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Date: 23 October, 2013

Memo Report

From: W. Mark Cummings, P.E.

To: Mr. Tom Greer; Pinkham and Greer

Subject: Code Review; ICW Proposed 133 York Street Apartment Building Site Access

As requested, Fire Risk Management, Inc. (FRM) has performed a review of the information that has been provided with regards to the design for a new apartment building that is to be located at 133 York St. in Portland, ME. The focus for this review is primarily to evaluate the site access requirements needed to support fire department operations.

Background

A new, small 4-story apartment building is being planned for construction at 133 York St., which will include six (6) living units located on three levels; all of which are to be constructed above a parking garage level. The building is being constructed such that the parking garage will meet the requirements for Type IA construction, with the three (3) upper residential floors meeting the requirements of Type VA construction, as defined by the International Building Code (IBC). The building is to be fully protected with an automatic fire sprinkler system.

The lot on which the building is to be located is small and due to the location of buildings on the surrounding lots, access to the site is very restricted. Although the driveway will be sufficient to support access by Fire Department apparatus, there will not be sufficient space to accommodate the ability for these trucks to turn around; hence this will be considered a “dead-end” access road for the purposes of this review.

Discussion

The primary design document that was used to support this review was the site plan provided by Pinkham and Greer. This document provided sufficient data with regards to the location of the building in relation to the adjacent road, York St., along with the dimensions of the planned driveway and parking area for the building. Additionally, the building’s architectural floor plans were reviewed to evaluate both the general layout of the building, as well as the materials of construction that are planned.

The primary codes and regulations that were referenced to determine compliance for Fire Department access were the most recent editions of NFPA 1, the *Fire Code*[®], and the City of Portland’s *Fire Department Rules and Regulations*. Based on a review of these documents, the following requirements were evaluated as being applicable to this site evaluation;

- *The City has a requirement that any development that includes up to 34 living units must include at least one (1) access road. This building will only have 6 units and, as such, only requires one access road.*
- *The access road must extend to within 50 feet of an exterior door that provides access into the building. The planned access road extends all the way to the front of the building. Although it will not be possible for the fire department apparatus to turn into the parking lot in front of the building, they can still easily reach a point that is well within the 50-foot limit of the building’s main access door.*
- *The access road must be within 450 feet of all portions of the building’s exterior; which applies to buildings that are fully protected with an automatic fire sprinkler system. Due to the small size of the building, even if it*

were not provided with a sprinkler system, which would then require that all portions of the exterior be within 150 feet, it would still comply with this requirement.

- *The access road must be at least 16 feet in width to meet City requirements.* The NFPA 1 would require this access road to have at least 20 feet in clear width. The driveway (access road) shown on the site plan will provide up to 20 feet of clear width.
- *Any dead-end access roads in excess of 150 feet must be provided with an adequate turn-around area.* Since the turn radius from the driveway into the parking lot area is not sufficient to accommodate fire department apparatus, this access road is considered a dead end. The distance from the street to the front wall of the building is less than 120 feet. As such, this access road is not required to be provided with a turn-around area. The access road is completely straight and should not present much of a challenge for fire department personnel to back the apparatus out of the driveway once firefighting operations are complete.
- *At least one (1) fire hydrant must be within 250 feet of this site. The City also has a requirement that a hydrant must be within 100 feet of any Fire Department Connection (FDC).* A fire hydrant is located at the corner of Park and York streets. This location is easily within the 250 foot limit. However, the distance from the hydrant to the likely location of the building's FDC, when following the likely route for laying hose, will be outside the 100-foot limit.
- *Based on the construction type(s) of this building, NFPA 1 would require a minimum fire flow (fire water supply capabilities) of at least 1750 gpm.* The fire hydrant that is located at the corner of Park and York streets has a "light blue" bonnet; indicating that it can support fire flows in excess of 1500 gpm. Although recent flow test data for this hydrant were not reviewed as part of this evaluation, past experience with flow data in this area of Portland has indicated that it is highly likely it can easily support the 1750 gpm requirement for this building (at a minimum of 20 psig residual pressure at the hydrant).

Based on a review of both the building and its site plan, along with comparing these data to the requirements needed to support fire department operations, the design plan for this building appears to be generally compliant. The only item that will require further design attention is the need to have a fire hydrant within 100 feet of the building's FDC.

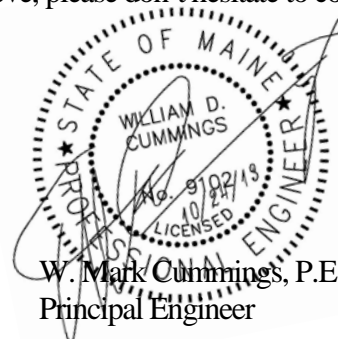
Summary and Recommendations

With the exception of the distance between the closest fire hydrant and the building's FDC, the site design plan for this building should meet all requirements for site access and water supply as outlined in both NFPA 1 and the City's Fire Department Rules and Regulations. To support the distance requirements between a fire hydrant and the FDC, two options exist; 1) install a new, private fire hydrant in the vicinity of the building, such that it will be within 100 feet of the planned location of the FDC, or 2) install a remote FDC near the end of the access road. In either case, measures must be implemented to ensure that the hydrant or FDC are protected from damage and remain accessible, including during the winter months.

Although the access road will meet the minimum width requirements, it will also be necessary that "No Parking" signs be placed along this driveway to ensure that it always remains clear.

The actual fire hydrant flow test data for the hydrant located at the corner of Park and York Streets should be reviewed to confirm it has the capability to support the fire flow requirements for this building.

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



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Principal Engineer