

31 January 2019

Mr. Eliah Thanhauser  
315R Spring St.  
Portland, ME 04102

**Subject: Review of Wood-burning Stove and Chimney Configuration at 315R Spring St.,  
Portland, ME**

Dear Eliah;

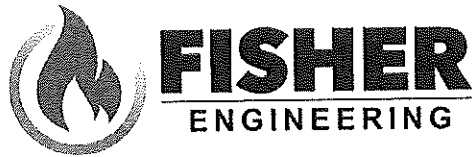
As requested, Fisher Engineering, Inc. (FEI) has reviewed the email message you received and subsequently forwarded to me yesterday (1/30/19); whereby the City of Portland is apparently requiring that you extend the height of your chimney by two (2) feet. Included in that email from the City is a request that you obtain concurrence from Fisher Engineering (me) that this change will have no detrimental effect on the performance or code compliance of your stove/chimney configuration; ostensibly because we developed the previous memo outlining our review of its overall fire safety.

As stated in our previous memo addressing this issue, it is our opinion that the configuration of your existing chimney is not only safe, but is likely compliant with all applicable code requirements that were in force at the time it was constructed. In reviewing your plan to comply with the City's request by adding an extension piece to the existing metal chimney liner, we do concur that this change will do nothing to detrimentally impact the proper operation or performance of the stove/chimney configuration. However, we cannot make any assertions regarding whether this change will provide any significant improvement regarding the potential for reducing smoke impingement on neighboring structures; albeit that does not constitute any sort of hazard to life safety. There are too many variables, such as wind direction and speed and ambient temperatures, that will have a much greater impact on the movement of smoke from the chimney. We cannot definitively state that this extension will reduce the potential for smoke to impinge on surrounding structures, but we are confident that it will not impact the ability of your stove/chimney to continue to operate safely.

Sincerely,

Fisher Engineering Inc.

W. Mark Cummings, P.E., FSFPE  
Sr. Fire Protection Engineer



7 January 2019

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Dear Eliah;

As requested, Fisher Engineering, Inc. (FEI) has conducted a review of the existing configuration of both your wood stove and the chimney to which it is connected. This includes a site visit performed by Mr. James McLean, P.E. on 12 December 2018 to document the current construction configuration, along with reviewing the adjacent properties and to obtain additional information regarding the specifics of the potential code violations being cited by the City of Portland.

Based on our review and your discussions with Mr. McLean, the following represents a summary of our understanding of the pertinent issues/events:

1. The chimney in question, including its primary construction/configuration, is original to the home/structure in which it is installed.
2. The purpose of chimney has always been for the use of a wood-fired appliance (wood stove).
3. The current wood stove is a newer model than what was previously used in the home (the wood stove is not original). No change to the original location of the wood stove and its connection to the chimney has occurred.
4. In connection with the upgraded wood stove, a metal lining (with cap) was added within the flue of the original chimney. This primarily to ensure that an adequate draft (due to reduced flue area) would be developed for proper operation of the new stove. No other modification to the original chimney has occurred; internal or external to the structure.

FEI has also reviewed copies of the two letters you have received from the City of Portland; one from the Fire Prevention Bureau (FPB) dated 14 September 2017 and another from the City's Inspection Division dated 8 October 2018. The initial letter from the FPB indicated that your chimney was considered as being non-compliant with a City-adopted code; NFPA 211, the *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*. The specific citation of non-compliance addresses the need for masonry chimneys to extend at least two (2) feet above the highest point of the structure and any nearby structures that are within 10 feet of the chimney. The actual age of the original home/chimney is not specifically known, and hence whether or not this construction predates any formal code associated with chimney construction and/or what code of record may apply. However, based on the site review, the original chimney construction does appear to be generally compliant with the adopted edition of NFPA 211; as



pertaining to the home/structure in which it is installed. This is not the case with regards to the home/structure located immediately adjacent to the north side of this building.

As requested, FEI has reviewed the current chimney configuration, including its proximity to the adjacent structure(s), with regards to its ability to safely operate; without causing undue risk to the adjacent structure(s). In general, we find no inherent increased risk to fire safety to either your or surrounding structures associated with your continued use of this wood stove; beyond that which would be present even if the chimney were located at a distance of more than 10 feet from the adjacent structure(s). Although the specific internal design for your wood stove was not specifically reviewed, unlike open fireplaces, wood stoves tend to have a higher level of inherent safety. This is mainly due to the fact that they emit flue gases (smoke) at much lower temperatures and will have little or no hot particulate (embers) as part of any emissions. The fact that this stove is a newer model and your addition of the metal liner within the existing chimney flue have only further reduced any potential fire safety risks associated with the use of the wood stove; versus its original configuration that has existed for many years..

In reviewing the letters provided from the City, we believe that the City has made a number of errors in their interpretation of why a code violation may exist; or at least one resulting from your actions. The following represent the bases for this opinion;

1. The chimney is an existing structure. NFPA 211, para. 1.3.1 includes wording on the "retroactivity" for this code and that it generally doesn't apply to existing structures that have been previously approved for construction. The following paragraph (1.3.2) does include the fact that the authority having jurisdiction can apply portions of this code retroactively where they believe an unacceptable situation exists. However, based on our review, the situation appears to have been worsened not by your actions, but by the City allowing your neighbor to make modifications to their home that have caused issues associated with compliance to NFPA 211.
2. Although we are not specifically familiar with the City's permitting requirements associated with replacing a wood stove, we believe no actions taken by you would have required any building permit to be issued. This chimney has always served to support a wood-burning appliance (stove). We do not believe replacement of that appliance would require a permit. Equally, the installation of the metal pipe inside the chimney would be considered a "repair", as defined by the State-adopted International Existing Building Code (IEBC), to the existing structure (chimney). Again, this action would not require any modifications/changes to the existing structure to specifically comply with current code requirements. Both actions have done nothing more than improve the overall fire safety of this system and the new lining is primarily a feature that ensures proper operation (drafting) of the newer wood stove design.
3. It is our understanding that the building that is in close proximity to the north side of your home, and that which represents the apparent basis for the code violation for which you are now being cited, was modified in the recent past that included an addition to the portion of the structure that is immediately adjacent to your home. Furthermore, it is understood that the existing chimney structure existed prior to that modification. Based



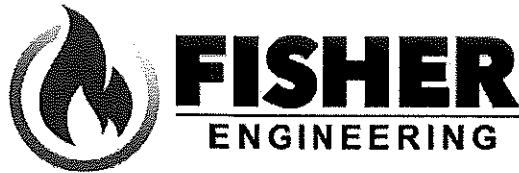
on our site review, it appeared that the existing chimney in question would have been above portions of adjacent structure that were within 10 feet of the chimney's termination height. Therefore, if the City believes that all requirements in NFPA 211 are to be applied, no building permit should have been issued that allowed the adjacent structure to be modified in such a way that then further exacerbated issues associated with NFPA 211 compliance. Whether or not you were actively using your chimney and/or any wood-burning appliance at the time that building was being permitted for modification is irrelevant. This chimney has been in existence for many years and the requirements associated with NFPA 211 should have been enforced on the adjacent structure at that time to prevent the current code violation that the City is now concerned that exists; which we believe are not the result of any actions taken, or inaction, by you.

In summary, we believe the operation of your wood stove will in no way have a detrimental impact on the fire risk to either your or any adjacent properties. However, if any modifications are to be mandated by the City to require adherence to all aspects of NFPA 211, it is our opinion that any such actions for correction should be the responsibility of the owner of the adjacent structure that was modified and may actually be the basis for this apparent code violation. There is certainly a likelihood that smoke from your chimney may impinge on the adjacent structure(s), caused by specific ambient wind and temperature conditions, but this is nothing that did not exist prior to your implementing the upgrade to your wood stove or the neighbor implementing modifications to their structure. The fact that they now have an external, occupiable deck, adjacent to your chimney location is a function of actions they have taken, not you. It is our opinion that you have not violated any State- or City-adopted codes by upgrading the wood stove that is attached to the chimney; including the addition of the liner within the chimney that ensures proper drafting of the (cooler) flue gases within the chimney that are a function of the newer wood stove designs.

Sincerely,

Fisher Engineering Inc.

  
W. Mark Cummings, P.E., FSFPE  
Sr. Fire Protection Engineer



## MEMO

Date: January 7, 2019

To: Bianca Garber  
Port Property Management

From: James McLean, P.E.

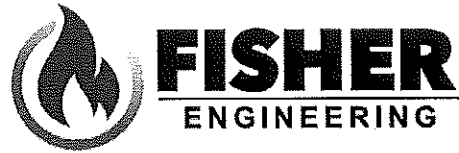
Re: Legalization of Apartment 10 – 202 Dartmouth Street, Portland, ME      FEI #: 18215

As requested, Fisher Engineering, Inc. (FEI) has reviewed Apartment (Unit) 10 at 202 Dartmouth Street. Although no documentation was available, the information provided to FEI from the Port Property Management representative, Bianca Garber, indicated that the unit could not be given a certificate of occupancy because of a lack of egress windows within the sleeping rooms. This was reiterated during a meeting between FEI and City (Fire Prevention and Life Safety CEO) on January 2, 2019. The building is provided with a fire alarm / detection system throughout, which was recently installed, but is not provided with sprinkler protection.

Based on discussions with Bianca Garber and her desire to maintain the unit's current configuration, the various options for attaining compliance with the Life Safety Code® (NFPA 101), 2009 edition were explored. Per § 30.2.1.2, the means of escape within dwelling units must comply with section 24.2 (one and two-family dwellings). In general, apartments with two or more rooms must be provided with a primary and secondary means of escape; however, if the dwelling unit is provided with a sprinkler system, only a single means of escape is required, per § 24.2.2.1.2(2). In principle, there are options of achieving a second means of escape, but those would likely require modifications to the unit configuration and/or afford less life safety protection to occupants within the unit.

As referenced within § 24.3.5.2 the use of an installed sprinkler system, designed to meet either NFPA 13, NFPA 13R or NFPA 13D for buildings four or fewer stories in height, is an acceptable option, including for partial protection of just the unit in question. This is asserted further within the commentary for § 30.2.1.2: *"Note that 24.2.2.1.2 does not require the entire building to be sprinklered, only the dwelling unit that is deficient with respect to the secondary means of escape."* Although § 31.3.5.3 essentially states that a sprinkler system used for partial protection must comply NFPA 13 or NFPA 13R, we contest that this requirement only applies when the existing apartment is considered under Option 3, § 31.1.1.1.

The scope of work for FEI was limited to Unit 10; however, based on discussions with Bianca Garber and the City, the building should be considered under Option 2, § 31.1.1.1, because it is provided with a fire alarm system throughout, but no sprinkler system. Any building that needs to meet the requirements under Option 3 would be subject to the additional sprinkler



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