

## SUN/SHADOW STUDY TERMS OF REFERENCE

<b>Study</b>	<b><i>Sun/Shadow Study</i></b>  Updated: November 2010
<b>Description</b>	A technical document that provides a visual model and written description of the impact of shadows cast by a proposed development on adjacent streets, parks and properties. These studies are done to evaluate the impact of shadows at various times of day, through the year.
<b>When Required</b>	<p>Sun/Shadow Studies may be required for the following applications for developments over 20 metres (6 storeys) in height:</p> <ul style="list-style-type: none"> <li>• Zoning By-law Amendments</li> <li>• Site Plan Control applications (Complex applications only)</li> </ul> <p>Sun/shadow tests may also be requested for developments that are lower than 20 metres, in particular on rezoning applications where additional height is applied for near shadow sensitive areas (such as parks, cemeteries, etc.). The requirement for, and scope of this work, should be discussed with the Planner and Urban Designer in pre-application consultation meetings.</p>
<b>Rationale</b>	<p>To achieve the goals of Official Plan Policies:</p> <p>3.1.2.3 <i>“New development will be massed to fit harmoniously into its surroundings and will respect and improve the local scale and character. It will minimize the impact on neighbouring buildings and open space by:</i></p> <p style="padding-left: 20px;"><i>d. minimizing shadows and uncomfortable wind conditions on neighbouring properties and open space.”</i></p> <p>3.1.2.4 <i>“New development should be massed to define the edges of streets, parks and open spaces at good proportion and locate taller buildings to ensure adequate access to sky view, sunlight and appropriate pedestrian level wind conditions for the proposed and future use of those spaces.”</i></p>
<b>Required Contents</b>	<p>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 achieve Council's goals regarding sun/shadows. When the massing of the application has been agreed to, a final sun/shadow study will be prepared to the following standards:</p> <p><b>The Model</b></p> <p>A typical model will include all streets, blocks, parks and open spaces as well as buildings to a distance adequate to show the shadow impacts during requested times.</p> <p>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 but not built buildings within the model area. These should be indicated graphically as different from the proposal and the built context.</p> <p>Shadow diagrams should be plotted in colour to a standard metric scale and include a bar scale on each sheet labeled in 1,2,5,10,20, 100 and 200m increments. A reference base plan should also be plotted at a metric standard scale.</p>

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	<p>“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 but not yet built adjacent development).</p> <p><b>Test Times</b></p> <p>Sun/Shadow tests should be done for March 21 and September 21 at the following hours:</p> <p>9:18 a.m., 10:18 a.m., 11:18 a.m., 12:18 p.m., 1:18a.m., 2:18a.m., 3:18 p.m., 4:18 p.m., 5:18 p.m., 6:18 p.m.</p> <p>These times allow for the measuring of hours of sunlight windows as described in the Bosselman/Dunker study.</p> <p>Development that proposes additional shadow impacts on public parks or publicly accessible open space 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.</p> <p>Additional times may be requested to respond to specific site contexts.</p> <p><b>Format of the Study</b></p> <p>The final study will include:</p> <ul style="list-style-type: none"> <li>• A letter summarizing the study and the sun/shadow impacts of the development.</li> <li>• Images of sun/shadow tests using models, either real or digital, that clearly indicate the development site, its boundary, the foot print and mass of buildings within the test site, any streets, public parks and accessible open spaces.</li> <li>• 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).</li> </ul> <p>8 bound 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.</p>