

Attachment #8
Tower Design Analysis

ATTACHMENT 8: TOWER DESIGN ANALYSIS

Tower Separation and Floorplate

The tower has been sited and designed in accordance with the Downtown Building and Public Realm Design Guidelines and Master Plan when it comes to providing adequate separation from adjacent towers. 38 metres (125 ft.) separation would be maintained where guidelines outline minimum 27 m. (88.5 ft.). The tower floorplate is approximately 753 sq. m. (8,105 sq. ft.), which is larger than required through the Downtown Building and Public Realm Design Guidelines and Master Plan (maximum 700 sq. m. (7,534 sq. ft.)). The floorplate is generally consistent with the requirements of the 1.5 High Rise Residential Development Permit Design Guidelines (750 sq. m. / 8,073 sq. ft.).

Tower Relationship to Heritage Cathedral

Given the height of 30 storeys, the proposed building is not considered to be consistent with City heritage policy and best practice, which seeks to ensure heritage sites are not overwhelmed by adjacent buildings. Staff considers that, from a heritage evaluation perspective, any building over six storeys constructed adjacent to the cathedral would have an impact on the heritage character of the site.

However, the cathedral is not legally protected and could be at risk of demolition without the needed upgrades. The height of the proposed tower would provide the funds for greatly required seismic and mechanical updates to the cathedral. This work is necessary both for use today and to ensure its continued use into the future.

Additionally, the applicants indicate that the proposed rental units in the tower would provide income for ongoing maintenance of the cathedral, which would also ensure its future. As such, staff deem the height of the tower is appropriate in exchange for the long-term retention, restoration, and protection of the cathedral, regardless of the potential impact of the tower height to the site's overall heritage character.

Staff have been working with the applicants to mitigate the impact of the tower on the cathedral, while maintaining adequate open space on site, and given other site design constraints. The cantilevered step-backs at the base of the tower are designed to be reflective of the heritage buildings on each side, and were created with the goal of providing distance between the heritage buildings and the tower, which works to address the tower massing.

While staff recognize that the tower will never be subordinate in size, through design (e.g. through the use of lighter materials, stepping massing away from the cathedral), it has meet the intent of the Standards and Guidelines. This is currently most successful at the base of the tower, though generally, compatibility of design between the two buildings is reflective of good practice.

View and Sun/Shade Analysis Shadowing

The applicant has provided both a view analysis and shadow analysis as part of their drawing submission (see Appendix 8 of the Heritage Revitalization Agreement Bylaw in Attachment 3 for the shadow analysis and [Appendix A of the Advisory Planning](#)

[Commission Report](#) – pages 40 to 42 - on December 7, 2021 for the view analysis). The view analysis shows how the views of surrounding buildings and public spaces would be impacted as a result of the proposed tower.

The applicant has also provided a shadow analysis and this analysis shows that shading from the proposed tower would happen over Carnarvon Street, moving from west to east during the summer solstice as well as spring and fall equinox. There would be shadowing impacts to the proposed public plaza area which would be greatest during the later afternoon hours. However, the plaza would be south facing with morning sunlight and partial views towards the river.

Public Realm and Street Frontage Activation

The current proposal provides high quality public realm improvements, including:

1. improvements to both the Carnarvon Street and Clarkson Street road frontages;
2. a privately-owned, publically accessible plaza, south facing with good views towards the water; and
3. an accessible public connection between Carnarvon Street and Clarkson Street, via stairs and a privately owned/publicly accessible elevator.

Streetscape improvements and public realm design will be finalized through the further detailed design review. Public access to the walkways, plaza, stairs and elevator will be secured through legal agreements. The applicant has been working with the Engineering and Parks and Recreation Departments regarding these proposed improvements.

Energy Efficiency

The proposed new tower would be required to meet Step 3 of the BC Energy Step Code. A pre-construction model report and a letter of assurance from the project engineer have been provided and reviewed by staff and meet the City's requirements.

Noise Study

The subject site is located within close proximity to a commercial main street (Columbia Street), trucking routes (Front Street), railway corridors, and the SkyTrain. The applicant had an acoustic, noise and vibrations consultant prepare a noise and vibration study of the subject site and proposed development. This study notes that windows with standard thermal glazing detail would provide sufficient sound isolation to achieve standard CMHC noise recommendations in all interior spaces.

Confirmation of implementation of the recommendations from the noise and vibration study is secured through the Development Agreement which confirmation of the building design with the study prior to issuance of Special Development and Building Permits.