



REPORT TO COUNCIL

To: **Mayor Schaffer and Councillors**

Subject UBCM Resolution on Sprinklers for 4-Storey
Balconies

Report #: 17-013

From: Rory Thompson
Fire Chief

File #: 7202.00

Doc #: 144968

Date: February 2, 2017

RECOMMENDATION:

THAT City Council endorse the following resolution to be submitted to the Union of British Columbia Municipalities for consideration:

WHEREAS in 2016 the Province of British Columbia has suffered numerous large loss fires in 4-storey wood frame multi-residential buildings that could have been mitigated by the installation of sprinklers on balconies;

AND WHEREAS the British Columbia Building Code is based on the National Building Code with modifications specific to BC and that the National Building Code (2015) requires the installation of sprinklers on balconies of 4-storey buildings;

THEREFORE BE IT RESOLVED that the Minister Responsible for Housing immediately issue a Ministerial Order requiring the installation of sprinklers on the balconies of all new wood frame 4-storey multi-residential buildings.

PURPOSE:

The purpose of this report is to request that City Council submit a resolution to the Union of B.C. Municipalities supporting the requirement to install sprinklers on the balconies of all new wood frame 4-storey multi-residential buildings. This position is supported by the Fire Chief's Association of B.C.



POLICY:

Not applicable.

COMMENTS/ANALYSIS:

Since 2007, Langley City Fire Rescue Service has responded to 80 apartment fires. These fires collectively resulted in one fatality, 11 injuries and \$ 14,673,250 in property and content loss. Of these apartment fires, 16 were fires on apartment balconies where the fire department had to take direct action to extinguish. Of the 16 balcony fires, 11 were caused by improper disposal of smoker's material. Langley City's latest multi-residential fire at the 4-storey Paddington Station condominium on December 11, 2016 resulted in \$14 million in damage and 86 units being out of service for up to 2 years.

Langley is not the only municipality to experience large loss apartment fires this past year. Burnaby, Coquitlam, North Vancouver, Surrey, and White Rock all experienced large multi-residential fires in 2016. The White Rock apartment fire on May 15, 2016 heavily damaged a 60 unit building leaving 100 people homeless. The Surrey apartment fire on August 21, 2016 heavily damaged a 4-storey, 77-unit building also leaving 100 people homeless. Similar to Langley City, the Surrey fire was caused by improper disposal of smoking material on a balcony. It was Surrey's third major apartment fire in three years.

Wood frame apartment buildings are vulnerable when it comes to balcony fires. A fire on a balcony that ignites flammable siding can easily spread upwards to the balcony ceiling. That too is often constructed of a flammable material. Once it penetrates the balcony ceiling, the fire is directly into the attic space. The B.C. Building Code does not require fire separations between the ceiling of the top floor balconies and attic spaces.

Most apartment roofs are constructed using light-weight truss construction. While light and relatively inexpensive, these trusses will start to fail after 5 to 10 minutes of flame exposure. Collapse of the roof structure quickly follows. Once fires spread to the attic space, they are very difficult to control. In the Paddington Station fire, firefighters had the balcony fire knocked down from the exterior within 5 minutes of arrival. However, the first attack team into the apartment of origin reported heavy fire conditions already in the attic space. Sprinklers on the balconies would have prevented this tragedy.



Fire protection requirements in wood frame multi-residential apartment blocks vary depending on building size and construction. Typically, 3-storey wood-frame apartment blocks require no sprinklers. Apartment buildings that are 4-storey wood frame construction require sprinklers in the corridors and apartment units. Those apartments that are 5 and 6-storey¹ wood-frame construction also require sprinklers on balconies and in the attic space.

Surrey Fire Chief Len Garis and Dr. Joseph Clare² analyzed data contained in fire reports provided by the B.C. Office of the Fire Commissioner for multi-residential buildings where the area of origin was a balcony. They had the following observations:

- Overall, 9.7% of the multi-residential building fires originated from an outside area (either the exterior balcony or court/patio/terrace area).
- The damage associated with outside fires was 2.4 times greater than the average loss associated with all other multi-residential structure fires.

Garis and Clare further point out that:

“There is a clear indication that there is a vulnerability associated with fires that commence on the exterior of multi-residential buildings, in relation to all other fires. The analysis revealed that, relative to the remainder of the multi-residential structure fires examined, fires that commence on the building exterior were:

- a) 5.5 times less likely to activate a smoke alarm and 1.4 times more likely to require visual sighting or some other means of personal detection.
- b) 1.5 times more likely to require the fire department to apply water and 1.5 times more likely to have been controlled by makeshift firefighting aids.
- c) 3.3 times less likely to have burned out on their own, 5.4 times less likely to have been controlled by the removal or shut-off of the fuel supply and 3.5 times less likely to have been controlled by sprinkler systems.

¹ Six-storey wood frame construction was approved in BC in 2009

² Len Garis & Dr. Joseph Clare (2013). Fires that Commence on Balconies of Multi-Residential Buildings. Abbotsford, BC: University of the Fraser Valley, School of Criminology & Criminal Justice.



- d) 1.1 times less likely to be contained to at least the room of origin of the fire, 1.9 times more likely to extend as far as the building of origin, and 4.1 times more likely to extend beyond the property of origin.

The installation of sprinklers on apartment balconies greatly reduces the possibility of balcony fires spreading upwards into the attic space.

B.C. participates in the national code development system. Codes in our province are based on the National Codes of Canada with some modifications specific to B.C. When the B.C. Building code is updated, the code changes typically reflect the current requirements found in the National Building Code. As of 2015, the National Building Code requires sprinklers on the balconies of 4-storey apartment buildings.

The Minister Responsible for Housing has announced the government's intention to include the requirement for sprinklers on the balconies of 4-storey wood frame apartment buildings when the B.C. Building Code is next updated. Representatives from the Provincial Building and Safety Standards Branch have advised that that the code will be updated in the next year or two. However, the Minister has the power through a Ministerial Order to require this change to be effective immediately. The implementation of new sprinkler requirements would only apply to new construction and would not apply retroactively to existing buildings or buildings currently under construction.

BUDGET IMPLICATIONS:

Not applicable.

ALTERNATIVES:

That City Council decline to submit the UBCM Resolution on Sprinklers for 4-Storey Balconies.



Respectfully Submitted,



Rory Thompson, Fire Chief

CHIEF ADMINISTRATIVE OFFICER'S COMMENTS:

I support the recommendation.



Francis Cheung, P. Eng.
Chief Administrative Officer

