



## **FIRE RISK MANAGEMENT, INC**

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# **Memo Report**

**From:** W. Mark Cummings, P.E.

**To:** Mr. Skip Reske, IDC Construction, LLC  
 Mr. Greg Sams, IDC Construction, LLC

**Subject: Fire Protection and Life Safety Systems Review; ICW Renovation of the Westin Eastland Park Hotel in Portland, ME**

As requested, Fire Risk Management, Inc. (FRM) has performed a review of the fire protection and life safety systems installed throughout the newly renovated Westin Eastland Park hotel located at 157 High St. in Portland, ME. Although FRM was only the “engineer of record” for the fire detection/alarm/notification system, we have been tasked to also provide oversight and an independent review of all fire protection and life safety systems and features associated with the Westin hotel. This review covers all fire suppression and detection/alarm systems, along with the various fire separation and means of egress requirements. The primary focus for the review is to ensure/verify that all aspects of the installed systems are code compliant.

### Background

In addition to being the design engineer of record for the new fire detection/alarm/notification system for the Westin hotel, FRM was also tasked with providing technical support to the IDC design/build team by providing technical oversight and review of all fire protection and life safety systems and features being installed throughout the hotel. Although this is an existing building, it has undergone a nearly complete renovation, whereby the fire and life safety codes being referenced for this project are the current codes and standards that apply to new building construction. However, there are several areas of the building that were not significantly altered as part of this project. Where existing configurations were not altered, which resulted in non-full code compliance, these will be highlighted in the subsequent discussion.

Throughout the construction phase of this project, FRM performed numerous reviews of the various design documents and conducted regular site visits to verify that the installed configurations of the fire protection and life safety systems were in compliance with the design intent for each. The specific fire protection and life safety systems and components, along with their applicable code(s) of reference, that have been reviewed as part of this effort include;

- Fire Suppression Systems
  - Fire Pump [NFPA 20]
  - Standpipe Systems [NFPA 14]
  - Fire Sprinkler Systems [NFPA 13]
  - Kitchen Fire Suppression System [NFPA 17A]

Fire Detection/Alarm/Notification Systems [NFPA 72]

Structural Fire Protection and Fire Barriers, including Penetration Assemblies [IBC, NFPA 101]

Means of Egress Components (stairs, doors, exit signage, etc.) [NFPA 101]

Stairway Pressurization Systems (Smoke Control) [IBC, NFPA 92]

Although FRM was not tasked to specifically conduct or witness the commissioning of the various fire protection systems, as the design engineer of record for the fire detection/alarm system, FRM did conduct “selective testing” of the fire detection/alarm/notification system to verify proper installation and operation in accordance with the original design documentation. The installing contractors for each specific fire

protection system were responsible for performing all commissioning activities for their respective systems and each has submitted, or will be submitting, documentation that certifies each system was properly tested and verified as being fully operational and code compliant.

#### Discussion

Over the course of the past couple of months, FRM has been conducting regular site visits to evaluate the condition and level of completion regarding the installation of the various fire protection and life safety systems as the construction process of the Westin Hotel continued. During these surveys, numerous deficiencies with several of the systems have been noted; with a "punch list" being developed by IDC after each survey to facilitate their correction.

As outlined above, as a result of "existing" configurations within the original building design, there are a couple of systems' design features that were noted during initial surveys as not being code compliant. However, due to the fact that these were located in areas of the building that were never intended to be modified, coupled with the fact that these did not represent any increase in risk to the building's occupants, it was evaluated that their original design configurations could remain. Specifically, these include;

1. Components of both mechanical and electrical systems remain within Stair C. Current codes do not allow for any system that does not specifically serve an exit enclosure to be installed within the enclosure. The supply and return water piping for a chilled water system is installed within the Stair C enclosure. The piping connects the roof-mounted heat exchanger unit with the remainder of the system located within the Basement level. The piping penetrates the enclosure at the roof and basement levels. All pipe penetrations have been properly sealed as required to maintain the necessary 2-hour separation for the exit stairway. Additionally, some electrical and electronic wiring passes through (penetrates) the Stair C enclosure at various levels. This configuration dates back to the original period when Stair C was initially added to the building's design. Based on the very low fire hazard presented by each of these systems, it was recommended, and approved by officials from both the City of Portland and State of Maine, that removal of these systems was not warranted. The water piping represents no fire or life safety risk and the minimal amount of electrical cabling that is located within the stair enclosure is not sufficient to support any level of fire hazard that could jeopardize the building's occupants.
2. The fire sprinkler distribution piping throughout many areas within the Basement levels is of original construction. Although new sprinklers have been installed throughout the existing sprinkler system, the piping configuration was not altered other than to correct any "coverage" or "damage" deficiencies that might have existed or that arose as a result of renovation activities. The piping design includes the use of 3/4-inch pipe. Current codes only allow for a minimum of 1-inch piping in fire sprinkler systems. This system was likely designed using the "pipe schedule" method and there is no reason to believe that the existing design would not continue to provide an adequate level of protection for these areas. The existing pipe appears to be in good material condition. For that reason, no changes were made to these systems to simply remove the 3/4-inch pipe.

A "final" walk-through to review the hotel's fire protection and life safety systems was performed by FRM on 5 December, 2013. With the exception of installing the two physical barriers (gates) within Stairs B and C to prevent occupants from going past the level of exit discharge, all punch list items previously identified had been corrected. However, as a result of this final survey, a few additional life safety items have been identified as needing correction. These include;

1. Need to add an exit sign within the "Prefunction" area at the 1<sup>st</sup> floor; adjacent to the exit door leading to the exterior, adjacent to High St.
2. Need to add an exit sign at the end of the ramp/corridor that acts as the second means of egress from the Junior Ballroom, connecting this room to the corridor adjacent to the ADR.
3. Need to relocate the exit sign that is adjacent to the Kitchen's exit door and that leads to the service corridor for the Ballroom. This corridor also acts as a second means of egress from the Hawthorne (conference) Room and the current location of the exit sign is confusing. It should be moved to the center of the corridor and be

designed such that it can be viewed from both the Kitchen side and the corridor from the Hawthorne Room; with arrows (chevrons) pointing in the direction of the Ballroom.

4. Provide continuity of the railing design for the stairway leading from the TOTE to the 14<sup>th</sup> floor to ensure that no gap in the railing exceeds 4 inches.
5. Provide continuity of the railing design at the 1<sup>st</sup> floor level of Stair B to ensure no gap in the railing exceeds 4 inches.
6. An exit sign should be added to the inside of the 1<sup>st</sup> floor door in Stair B to highlight the fact that this is the level of exit discharge for this stair.

As soon as each item was identified during this final survey, IDC took immediate action to implement the necessary corrective actions.

#### Summary and Recommendations

Based on FRM's recent inspection and testing activities over the past several weeks, including this most recent survey, it is considered that the fire protection and life safety systems installed throughout the Westin Eastland Park Hotel are both fully operational and adequate to ensure that the building's occupants are provided with the appropriate level of protection. Other than the two minor exceptions noted above, the reviews performed by FRM have found all fire protection and life safety systems and components to be fully compliant with all applicable National, State, and Municipal Codes, Standards, Ordinances, and Regulations. Upon correction of the six (6) items noted during this last inspection, the Westin Hotel should be considered fully ready for occupancy by both Staff and the Public alike.

If you have any questions regarding what has been outlined above, please don't hesitate to contact me.

