Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 01/22/14

# Press Hotel

## Life Safety Review

## 119 Exchange Street
## Portland, Maine

Prepared by:

*FIREPRO*® Incorporated

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Revision 1

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## Introduction

The scope of this report is intended to document the results of the review of fire pr safety criteria for the Press Hotel. This facility is located at 119 Exchange Street i Maine. The building is existing and it was formerly used as a newspaper office an facility. It will be undergoing a change in occupancy to a hotel. As we understand, the building is currently vacant.

*FIREPRO®* makes all reasonable efforts to incorporate practical and advanced fire protection concepts into its advice. The extent to which this advice is carried out affects the probability of fire safety. It should be recognized, however, that fire protection is not an exact science. No amount of advice can, therefore, guarantee freedom from either ignition or fire damage.

## Reference Documents

- Maine Uniform Building Code (MUBC)
- 2009 International Building Code (IBC)
- 2009 International Existing Building Code (IEBC)
- NFPA 101 Life Safety Code – 2009 Edition, with City of Portland Amendments
- City of Portland Fire Safety Regulations

## Building Description

The Press Hotel has seven stories above grade, with a basement and a sub-basement. The sub-basement proposed occupancy is accessory storage and mechanical equipment. The basement level proposed occupancy is accessory storage and mechanical space, as well as meeting rooms and a fitness center. The first floor is primarily occupied by a restaurant and the hotel lobby area, as well as office space. Floors two through seven are the residential hotel area. Floors six and seven only occupy a partial footprint of the building.

The International Existing Building Code requires that a building undergoing a change of occupancy classification be constructed in accordance with the requirements of the International Building Code for new construction.

## Occupancy Classification

*Building Code*

The Press Hotel is a mixed use occupancy as defined by Section 508 of the MUBC.

The building consists of the following use and occupancy classifications:

- *Meeting rooms* on first floor and basement level are classified as *A-3 Assembly* use.

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- *Restaurant and lobby areas* on the first floor are classified as *A-2 Assembl*
- *Hotel rooms and suites* on the upper floors are classified as *R-1 Residentia* residents are primarily transient in nature.
- *Utility and equipment rooms* on the sub-basement level are *U Utility* use.

*Life Safety Code*

NFPA 101 classifies the building as a residential hotel with a restaurant and several meeting rooms that fall into the category of Assembly, 300-1000 occupants. Per NFPA 101, the building is a mixed use occupancy, nonseparated.

## Type of Construction

*Building Code*

*Table 601 – Fire-resistance rating requirements for building elements (HOURS)*

| ***Building Element*** | ***Type IB Construction (MUBC)*** | ***Type II (222) (NFPA 101)*** |
|---|---|---|
| *Primary structural frame* | 2 | 2 |
| *Bearing walls (exterior)* | 2 | 2 |
| *Bearing walls (interior)* | 2 | 2 |
| *Nonbearing walls/partitions (interior)* | 0 | 0 |
| *Floor construction* | 2 | 2 |
| *Roof-ceiling assemblies* | 1 | 1 |

*Life Safety Code*

The type of construction most closely resembles Type II (222). All load bearing walls and floor assemblies must be 2 hour fire rated. Roof Supporting structures are required to be rated for 1 hour.

**Comment: The fire resistance protection of the above listed building elements must meet the requirements of the Building Code for Type 1B construction. Type 1B construction is necessary to meet the height and area requirements of Table 503 below.**

## Height and Area Requirements

*Building Code*

Table 503 of the MUBC outlines the height and area limitations for a building or structure based on its type of construction. Table 601 of the MUBC outlines the fire-resistance ratings of certain building elements required to meet Type IB.

*Table 503 – Allowable building height and areas*

| ***Occupancy Group*** | ***Type IB Construction*** |
|---|---|
| *A-2* | 11 stories<br>Unlimited area |

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| | |
|---|---|
| *A-3* | 11 stories<br>Unlimited area |
| *R-1* | 11 stories<br>Unlimited area |

*Life Safety Code*

The construction Type II (222) does not limit the number of allowed stories.

**Comment: The existing footprint and height of the building meet these requirements. The calculations showing the existing building structural fire rating must be provided.**

## Occupancy Loading

*Building Code*

- *A-3 Assembly* (meeting rooms on first floor) — 7 sqft/person net
- *A-2 Assembly* (Restaurant and lobby areas) — 15 sqft/person net
- *R-1 Residential* (Hotel rooms and suites) — 200 sqft/person gross
- *U Utility* (Sub-basement) — 300 sqft/person gross

*Life Safety Code*

Occupant load for the hotel portions are calculated at 200 sqft/person gross. Assembly fixed seating is calculated by counting the actual number of seats or 7 sqft/person for concentrated, non-fixed seating.

**Comment: Marriott has required 7 sqft/person in meeting rooms. The design labels the lobby area as an accessory to the R-1 occupancy and calculates the occupant load at 200 sqft/person. The lobby area occupancy load must still be calculated as an assembly occupancy even though it is an accessory to the R-1 Residential space. Sub-basement needs to be included in the occupancy load calculations. Occupancy load for the residential floors should be based upon either 200 sqft/person or the actual number of occupants per room, whichever is greater. It does not appear that there will be any impact on the number of exits or egress path width due to the occupant load.**

## Egress Requirements

*Building Code*

| *Egress Components* | *Code Section* | *Requirement (with sprinklers)* |
|---|---|---|
| *Capacity of Exit Stairs* | MUBC 1005.1 | 0.3 inches per occupant or 44 inches minimum |
| *Maximum common path of travel (Group R-1)* | MUBC 1014.3 | 75 ft |

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| | | |
|---|---|---|
| *Maximum common path of travel (Group A)* | MUBC 1028.8 | 30 ft |
| *Maximum Dead-end distance (Group R-1, B)* | MUBC 1018.4 | 50 ft |
| *Maximum Dead-end distance (Group A)* | MUBC 1018.4 | 20 ft |
| *Minimum Exit Access Corridor Width* | MUBC 1005.1 | 0.2 inches per occupant or 44 inches minimum |
| *Minimum Exit Access Door Width* | MUBC 1008.1. | 0.2 inches per occupant or 32 inches minimum |
| *Maximum Exit Access Travel Distance (Group B)* | MUBC 1016.1 | 300 ft |
| *Maximum Exit Access Travel Distance (Group R-1, A)* | MUBC 1016.1 | 250 ft |

*Life Safety Code*

No door in any means of egress path may be locked at any time. No door opening shall be less than 32" clear width. Doors must swing in the direction of egress. No door swinging into a means of egress shall block more than ½ of the required width of that means of egress. When fully open, it may not encroach more than 7" into the means of egress.

The minimum width of stairs is 44" clear, ignoring obstructions at or below handrail height that do not project more than 4.5" into the path of travel. Stairs shall be constructed entirely of non-combustible materials.

For both Hotel and Assembly occupancies, guest rooms do not require a secondary means of egress since the building is protected throughout by an automatic sprinkler system.

Street level exits must be capable of handling the occupant load of the floor they are on plus the capacity of the stairwells that discharge onto that floor. Stairway capacity is calculated at 0.3 inches/person. Corridors and doors are calculated at 0.2 inches/person. New corridors are required to be a minimum of 44-inches clear width.

Travel distance within a guest suite may be up to 125 feet in a hotel with an automatic sprinkler protection. Travel distance from the corridor door to the nearest exit shall not exceed 200 feet for the hotel areas. Travel distance from the most remote occupiable area to the nearest exit within an assembly occupancy shall not exceed 250 feet.

For hotel occupancies, the dead end limit and common path of travel is measured from the guest room door. The maximum dead end corridor travel distance in a hotel occupancy is limited to 50 feet for a building protected by an automatic sprinkler system. In a hotel occupancy the common path of travel limit is 50 feet if the building is protected with an automatic sprinkler system.

For an assembly occupancy the maximum dead end corridor travel distance is limited to 20 feet.

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In an assembly occupancy, the common path limit is 20 feet when the occupancy l than 50 people. When the occupancy load is fewer than 50 people, the common pa limit can be increased to 75 feet.

Any guest suite exceeding 2,000 sqft must have two exit access doors located rem each other.

**Comment: Additional egress requirements need to be reviewed in accordance with MUBC Chapter 10. It appears that common path of travel may be exceeded in the restaurant area on the First Floor.**

## Number of Exits

*Building Code*

*Means of Egress (Based on MSBC Table 1021.1 – Minimum number of exits for occupant load)*

| | *Number of Exits* | |
|---|---|---|
| *Floor level* | Required | Provided |
| *Sub-basement* | | 2 |
| *Basement* | | 2 |
| *First Floor* | | 4 |
| *Second Floor* | | 2 |
| *Third Floor* | | 2 |
| *Fourth Floor* | | 2 |
| *Fifth Floor* | | 2 |
| *Sixth Floor* | | 2 |
| *Seventh Floor* | | 2 |

*Life Safety Code*

Not less than two exits are required on each floor of buildings over four stories.

**Comment: Required number of exits shall be based on the recalculated occupancy loads. At a minimum two exits are required from each floor, and have been provided for each floor. Once the occupant loads have been recalculated, the required number of exits can be reviewed.**

## Illumination of Means of Egress and Exit Signs

*Building Code*

All means of egress require illumination at all times when the space served by that means of egress is occupied. This does not apply to dwelling units and sleeping units within Group R-1 Occupancies.

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*Life Safety Code*

Continuous illumination shall be provided in all stairs, aisles, corridors, ramps, esc passageways leading to an exit. Guest rooms are not included.

Exit signs shall be provided no more than 100 feet from any viewing point in an exit corridor.

**Comment: Emergency lighting is not shown on the permit drawings. Emergency lighting must be shown on the Life Safety drawings.**

## Fire-Resistive Construction and Partitions

*Building Code*

The Press Hotel can be classified as nonseparated in accordance with Section 508.3 since none of the occupancy classifications defined above restrict the height or area beyond the existing conditions.

Within a nonseparated occupancy, Section 508.3.2 requires that dwelling and sleeping units within R-1 occupancies be separated from other sleeping units by fire partitions with a fire-resistance rating of not less than 1-hour. Associated corridor walls are permitted to be ½ hour fire-resistance rated partitions. In accordance with Table 715.4, doors from dwelling units opening into corridors shall be not less than 1/3-hour fire rated.

In accordance with Section 712.3, horizontal assemblies separating dwelling or sleeping units within the same building shall be a minimum of 1-hour fire-resistance rated construction.

*Life Safety Code*

Each guest suite must be separated from other guest suites by a ½ hr fire-resistance rated wall.

Corridors are required to have not less than ½ hr fire-resistance rated construction because the building is protected by an automatic sprinkler system. A 20-minute rating is required on all doors opening into exit access corridors. The doors are also required to be self closing and self latching. Transoms, louvers and grills are prohibited in exit access corridors.

**Comment: The Life Safety Code allows the separation between guest rooms to be reduced from 1-hour to ½-hour since the building has an automatic sprinkler system. The MUBC does not have a similar reduction. The horizontal assembly fire-rating is inherent due to the Type 1B construction requiring that floor and ceiling assemblies have a 2-hour fire-resistance rating.**

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## Vertical Openings

*Building Code*

Openings through floor/ceiling assemblies shall be protected by a shaft enclosure with a fire-resistance rating in accordance with Section 708.4 since they penetrate more than 4 stories. This includes but is not limited to refuse and laundry chute enclosures, stairwells, and elevator hoistways.

*Life Safety Code*

Every floor shall be constructed as a smoke barrier. Enclosures connecting four or more stories require 2-hour fire barriers. Section 7.1.3.2.1 (2) Exception (a) and (c) permits an existing non-high-rise building to have stair enclosures with a 1-hour fire-resistance rating.

**Comment: The fire-rated construction for the laundry chutes and laundry rooms are compliant. The communicating stairway that that connects the Basement and Floor 1 is not used as part of the means of egress and it is not enclosed. Section 708.2 Exception 11 in combination with Section 1016.1 Exception 3 and 4 permit this stair as designed. Based on the International Existing Building Code, Section 1101.2 for Historic Buildings, it is our understanding that the Code Official has allowed the existing stairs with a 1-hour fire-resistance rating to remain. The Life Safety Code also permits the 1-hour stair to remain in the existing building.**

## Protection from Hazards

*Building Code*

Laundry chute access rooms and termination rooms must be enclosed by not less than 1-hour fire-resistance rated construction or horizontal assemblies. Openings into such access rooms must be not less than ¾-hour, and doors must be self- or automatic-closing upon the detection of smoke.

*Life Safety Code*

Boiler rooms, Bulk laundry rooms, maintenance rooms and trash room require a one-hour fire-resistance rated separation as well as sprinkler protection. Employee locker rooms, gift shops, storage rooms, and guest laundry rooms that are smaller than 100 sqft do not require fire ratings when they are protected by an automatic sprinkler system.

**Comment: It appears that the Code Summary sheet shows that locker rooms and storage rooms will be 1-hour rated in addition to sprinkler protection. The requirement is either 1-hour rating, OR sprinkler protection, so the fire-rating is not required since sprinkler protection will be provided. These areas are not included in**

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**the Building Code Table 508.2.5 for incidentally accessory occupancies, th Building Code does not require additional means of protection either.**

Penetrations through fire-resistance rated wall assemblies shall be in accordance w 713. Such through-penetrations shall be sealed with an approved firestop system. systems must be tested in accordance with ASTM E 814 or UL 1479.

**Comment: The specification for Firestopping provides the required listing for through penetration seal systems. These penetrations shall be reviewed during construction prior to closing the areas. Fire stopping systems used must be identified on a set of documents submitted to the City of Portland prior to inspection.**

## Interior Finishes

*Building Code*

All interior wall and ceiling finish materials must be classified in accordance with ASTM E 84, UL 723, or NFPA 286. Where used as interior wall finishes, textile wall coverings must meet the same ASTM E 84, UL 723, or NFPA 286 testing requirements. Interior floor finishes must be not less than Class II in Group R-1 occupancies.

*Life Safety Code*

Allowable Interior Wall, Ceiling and Floor Finishes:

- Exit Enclosures — Class A
- Lobbies and Corridors — Class A or B
- All Other Spaces — Class A, B or C
- Interior floor finishes — Class II

Interior carpet-like floor finishes shall comply with ASTM D 2859. Floor coverings other than carpet, shall have a minimum critical radiant heat flux of 0.1 W/cm$^2$ in accordance with Section 10.2.7.2 of NFPA 101.

**Comment: The specification for Interior Finishes states that the wall covering section required Flame Spread Index of 25 or less, Smoke Development Index of 450 or less, and Textile Wall Coverings muss pass NFPA 265 or NFPA 286.**

## Fire Protection Systems

*Building Code*

An automatic sprinkler system is required throughout all buildings having an occupant load of 30 or more that is located 55 feet or more above the lowest level of fire department vehicle access.

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An automatic sprinkler system is required to be installed at the top of all rubbish a chutes.

An automatic sprinkler system is required to be installed in commercial kitchen ex and duct systems. A list commercial hood and duct system is an acceptable altern

*Life Safety Code*

A supervised automatic sprinkler system is required.

**Comment: It appears that the design intends to meet these requirements, however fire protection systems will be reviewed in detail as a separate permit package.**

## Standpipe System

Class I standpipe system shall be provided since the building will be sprinkled and the floor level of the highest story is more than 30 feet above the lowest level of fire department vehicle access.

**Comment: It appears that the design intends to install a Class III standpipe system, but the Class III system is permitted to be replaced with a Class I system in sprinkled buildings. It is our understanding that the Portland Fire Department would prefer a Class I system be installed. Specific standpipe locations will be reviewed in a separate permit package.**

**Standpipes are required during construction and shall be installed when the progress of construction is not more than 40 feet in height above the lowest level of fire department vehicle access. Such standpipes shall be provided with fire department connections in accessible locations adjacent to usable stairs.**

## Detection, Alarm and Communication System

*Building Code*

Manual fire alarm system that activates the occupant notification is required in Group R-1 occupancies. Automatic smoke detection that activates occupant notification is required in all interior corridors that serve sleeping units. The fire alarm system is also required to monitor the sprinkler system.

*Life Safety Code*

Fire alarm system with occupant notification is required.

**Comment: The fire alarm system will be reviewed in detail as a separate permit package.**

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## Accessible Means of Egress

*Building Code*

In buildings where an accessible floor is more than four stories above or below a level of exit discharge, at least one accessible means of egress shall be an elevator since there are no horizontal exits or ramps. The building is equipped with an automatic sprinkler system, therefore an area of refuge is not required at the accessible elevator lobby or an accessible stairway. Two-way communication is required at the elevator landing on each accessible floor that is one or more stories above or below the story of exit discharge. Standby power is required for the elevator to be considered an accessible means of egress.

*Life Safety Code*

Since the building will be protected throughout by an automatic sprinkler system, the entire corridor serves as an area of refuge on each floor. Each elevator landing shall be provided with a two-way communication system with directions for use and audio and visual signals.

**Comment: The building will have an accessible elevator and two-way communication will be provided at each landing. The area of refuge communication system will also be reviewed at that time.**

**It appears that an emergency power generator for the building will be provided on the roof. Details of that system must be provided.**

## Conclusions

Based on *FIREPRO®'s* review, the following must be provided:

- Calculations for the existing plaster and concrete structural fire proofing.
- Prior to inspection, shop drawings showing wall and floor coverings with fire-rating listings must be provided.
- Prior to inspection, shop drawings showing all penetrations of fire-rated barriers and appropriate through penetration seal systems with details of the selected system for each penetration must be provided.
- Provide a clear legend of all devices shown on the Life Safety drawings.
- Provide details of the operation, fuel source, and fuel fill routing for the emergency power generator for the building.
- All drawings that are submitted for Permitting must be stamped by a Maine registered Professional Engineer or architect, including Life Safety Drawings.
- Emergency lighting must be shown. Preferably these should be shown on the Life Safety drawings. If generator supplied lighting is used, the emergency power riser diagram must be shown.

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- Specifications for emergency lights and exit signs must be provided.
- Stair, floor, and suite/room designations must comply with Chapter 4 of th Department Rules and Regulations.
- Several locations in the specification refer to 2003 IBC. This must be upd currently referenced editions in the MUBC.
- Fire rating specification for laminate floor, wood floors, and all carpeted areas must be provided.
- Details for exhaust duct connections at floor terminations must be provided.
- The location of fire and smoke dampers are difficult to determine. A legend of damper symbols and the location and orientation of all fire and smoke dampers are to be shown.
- Fire rating specification for the furniture in the restaurant and lobby must be provided.
- Location of stair pressurization fans and corridor exhaust fans to be shown.
- Method of backup power for the electric fire pump must be explained.
- Provide kitchen hood duct rating, termination, and detail.

Based on our review to date, the design has all of the required elements for compliance with the Maine Uniform Building Code and Life Safety Code. It is our opinion that this existing building can be constructed to comply with the referenced codes and standards. However, prior to issuance of the Permit, the required clarifications and additional information must be provided.