503, Sections An additional 30% increase in the allowable area is permitted s is provided with road frontage on three sides; for a total al 44,200 SF.

Type III (200) construction is allowed per NFPA 101 § 1 occupant load does not exceed 1,000 people. Since the building is currently classified as a "non-separated" mixed use occupancy, the entire building must comply with the most restrictive requirements associated with the various occupancy types to be located within the building; in this instance, the Assembly occupancy. As outlined below, the estimated occupant load for this building has been calculated as being less than 850. However, this is based on an assumption that the majority of the space within the eastern section of the building that is not currently assigned to a specific tenant will be used primarily to support "business" occupancies. If, in fact, these unassigned areas are used for another occupancy type that will have a higher occupant loading, whereby the total for the building exceeds 1000, to comply with the Life Safety Code® requirements, it would be necessary for the Assembly occupancies to be separated from the remainder of the building by barriers having a fire-resistance rating of at least one hour.

Interior Finish: Due to the installation of fire sprinkler systems, the interior wall and ceiling finishes are permitted to be either Class A, B, or C in both the Assembly and Business areas per NFPA 101 § 10.2.8, 12.3.3.2 & 38.3.3.2; whereby the sprinkler system allows for a reduction in one Class level based on the original requirements within Chapters 12 and 38.

Due to the presence of sprinkler systems, no fire rated requirements would be imposed on the floor finish per NFPA 101 § 10.2.8, 12.3.3.5 and 38.3.3.5, except within the rated exit enclosures of the west wing area. The floor construction of these enclosures will need to be of at least a Class II material. The MUBEC (804.4.1) has a requirement that exit enclosures in fire sprinkler-protected buildings use materials that comply with the DOC FF-1 "pill test."

Extinguishment: Portable fire extinguishers are required to be installed in this building in accordance with NFPA 10 (MUBEC 906.1).

Means of Egress

Occupant Load: A total occupant load of 821 people is estimated for the building

Occupant load is based on the planned use for the various areas as noted on the most recent design drawings, along with the occupant load factors required in NFPA 101 Table 7.3.1.2 and MUBEC Table 1004.1. For those areas of the building that have yet to be assigned a "use type" (tenant), the occupant load factor for a business occupancy was used. The estimated maximum occupant load for the two levels of the west wing is 588 people.

Number of Exits: The most recent plans provided indicate a total of eleven (11) exits being installed in the building; five (5) from the west wing and six (6) from the east wing.

Based on the current total estimated building occupant load, a minimum of three (3) exits would be required from the building per NFPA 101 § 7.4.1.2; albeit the codes continue to require a minimum of at least two means of egress from all stories or portions thereof. The latest plans for the building provide ten

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independent means of egress leading from the interior of the bu
the exterior. Where the occupant load of a room or space exceed
independent, remote means of egress are provided from those
All areas of the west wing that are required to have access t
egress, comply with this requirement.

Egress Capacity: 2,650 people (approx. 1190 from west wing)

The provided egress capacity for the building greatly exceeds the minimum required capacity for the building. Based on the requirements for a main entrance for assembly occupancies, the main entrance capacity for the assembly space in the west wing must have the capacity to accommodate at least ½ of the entire occupant load per NFPA 101 § 12.2.3.6.2. This requirement is easily being accommodated by the proposed main entrance doors to the assembly area. All areas of the building are currently being provided with adequate means of egress; both numbers and capacities.

Distance Limitations: *Dead end corridor*: Allowed 20 ft per NFPA 101 § 12.2.5.1.3 and MUBEC 1018.4 for assembly occupancies (up to 50 ft in business occupancies). The current building design includes no dead-end corridors exceeding these limitations.

Common path of travel: Allowed 20 ft or up to 75 ft where serving less than 50 people in assembly occupancies per NFPA 101 § 12.2.5.1.2. As currently design, the building complies with these requirements.

Exit access travel distance: Allowed 250 ft in assembly occupancies per NFPA 101 § 12.2.6.2. All areas of the building are currently in compliance with these requirements.

All distance limitations were determined based on the installation of a supervised, automatic fire sprinkler system(s) throughout the building; regardless of whether or not areas are yet occupied by tenants.

Egress Marking: Illumination should be provided in accordance with NFPA 101 § 7.8 and MUBEC 1101.2.

Emergency lighting should be provided in accordance with NFPA 101 § 7.9 and MUBEC 1006.

Egress signs shall be provided in accordance with NFPA 101 § 7.10 and MUBEC 1011.1.

Fire Protection Systems

Fire Sprinkler System: This building is required to be protected throughout by an automatic fire sprinkler system(s).

It is reported that the building will be provided with automatic fire sprinkler systems, which are assumed to be compliant with NFPA 13 and will be properly supervised as required by MUBEC 903.2.4 & 903.3.1.1. All areas of the building must be provided with sprinkler coverage prior to any areas being occupied by tenants.

Fire Alarm and Notification System: A fire alarm / notification system is required for th there will be more than 300 occupants (NFPA 101 § 12.3.4.1.1) system will also monitor the automatic sprinkler system. building must be provided with adequate alarm/notification dev areas being occupied by tenants.

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Consideration was not given for any specific storage and/or equipment configura building, since no plans were provided that included such information. The layou building will need to be arranged so that any storage or other operations do not obstruct access to the means of egress.

SUMMARY & RECOMMENDATIONS

Based on a review of the updated plans provided, primarily for the west wing of the building, and if the assumptions regarding the potential use of the east wing of the building as currently designed, remain valid and the fire protection and life safety systems (sprinklers, exit signs, etc.) as outlined above are provided, the Brick North building will be compliant with all applicable codes and regulations. However, if the final plans for tenant use in the eastern wing of the building determine that the overall occupant load for the building is likely to exceed 1000, then it will be necessary to provide proper fire separation within the building to separate the Assembly occupancy from the remainder of the building. Given the costs associated with a potential retrofit of any fire-rated barrier, it is recommended that if the potential exists for the building's occupant load to exceed 1000, consideration be given to including the necessary fire-rated barriers within the building's initial design/construction plan.

Should there be any questions regarding this assessment and the recommendations contained herein, please do not hesitate to contact me.

W. Mark Cummings, P.E.
Principal Engineer