

December 13, 2019

David Fullbrook
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Victoria, BC V8W 3R9

Dear David,

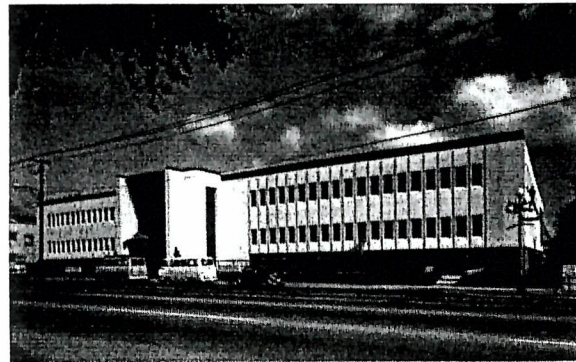
**RE: Victoria Press Building - 2615 Douglas Street, Victoria, BC
Seismic Evaluation**

RJC No. VIC.117156.0003

As requested, we have completed an overview of the existing Victoria Press building at 2615 Douglas Street. Our review is based on our observations on site, available original construction drawings, and measurements completed on site.

1.0 Building Description

The existing Victoria Press building was built in 1971 to house the printing presses and offices of the Times Colonist Newspaper Company. In 1988, a steel building was added to the east side of the building for larger printing presses. The addition will not be discussed or incorporated in this report. The original three-storey building was designed and built of cast-in-place concrete and non-loadbearing masonry interior partition walls. The printing presses sat within the original building surrounded by offices for the paper company and other tenants. The building is clad with precast concrete panels with built-in windows. The structural system consists of concrete slabs with capitals and drop panels, supported by concrete columns on a 24' grid. The original Victoria Press building and its façade will be preserved for its historic character.



2.0 Seismic Review

This structure was designed in accordance with the National Building Code of Canada (NBCC) 1965. Since this time, there have been significant developments to the seismic requirements of the Canadian Building Code. The seismic load resisting capacity of the existing structure will be compared to the requirements of the British Columbia Building Code 2012 (BCBC 2012 or the "Code"). The lateral force resisting system for



the Victoria Press building was not clearly defined on the original drawings but we presume the engineers relied on a combination of concrete shear walls and moment frame connections between the slabs and columns.

The lateral loads imparted on the building by seismic accelerations or wind forces are currently transferred to the walls through the roof and floor diaphragms. The connections from the walls and columns to the floor and roof are required to resist in-plane shear forces and out-of-plane tension forces in order to stabilize the columns and walls and transfer shear loads. Although the diaphragms are able to transfer these forces to the columns and walls, the columns and walls themselves do not have adequate capacity to resist current Code specified force levels.

RJC has not provided an in depth review of the buildings seismic capacity as the existing structure will be upgraded to provide a new seismic force resisting system. However, based on our experience and limited review of the existing structure, it appears the existing building has less than 20% of the lateral force resistance required by current Code.

The existing precast façade connections to the base building do not have the required capacity or ductility to move with the building or resist the Code specified lateral forces or deformations.

3.0 Seismic Upgrading

There is no requirement in the BCBC 2012 to upgrade existing buildings to resist current seismic loading criteria. However, the NBCC 2015 provides guidelines for upgrading existing structures, and the City of Victoria has the authority to require upgrades when a major renovation or change in use is planned. These guidelines were followed using the seismic hazard levels from the BCBC 2012, which was the Code in force at the time of Building Permit submission, with reference to the enhanced upgrade guidance in the NBCC 2015 commentary. The guidelines indicate that for a building such as the Victoria Press building, the upgrading must be designed for the forces associated with the NBCC ground motions with a 5% probability of exceedance in 50 years.

The current development plan will provide seismic upgrades to the existing building and restraint to the heritage facade to meet or exceed the 5% in 50 years seismic hazard level as per the 2012 Building Code for seismic and wind force levels. This work includes the following:

- Addition of two new concrete cores, consisting of shear walls anchored to rock below;
- The addition of sufficient diaphragm connections from the new concrete shear walls to the existing concrete slabs to resist both in-plane and out-of-plane seismic forces;
- Addition of a new ring beam concrete foundation that is capable of transferring the lateral forces from the structure to the surrounding soil;
- Restraint of the existing precast panels façade;
- Bracing of unreinforced masonry walls inside the building; and,
- Bracing of the existing building precast concrete parapets.

4.0 Gravity Load Review

The Victoria Press development plan is to preserve the existing building and façade. Therefore, the existing structure was analyzed to determine if the gravity components were adequate for the intended loading. The existing building was originally designed for two additional floors; therefore, the gravity columns and foundations have significant capacity for their intended loading. The entire existing building relies on concrete caissons that bear on the bedrock below. The existing structural drawings show reinforcement in the slabs that meet the current Code for strength requirements under the intended loading. The new concrete cores require demolition of existing columns within the structure. These columns load transfer will be reinstated by the new concrete core walls.

5.0 Probable Cost

The cost estimate, provided by Farmer Construction, to perform the above listed work is \$5,381,460, which is, in our opinion, reasonable for the scope of work.

6.0 Summary and Recommendations

The seismic capacity of the existing building is significantly less than that required by the current BC Building Code and upgrades will be required to meet the Code. The planned upgrades will bring the building's lateral capacity up to the level required by BCBC 2012 and the NBCC 2015 commentary. RJC's base building structural drawings (included for reference) indicate all upgrade and seismic restraint details for the renovations to the Victoria Press building. The cost estimate provided appears reasonable.

We trust this meets your requirements at this time. Please let us know if you have any questions or comments.

Yours truly,

READ JONES CHRISTOFFERSEN LTD. M. PLETT

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DESIGNATED
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Encls. RJC drawings dated November 15, 2019 and Issued for Steel Tender