City of Burnaby

Item	
Meeting	2011 June 20

COUNCIL REPORT

TO:	CITY MANAGER	**DATE:**	2011 June 15
FROM:	DIRECTOR PLANNING AND BUILDING	**FILE:**	1400 20
		Reference:	*UBCM Resolutions*

SUBJECT: MECHANICAL INSULATION RESOLUTION

PURPOSE: To propose a resolution regarding changes to the BC Building Code as related to improvements in mechanical insulation practices and standards for submission to the 2011 Convention of the Union of BC Municipalities.

RECOMMENDATIONS:

1. **THAT** Council approve the resolution contained in Section 3.0 of this report, for submission to the 2011 Union of BC Municipalities (UBCM) Convention.

2. **THAT** staff be authorized to forward a copy of this report to the UBCM, located at Suite 60, 10551 Shellbridge Way, Richmond, BC V6X 2W9.

3. **THAT** a copy of this report be sent to *Mr. Lee Loftus, Business Manager* and *Mr. Lyndon Johnson, Quality Control Advisory,* of the *International Association of Heat and Frost Insulators and Allied Workers Union Local 118*, both at 233 East 11th Ave., Vancouver, BC V5T 2C4.

REPORT

1.0 INTRODUCTION

At its meeting on 30 May 2011, Council received a delegation from the International Association of Heat and Frost Insulators and Allied Workers Union Local 118 (IAHFIAW Local 118)[1]. The delegation provided Council with information relating to mechanical insulation, including practices and standards, and the impact that this type of insulation has on the energy efficiency of buildings. The delegation also highlighted their recommended changes to the BC Building Code to ensure the proper, consistent and improved application of mechanical insulation, and requested Council's support in advocating for these changes.

The matter was subsequently referred to staff for further review, with consideration for development of a resolution to the 2011 Union of BC Municipalities (UBCM) Convention, which will take place from 2011 September 26 – 30 in Vancouver.

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[1] The International Association of Heat and Frost Insulators and Allied Workers Union represents individuals who fabricate, manufacture and apply insulation materials to plumbing, heating, cooling and refrigeration systems, piping equipment and pressure vessels to reduce the passage of heat, cold, sound, smoke or fire: www.insulators118.org.

2.0 BACKGROUND

Mechanical insulation involves the fabrication, manufacture and application of insulation to plumbing, heating, cooling and refrigeration systems, piping equipment and pressure vessels to reduce the passage of heat, cold, sound, smoke or fire to achieve a range of benefits, as outlined below.

2.1 Rationale to achieve Improved Standards

Based upon information provided by the delegation, the proper and consistent application of mechanical insulation is extremely important in maintaining the energy efficiency of commercial and residential buildings, by preventing heat loss or gain from mechanical systems and by providing protective barriers against fire, water damage, corrosion, mould and mildew. By minimizing heat loss or gain, mechanical insulation helps to lower the energy consumption of buildings, making them more efficient and reducing the release of any associated greenhouse gas emissions. A best practice in this area includes tailoring insulation for each application (i.e., materials used, thickness, and installation techniques)[2].

As a report entitled *Pipes Need Jackets Too: Improving Performance of BC Buildings through Mechanical Insulation Practice and Standards*[3] outlines, the Province's goal of reducing greenhouse gas emissions by 33% by 2020[4] is among the most aggressive in the world. The BC Climate Action Plan outlines Provincial goals and priorities for reducing energy usage and emission rates, and includes a chapter on improving the energy efficiency of buildings. Indeed the Plan states that 12% of BC's total greenhouse gas emissions in 2006 were produced by residential and commercial buildings, more than half of which is attributable to the use of fossil fuels for space and water heating and gas-fired appliances in residential buildings.

2.2 BC Building Code

Changes made in 2008 to the BC Building Code increased energy efficiency requirements for building construction and renovation. However, according to the report noted above, the Code update, while it references ASHRAE Standard 90.1[5], does not sufficiently address best practices related to mechanical insulation. Specifically, the report outlines that the BC Building Code does not reproduce specification tables for mechanical insulation thickness found in ASHRAE Standard 90.1, nor does it contain fire and worker protection requirements.

As such, the report in question suggests that the lack of explicit detail contained in the Code has resulted in confusion within the building industry and that often insufficient or improperly installed insulation is being applied, resulting in Code standards not being met and a lost opportunity to increase the energy efficiency of buildings.

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[2] A number of best practice standards have been developed for mechanical insulation. Standards widely in use in Canada and British Columbia include the *BC Insulation Contractors Association's Quality Standards for Mechanical Insulation*, and the *Thermal Insulation Association of Canada Mechanical Insulation Best Practices Guide*.

[3] Prepared by HB Lanarc Consultants Ltd. for IAHFIAW Local 118 (2010).

[4] *British Columbia Climate Action Plan* (2008), Province of British Columbia, pg. 13.

[5] The ASHRAE Standard 90.1 is an energy standard for buildings, excluding low-rise residential buildings, produced by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). This Society is an international technical society representing individuals and organizations associated with heating, ventilation, air-conditioning and refrigeration systems.

Indeed, the report estimates that the potential provincial annual energy and greenhouse gas reductions that could be attained by applying mechanical insulation retrofits to existing buildings is between 35,00 – 90,000 tonnes CO2e[6]. As well, the report estimates that reductions from improving mechanical insulation application practices on new multi-residential buildings could be between 10,000 – 20,000 tonnes CO2e.

According to information from the Provincial Building and Safety Standards Branch[7] the 'greening' of the BC Building Code will continue with an additional process anticipated to be launched in 2011, with a focus on reducing energy and water use in buildings. Among other points the process will consider items such as code changes related to the energy performance of housing to the equivalent of EnerGuide 80[8]. For larger more complex buildings, the Province is participating in a national process to establish an improved model country-wide energy code[9].

3.0 PROPOSED RESOLUTION

The energy efficiency of buildings, both in new construction and retrofits, has been recognized as having a significant impact on overall greenhouse gas emissions in British Columbia. In turn, studies have shown that the proper application of mechanical insulation can significantly increase the energy efficiency of buildings, by minimizing and preventing heat loss or gain from mechanical systems and by providing protective barriers against fire, water damage, corrosion, mould and mildew.

Given the current inconsistent application of mechanical insulation to buildings in BC, as outlined by the report *Pipes Need Jackets Too: Improving Performance of BC Buildings through Mechanical Insulation Practice and Standards*, the following resolution is provided for Council's consideration:

IMPORTANCE OF MECHANICAL INSULATION - RESOLUTION

WHEREAS the proper application of mechanical insulation, including the materials used, thickness, and installation techniques, has been shown to improve the energy efficiency, reduce the greenhouse gas emissions, and provide other benefits for both new and retrofitted building,

AND WHEREAS, given possible Code changes in the near future, it is a timely opportunity to advocate to the Provincial Government to consider including additional information and requirements regarding mechanical insulation in any Code updates:

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[6] CO2e is an abbreviation of 'carbon dioxide equivalent' and is the internationally recognized measure of greenhouse gas emissions.

[7] The Building and Safety Standards Branch is located within the Ministry of Energy and Mines and Responsible for Housing: www.gov.bc.ca/ener/.

[8] EnerGuide is the nationally accepted rating system of building energy performance utilized by the Federal Office of Energy Efficiency (Natural Resources Canada). A rating of 80 is considered to be 'excellent' by this rating system in terms of building energy efficiency: http://oee.nrcan.gc.ca.

[9] A review of Canada's National Energy Code for Buildings, led by National Research Council Canada (NRCC), is currently underway. The NRCC develops and publishes model codes which must be adopted by a regulatory authority (Provincial or Territorial Government) to come into effect. In some cases, the Codes are amended and/or supplemented to suit regional needs, and then published as provincial codes: www.nationalcodes.ca/eng/national_codes_list.shtml.

THEREFORE BE IT RESOLVED that the Union of BC Municipalities request that any future updates or amendments to the BC Building Code include specific, up-to-date requirements on mechanical insulation, including the reproduction of any specifications, such as thickness tables, that may be referenced from other sources, and also include reference to mechanical insulation best practice standards.

4.0 CONCLUSION

At its 2011 May 30 meeting, Council received a delegation from the International Association of Heat and Frost Insulators and Allied Workers Unions Local 118 (IAHFIAW Local 118), regarding the importance of mechanical insulation and their recommended changes to the BC Building Code to support its improved application. This report provides additional information on mechanical insulation including associated environmental impacts and possible implications to the BC Building Code in support of a resolution to the UBCM.

As such, this report recommends that Council approve the resolution contained in Section 3.0 of this report, for submission the 2011 Union of BC Municipalities Convention, to be held from 2011 September 26 – 30 in Vancouver. In addition, this report recommends that staff be authorized to forward a copy of this report to the UBCM, as well as to the International Association of Heat and Frost Insulators and Allied Workers Union Local 118.

B. Luksun, Director
for PLANNING AND BUILDING

RM:sa

cc: Deputy City Managers
Director Engineering
Director Finance
Director Parks, Recreation and Cultural Services
OIC – RCMP
Fire Chief
Chief Building Inspector
Chief Librarian
City Solicitor
City Clerk