TERMS OF REFERENCE

PEDESTRIAN LEVEL WIND STUDY

Pedestrian Level Wind Study is a technical document that provides a model and written description of the impact of 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.

This study may be required for:

- Official Plan and Zoning By-law Amendments seeking development over 6 storeys may be asked to provide a Wind Study. The requirement for this should be discussed with the Planner and Urban Designer in pre-application consultation meetings.
- Site Plan Control applications over 6 storeys in height (Complex applications only).

Content

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 requirement for, and scope of this work, should be discussed withthe Planner and Urban Designer in pre-application consultation meetings.

1. Preliminary Wind Analysis

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 mitigative 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.

The assumption is that the wind flow characteristics and remedial solutions will be incorporated into tested building designs and/or will be used to modify building design to achieve appropriate wind conditions.

It is recommended that for optimal comfort, wind speed for building entrances should not exceed 15 km per hour (standing) for all seasons, and for outdoor amenity areas, wind speeds should not exceed 10 km per hour (sitting) for summer season and shouldering months.

2. Final Wind Study

Prior to finalizing the application, proposals that meet the study criteria 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 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

Note: 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 the City of Vaughan Urban Designer. A draft proposal for sensor locations should be faxed or E-mailed to the Urban Designer for comment.

The test should use the closest and most appropriate meteorological station data for the site, and an explanation should be provided to clarify the data and conditions for the report.

Pedestrian comfort is to be evaluated based on wind force, thermal comfort and wind chill to evaluate the comfortable use of sidewalks, entrances, and amenity spaces at grade and/or rooftop for appropriate uses including sitting, standing and walking.

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

The submission will include:

- Eight bound paper copies of the study for distribution and review by appropriate agencies. The submission will include a letter summarizing the study, the wind impactsof the development and appropriate mitigation measures.
- One digital copy of the development massing.