

### Study Description

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.

### Purpose

- To ensure an appropriate pedestrian environment
- To ensure compatibility of the built form with the existing community

### Who should prepare this?

A qualified microclimate specialist or a certified wind tunnel specialist. All reports and drawings must be stamped and/or signed and dated by a qualified professional, licensed in the Province of Ontario.

### When is this required?

To support a proposed building that is greater than 3 storeys in height the study may be required in support of the following applications:

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

### Required Contents

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 at the pre-consultation meeting.

#### Preliminary Wind Study

A preliminary **Wind Study** may be required for developments that meet the above criteria. The study will be conducted 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 than a 1:500 representation of the proposed development and will include all buildings within a minimum of 480 metres of the site, in keeping with the industry standard.

##### Test Configuration

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

- Initial conditions defined as all existing City 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

##### Scope of Study

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

#### **What other resources are available?**

Section 6.6 Tall Buildings and Height Control of the Official Plan:

<https://www.barrie.ca/City%20Hall/Planning-and-Development/Pages/Official-Plan.aspx>

#### **Notes**

If the proposed development is revised, the study/report shall reflect the revisions by an updated report or letter from the author indicating the recommendations and conclusions are the same.

Please note that a peer review may be required. The cost of the peer review will be borne by the applicant.

Please note that the requirements of this study may vary depending on the nature of the proposal. This will be determined through the pre-consultation process and in consultation with any applicable external agencies.

If the submitted study is incomplete, is authored by an unqualified individual, or does not contain adequate analysis, the application will be considered incomplete and returned to the applicant.