



Terms of Reference:

Wind Study

Town of Milton
January 2023

Disclaimer: Terms of Reference documents will be reviewed and updated as necessary to reflect current policies, practices and accepted standards.

1. What is the purpose of this?

The purpose of this document is to provide a terms of reference for the preparation of a wind study, where required as part of a complete application under the Planning Act. The wind study shall follow the guidelines contained in this document, as failure to do so may result in a submitted application being deemed incomplete.

The goal of a wind study is to:

- Provide a model and written description of the impact of pedestrian-level winds associated with development on adjacent streets, parks and open spaces and roof top amenity areas;
- Make recommendations for the building design to minimize the impact of wind on the pedestrian entrances and spaces around the building and/or recommend mitigation measures; and
- Evaluate the impact of the wind conditions at various times of the year on a specific site.

2. Who should prepare this?

A wind study must identify the author of the report and be signed by a qualified microclimate specialist, a certified wind tunnel specialist or other qualified and certified consultant deemed appropriate by the Town.

3. When is this required?

A wind study may be required for the following types of applications:

- Official Plan Amendment;
- Zoning By-law Amendment; and/or,
- Site Plan.

4. What content should be included?

4.1 Scope of the Study

Pedestrian comfort is to be evaluated based on wind force, thermal comfort and wind chill. These factors will be used to evaluate the comfortable use of sidewalks, pedestrian drop-off areas, building entrances and open spaces within and adjacent to the proposed development. The assessment will also consider and evaluate the appropriateness of uses including sitting, standing and walking in specific areas where the pedestrian comfort may be impacted by wind conditions.

The following approach to undertake this assessment is required:

1. Draft terms / scope of proposal for sensor locations be provided to and reviewed by Town and approved prior to the commencement of the study (to proceed); and,
2. The Town may request that a peer review of the proposed scope of work be completed by a consultant to be selected by the Town, and retained at the applicant's expense.

4.2 Preliminary Wind Study Requirements

The requirement for and scope of a wind study should be discussed during the mandatory pre-consultation process. Discussion of the wind study at the mandatory pre-consultation stage provides the opportunity to identify any design or massing features that could create pedestrian comfort concerns. Final confirmation that the consultant retained by the applicant is to be reviewed and approved by the Town.

A wind study is required large sites and/or sites where a substantial increase in building height is requested (buildings that are proposed to be a tall building as defined in the Town of Milton Tall Building Guidelines). Buildings that may be lower and have a building length or massing such that it may cause wind related impacts to areas on the property that pedestrians use, as noted above, may also require the preparation of a wind study.

The goal of the preliminary wind study is to recommend appropriate mitigation measures that involve changes to the building design, massing and form. In this regard, the following general issues are to be considered and addressed in the preliminary wind study:

- 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 adjacent lands and all public spaces;
- Outline of the basic mitigation features to be included in development design including base and podium conditions and orientation, canopies and/ or tower orientation; and,
- Quantitative pedestrian comfort evaluation including a wind tunnel test will be undertaken (including a minimum of 15 sensor locations);

4.3 Final Wind Study Requirements

Prior to finalizing the application, some proposals as determined by the Town, may require an additional level of testing. This quantitative wind testing will need to be completed 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 m of the site, in keeping with the industry standard. In the case of Major Nodes or Secondary Mixed Use Nodes or other areas where there is the assembly of tall or buildings with a large overall massing, broader areas of these types of buildings may also need to be assessed more comprehensively and cumulatively;
- Test Configuration - Unless otherwise agreed to by the Town, the following conditions will be evaluated:
 - Initial conditions is defined as being all existing Town approved developments, those developments under construction and the development being proposed (application filed) in the area adjacent to the proposed development and/ or intensification proposed;
 - If design mitigation is necessary to increase pedestrian comfort to the satisfaction of the Town, the mitigation measures are also to be evaluated; and,
 - Areas found to be uncomfortable or severe must be accompanied with mitigation solutions.

The final wind study may also include an evaluation and recommendation of landscape elements to mitigate wind impacts.

5. What else should we know?

If the proposed development is revised, the wind study 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 the wind 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.

6. What other resources are available?

Information related to planning policies, studies and the development review process

<https://www.milton.ca/en/build/DevelopmentinMilton.asp>

Town of Milton - Urban Design Guidelines and Urban Design Brief Terms of Reference

<https://www.milton.ca/en/build/urbandesign.asp>