Development application guidelines

Wind study

What is the purpose of this?

A ***wind study*** is a technical document that provides a model and written description of the impact of pedestrian-level winds associated with development on adjacent streets, parks and open spaces. These studies are done to evaluate the impact of the wind conditions at various times of the year.

Who should prepare this?

The material should be prepared by a qualified microclimate specialist or a certified wind tunnel specialist.

When is this required?

A ***wind study*** may be required in the case of the following applications (or specifically for development in Midtown Oakville or the Uptown Core) for buildings greater than 12 storeys in height:

- Official Plan Amendment
- Zoning By-law Amendment
- Site Plan Control

Why do we need this?

The ***wind study*** ensures an appropriate pedestrian environment and compatibility of the built form with the existing community.

How should this be prepared?

In the majority of instances, the content described under Final Wind Study will be sufficient to appropriately assess the impacts of proposed developments. However, a Preliminary Wind Study may be required for large sites, waterfront sites and/or sites where a substantial increase in height is requested. The scope of this work, should be discussed with the Planner and Urban Designer at the pre-consultation meeting.

<u>Preliminary Wind Study</u>

A preliminary ***wind study*** may be required for developments that meet the above criteria. The study will be conducted by a qualified microclimate specialist to identify any design or massing features that could create pedestrian comfort concerns.

General issues to be addressed in the preliminary wind study include the following:

- height of the proposed development in relation to the height of surrounding structures
- the orientation and general massing of the development with respect to the primary wind directions
- location and shape of specific design features that induce wind activity
- orientation of the development with respect to sun angles
- potential impact of wind speed increases created by the development on the surroundings
- outline of basic mitigation features to be included in development design including base and podium conditions, canopies and tower orientation

As part of the preliminary study, a quantitative pedestrian comfort evaluation including a wind tunnel test will be undertaken. This study will include a minimum of 15 sensor

locations. The focus of this initial study is to recommend appropriate mitigation measures that involve changes to the building design, massing and form. Changes to landscaping are not to be included in the initial study.

Final Wind Study

Prior to finalizing the application, some proposals may require quantitative wind testing by a certified wind tunnel specialist that meets the following criteria:

Model Scale

The model shall be no smaller then a 1:500 representation of the proposed development and will include all buildings within a minimum of 480 m of the site, in keeping with the industry standard.

Test Configuration

Unless otherwise agreed to by the Town, the following conditions will be evaluated:

- Initial conditions defined as all existing Town approved development, those developments under construction and the development being proposed
- If design mitigation is necessary to increase pedestrian comfort, the mitigation measures are also to be evaluated

Development that is approved but not built for 5 years is not to be included in the test.

Scope of Study

Before the final testing is done, the test sensor locations will be approved by Town staff, or peer reviewed by a consultant. A draft proposal for sensor locations should be provided to the Town for comment.

Pedestrian comfort is to be evaluated based on wind force, thermal comfort and wind chill to evaluate the comfortable use of sidewalks and open spaces for appropriate uses including sitting, standing and walking.

What else should we know?

Areas found to be uncomfortable or severe must be accompanied with mitigation solutions. At this stage of the process, this may include landscape elements.

What other resources are available?

Town of Oakville - Urban Design Brief Terms of Reference Package:
http://www.oakville.ca/assets/2011%20planning/UrbanDesignBRIEF-2010.pdf