

Sun/Shadow Analysis

A Sun/Shadow Analysis is a technical document that provides a visual model and written description of the impact of shadows cast by a proposed development on residential areas, neighbouring streets, parks and open space, (including natural areas), privately managed publicly accessible spaces and other properties.

These studies are done to evaluate the impact of shadows at various times of day, throughout the year.

Required by Legislation

The Local Official Plan.

Who should prepare this analysis?

A Sun/Shadow Analysis must be completed by a Registered Architect, Professional Engineer (P.Eng), Registered Professional Planner (RPP), or Registered Landscape Architect.

Why do we need this analysis?

A Sun/Shadow Analysis is required to demonstrate the location, massing, vertical and horizontal articulations, and height of a proposed building.

The objective is to maintain quality, comfortable and inviting public spaces and pedestrian environments by demonstrating that a development will not cause undue shade on the subject lands, and on the surrounding context, including building facades, private and public outdoor amenity and open spaces, parkland, school yards and buildings, sidewalks and other components of the public realm.

How should this analysis be prepared?

A Sun/Shadow Analysis be provided in the following format:

Introduction

- › Applicant and owner's contact information
- › Author name, title, qualifications, company name and appropriate stamp
- › Location and context map
- › A letter summarizing the study and the sun/shadow impacts of the development
- › Images of sun/shadow tests using models, either real or digital, that clearly indicate the development site, its boundary, the footprint and mass of buildings within the test site, any streets, public parks and accessible open spaces
- › Images of the sun and shadow situation for the existing context and with the proposal (a single page or pages side by side are preferred as this will assist in understanding the impacts)
- › Digital (or paper) copies of the study for distribution and review by appropriate agencies
- › One digital copy of the development massing model
- › Large mounted versions of critical times or power point images may be requested for public meetings.

How should this plan be prepared? (continued)

Investigation/Evaluation

The applicant may be requested to submit a proposed and final shadow study. Sun/shadow testing of alternative building massing may be required during the application review to assist in making decisions about how to best achieve Council's goals regarding sun/shadow impacts. When the massing of the application has been agreed to, a final Sun/Shadow Study will be prepared to the following standards:

The Model

A typical model will include:

- › Development site and property boundaries
- › Building footprint and mass within the site
- › All streets, blocks, parks and open spaces as well as buildings to a distance adequate to show the shadow impacts during requested times.

Modeling will have two parts, the first showing the existing situation and the second showing the proposed development in its context. The proposed development context should include other approved unbuilt buildings within the model area. They should be indicated graphically as different from the proposal and the built context.

Shadow diagrams should be plotted in colour to a standard metric scale and include a bar scale on each sheet labelled in 1, 2, 5, 10, 20, 100 and 200m increments. A reference base plan should also be plotted at a metric standard scale.

"As of right" or other site-specific applicable shadow conditions should be indicated clearly by a contrasting colour single line overlay with explanatory notation provided in a printed legend (i.e., red for "as of right" on the subject property, yellow for approved unbuilt adjacent development).

Test Times:

Sun/Shadow tests should be done for March 21 and September 21 at the following hours:

- › 9:18 a.m., 10:18 a.m., 11:18 a.m.
- › 12:18 p.m., 1:18 p.m., 2:18 p.m., 3:18 p.m., 4:18 p.m., 5:18 p.m., 6:18 p.m.

These times allow for the measuring of hours of sunlight windows as described in the Sun, Wind and Pedestrian Comfort Bosselmann/Dunker study.

Development that proposes additional shadow impacts on parks and open space, including natural areas, will require sun/shadow tests at hourly increments for both June 21 and December 21 to provide additional information on the impacts of shadows on these important public places.

Additional times may also be requested to respond to specific site contexts.

All times are based in the Eastern Time Zone and must account for Daylight Saving Time.

Impacts and Mitigation Measures

- › Summary of the study and the sun/shadow impacts of the proposed development
 - › Images of sun/shadow tests using models, either real or digital, that clearly indicate the development site, its boundary, the footprint and mass of buildings within the test site, any streets, public parks and open spaces on/neighbouring this site
 - › Images of the sun/shadow situation for the existing context and with the proposal (a single page or pages side by side are preferred as this will assist in understanding the impacts)
 - › Summary demonstrating how the proposal meets the required consecutive hours of full sunlight
 - › Description of all measures that will be taken to minimize shadow impacts by the development on neighbouring streets, parks, open spaces, natural areas, public squares and other shadow sensitive properties (such as schoolyards, cemeteries, etc.).
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How should this plan be prepared? (continued)

Recommendations

- › Summary and conclusions of the Conservation Plan including any studies and how they support the development and any special considerations or conditions that should be imposed
 - › Recommendations, or conclusions that should form part of the decision on the matter.
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Drawings and Supporting Information

See above requirements.

What else should we know?

The scope of the study should be discussed with the community planner, the urban designer and or other staff or agencies as part of the pre-consultation process.

Prior to preparing the study, consultants should review any municipal Official Plan policies or guidelines with respect to sun coverage.

Additional Terms

To be identified by the local municipality where proposed development is located.

Study Submission Instructions

To be identified by the local municipality where proposed development is located.

What other resources are there?

Ontario Professional Planners Institute (OPPI) - [Hire and RPP](#)

[Ontario Association of Architects](#)

[Ontario Association of Landscape Architects](#)

[Professional Engineers of Ontario](#)

About these Terms of Reference

These Terms of Reference were developed as a joint effort with participation by representatives from all York Region municipalities and the Region. The Terms of Reference are in widespread use across the Region, with local requirements added as prescribed by each municipality at the pre-consultation stage.

The need and scope for this study will be decided by a municipality during initial pre-consultation process with input from partner agencies. This pre-consultation process may include:

- Determination if this study is applicable
- Confirmation of criteria within these Terms of Reference that are appropriate for your development project
- Identification of specific technical components that need to be addressed
- Identification of detailed standards to be met

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 changes and whether or not the recommendations and conclusions are the same (Note: this is subject to the extent of the revisions).

A peer review may be required. The cost of the peer review will be borne by the applicant.

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