

Shadow Impact Study

SANDALWOOD SQUARE

Proposed Residential Development at
60 Bristol Road East
City of Mississauga

Prepared for: 151516 CANADA INC.

Prepared by: Turner Fleischer Architects Inc.

April 4th, 2019

1. This shadow study consists of this written report with attached Shadow Impact Study drawings dated **March 28, 2019**.
2. Site latitude and longitude used for this study are as follows:
 - i. **Latitude:** 43° 36' 54" N (43.614967° N)
 - ii. **Longitude:** 79° 39' 42" W (79.661736° W)
3. **Time Zone:** Eastern
4. **Standard Time:** UT – 5 hours -applies on December 21st
Daylight Time: UT – 4 hours -applies on June 21st and September 21st
5. **Test times**
Please refer to Tables 1 – 3 attached. (Tables adapted from Mississauga’s Urban Design Terms of Reference – Standards for Shadow Studies (June 2014))
6. **Site Orientation:**
The astronomic bearing of the site’s boundaries is shown on a plan of survey dated October 25, 2018 by Speight, Van Nostrand & Gibson Limited. This shadow analysis is based on this reference bearing.
7. The background 2D mapping was obtained from Google Earth Pro satellite imagery. The architect, Turner Fleischer Architects Inc., has provided the 3D model and architectural plans for the proposal dated **March 28, 2019**.
8. This shadow analysis is based on an assumed flat ground plane at elevation 178.95m. Building heights relate to this datum. The datum is the ground floor elevation of the proposed buildings and is representative of existing ground level in the area.
9. The shadow test times for each study date have been compiled onto single drawing sheets to facilitate the testing for compliance with the shadow criteria.
10. **Shadow Criteria:**
 - i. **Criterion 1 - Residential private amenity spaces – Jun 21 and Sep 21**
Shadow impacts from proposed developments should not exceed one hour in duration on areas such as private rear yards, decks, patios and pools of surrounding residential dwellings. This criterion is met if there is shadow impact for no more than two consecutive hourly test times in the “No Impact Zone” i.e. within 7.5 m of an exterior wall of a dwelling that abuts private amenity space.
 - iii. **Criterion 2 - Communal Places where children play – Jun 21, Sep 21 and Dec 21**
Shadows from proposed developments should allow for full sun on the following places at least half the time, or 50% sun coverage all the time, on each given date: school yards, tot-lots, play areas and park features such as sand boxes, wading pools, etc., and outdoor amenity areas used by seniors and those associated with commercial and employment areas. This criterion is met if the “sun access factor” is at least 50% on each of the test dates. This criterion applies to public areas as well as those common outdoor amenity areas that are part of a proposed development.
 - iv. **Criterion 3 - Public realm including sidewalks, open spaces and plazas - Sep 21**

- a. Sidewalks on low and medium-density residential streets - No incremental shade at 9:12, 10:12, 11:12, 15:12, 16:12 and 17:12 hours
 - b. Sidewalks on mixed-use, commercial, employment and high-density residential streets - No incremental shade at 12:12, 13:12, and 14:12, and either 9:12, 10:12, and 11:12 or 15:12, 16:12 and 17:12 hours
 - c. Public open spaces, parks and plazas - Sun Access Factor 50% minimum
- v. **Criterion 4** - Turf and flower gardens in public parks - **Sep 21**
Full sun is required at 7 test times.
 - vi. **Criterion 5** - Building faces to allow for the possibility of using solar energy – **Sep 21**
This criterion is met if there is shadow impact for no more than two consecutive hourly test times in the “No Impact Zone” i.e. within 3m of the front, rear or exterior side walls of adjacent low-rise residential buildings.
11. **Review of Shadow Drawings vs. Shadow Criteria**
- i. **Criterion 1** – Based on the preliminary shadow analysis completed, there is no or minimal impact by the proposal shadows to residential private amenity spaces on June 21. On Sept 21, the impact on the residential private amenity spaces appears to be minimal.
 - ii. **Criterion 2** – There appears to be no communal outdoor amenity areas, including the school yard and the park north of the development, within the proposed development’s shadow.
 - iii. **Criterion 3a** – The proposed development allows for full sunlight on the north side of Bristol Road East at 13:12, but not between 9:12 and 11:12.
 - iv. **Criterion 3b** – No sidewalks on mixed-use, commercial, employment and high-density residential streets impacted by proposal shadows beyond the subject site.
Criterion 3c – We have identified no public open spaces or plazas within the proposed building shadow zone.
 - v. **Criterion 4** – We have identified no turf or flower gardens impacted in the shadow zone.
 - vi. **Criterion 5** – Based on the preliminary shadow analysis completed, shadows of proposed buildings appear to minimally impact the exterior side walls of adjacent low-rise residential buildings.
12. **Description of Locations Not Meeting Shadow Criterion**
- i. **Criterion 1** – None
 - ii. **Criterion 2** – None
 - iii. **Criteria 3a to 3c** – The north side of Bristol Road East is impacted by shadows between 9:12 and 11:12.
 - iv. **Criterion 4** – None
 - v. **Criterion 5** – None
13. **In summary, the proposed development meets most of the criteria in place by the City of Mississauga’s Standards for Shadow Studies as described herein.**

DATE JUNE 21	AZIMUTH (deg)	SLF (L/H)
LOCAL TIME (EDT)		
5:37	235.73	
7:07	250.48	4.1230
7:20	252.58	3.5045
8:20	262.02	2.0048
9:20	272.04	1.3106
10:20	283.79	0.8976
11:20	299.52	0.6203
12:20	323.67	0.4375
13:20	0.00	0.3670
14:20	36.32	0.4375
15:20	60.47	0.6203
16:20	76.21	0.8975
17:20	87.96	1.3105
18:20	97.98	2.0047
19:20	107.42	3.5042
19:33	109.41	4.0852
21:03	124.27	

DATE DECEMBER 21	AZIMUTH (deg)	SLF (L/H)
LOCAL TIME (EDT)		
7:49	302.37	
9:19	319.05	4.8874
10:17	331.25	3.1643
11:17	345.21	2.5293
12:17	0.00	2.3589
13:17	14.79	2.5293
14:17	28.75	3.1644
15:15	41.06	4.9172
16:45	57.63	

Table 1*: Mississauga Sun Angle Data (September 21)

DATE: SEPTEMBER 21	AZIMUTH (deg)	SLF (L/H)
LOCAL TIME (EDT)		
7:05	268.27	
8:35	284.22	3.6329
9:12	291.23	2.5132
10:12	304.14	1.6445
11:12	319.68	1.2181
12:12	338.54	1.0011
13:12	0.00	0.9329
14:12	21.45	1.0022
15:12	40.28	1.2205
16:12	55.79	1.6495
17:12	68.68	2.5255
17:48	75.63	3.6493
19:18	91.46	