31 January, 1966.

CHAIRMAN AND MEMBERS OF POLICY/PLANNING COMMITTEE

Gentlemen:

Re: Snow Loading -_____Building Failures

On 10th January, 1966 an enquiry was raised in Council as to the adequacy of Burnaby's Building By-law with respect to snow loading on roofs, bearing in mind the two building failures as a result of this winter's snowfall. The two building failures were a building at Jubilee and Imperial and the Edmonds Rollerway.

The Chief Building Inspector reports on these two incidents as follows:

4816 Imperial Street - Lot 6 N.E. of Rwy., Ex.Pl. 4694, D.L. 99, Plan 844 - under construction

This is a two storey wood frame building with a joisted roof and floor construction carried on exterior bearing walls and interior columns and beams. The building had just reached the stage of having the rough framing completed and the roof in place, but inspection by the Building Department had not yet been called by the owner.

Some time over the weekend of January 1st and 2nd 1966, a major portion of the roof of this building gave way and fell to the floor below. The design of the building, according to the plans on file in the Building Department indicates all components, columns, beams, joists, to ke sized to provide amply for the minimum roof snow load.

The roof collapse can be attributed to a beam failure and the reason for the beam failure was caused by a simple construction mistake. The beams supporting roof joists were built up from three pieces of two inch lumber. The individual pieces making up the beams were of random length. Splicing of these pieces took place rather indiscriminately, without proper regard to stress conditions and location of bearing points. The splicing method did not permit the beams to develop the required strength and a bending failure occurred in one beam span next to an outer end wall. The resulting displacement of roof joists thrust side bearing walls out of plumb on the upper floor.

The depth of snow on the roof prior to collapse is not known, but it is believed that a small parapet along one wall contributed to an accumulation and greater depth of snow in one area than in other portions of the roof. It is in this one area where the first beam failure occurred.

Had the beam developed the strength indicated for it by the plan the structure would certainly have withstood the snow load that was present at the time or during the days immediately following. Had an Inspection been called this form of construction mistake would have been noted and an objection issued, as this form of construction mistake is not uncommon. The owner might then have taken temporary measures to re-inforce the structure.

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Page 2. REPORT TO POLICY/PLANNING COMMITTEE BY MUNICIPAL MANAGER Re: Snow Loading -Building Failures 31 January, 1966.

7850 Edmonds Street - Lot A Ex.Pl. 13172, Block 34/35, D.L. 28; The Edmonds Rollerway

This structure was built in 1948. The building failed on the night of 5th January 1966 when a roof truss collapsed at the time that snow was being removed.

The present owner of the property has retained the services of Dr. Hooley, Ph.D., P.Eng., in an effort to determine the precise cause of the failure of this structure which resulted in the total destruction of the remainder of the building. The owner has indicated that he will make available to the Corporation the results of Dr. Hooley's findings regarding the cause of this failure. The owner, however, may not be in a position to release the contents of his Consultant's reports right away.

Dr. Hooley is very highly qualified to do this work, and, due to the nature of this building failure and to the advisability of having a report by an expert analyst of building structures, it is respectfully requested that permission be granted to await the owner's release of Dr. Hooley's report for presentation to Council.

Respectfully submitted,

H. W. Balfour MUNICIPAL MANAGER

HWB:gr