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## **SHADOW STUDY**

2570 - 2590 ARGYLE RD, MISSISSAUGA, ONTARIO

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#### 1. INTRODUCTION

This report presents a Shadow Study Analysis of a planned in-fill residential rental development comprising of a new 14 storey building located at 2570 - 2590 Argyle Rd in the City of Mississauga.

This report has been prepared by IBI Group Architects on behalf of the applicant, Bousfields Inc.

The report addresses the specific criteria contained in the City of Mississauga Planning and Building Department's Standards for Shadow Studies (June 2014) and demonstrates that the proposed development will not cause undue impacts with respect to shade.

#### 1.1. Proposed Development

The proposed application is for a 14 storey rental apartment building (identified as building C) contained on a 2.15 ha site with 2 existing 12 storey rental apartment buildings (identified as building A and building B).

The site is located south of Dundas Street West within R4-1 Apartment Zone Area. It is bounded by residential apartment buildings to the south, single detached dwellings buildings to the east (R3 Zone) and Green land to the west. CIMT college - Mississauga campus, KC auto repair and Auto 8000 wholesaler is located north of the site.

The existing rental apartment buildings A and B are oriented in an east-west direction and are located on the east side of the site facing Argyle Rd. The proposed rental apartment building C is to be located at the south west side of the site. The proposed development will contain combined indoor and outdoor amenity for all buildings. Outdoor amenity will be located at grade in between existing building A and B, southwest of building C, and on the 5th floor of building C.

#### 2. STANDARD REQUIREMENTS AND DATA USED

#### 2.1. Dates

Shadow Studies and Analyses in Appendix A are conducted for the following dates:

- ♦ June 21
- ◆ September 21 (similar to March 21, and therefore, criteria for September 21 are deemed to apply to March 21)
- ♦ December 21

#### 2.2. Times

Shadow Studies and Analyses in Appendix A are conducted for the following times:

- ♦ Solar Noon (SN)
- ♦ Hourly intervals before and after Solar Noon (SN), up to and including 1.5 hours after sunrise and 1.5 hours before sunset

#### 2.3. Sun Angles

Sun Angles used in the Shadow Studies and Analyses in Appendix A are based on the latitude and longitude of Mississauga Civic Centre at 300 City Centre Drive, Mississauga ON. L5B 3C1 Based on city of Mississauga Shadow study Standard Requirements.

♦ Latitude: 43 degrees 35' 20" N

♦ Longitude: -79 degrees 38' 40" W

#### 2.4. Time Zone

Time Zone: Eastern

Standard Time: UT- 5 hours was used for December study times (EDT)

Daylight Time: UT- 4 hours was used for June and September study times

(EST)

#### 2.5. Astronomic North

Astronomic north was based on topographical survey of 2570 – 2590 Argyle Rd, Lot 1, Registered Plan 775, City of Mississauga, Regional Municipality of Peel prepared by Speight, Van Nostrand & Gibson Ltd., Ontario Land Surveyors, dated May 21, 2019

#### 2.6. Origin / Source of Base Plan

AutoCAD file for base map 3D massing and terrain was downloaded from the City of Mississauga Open Data website:

https://mississauga.maps.arcgis.com/apps/webappviewer/index.html?id=499cc2269aa544049f47d222a11274e8

#### 2.7. Coverage Area

The base mapping includes a coverage area of 748m x 473m. Whereas the proposed building height from established grade is 47m the coverage area is at least 4.0 times the building height to the north, east and west and 1.5 times the building height to the south.

Shadows were generated using Autodesk Revit 2020



#### 3. CRITERIA

3.1. Residential Private Outdoor Amenity Spaces

#### This criterion is met.

The proposed building C has no shadow impact for more than two consecutive hourly test times within the exterior amenity space (such as private rear yards, decks, patios and pools) of the surrounding low rise residential dwellings on each of the following dates June 21 and September 21, meeting this criterion.

The line of "No Impact Zone" is shown as a line 7.5 m from the front rear wall or other appropriate exterior building wall of the dwelling that abuts the private amenity space.

#### 3.2. Communal Outdoor Amenity Areas

a) Outdoor Amenity At Grade

#### This criterion is in part met.

There are no existing neighboring Communal Outdoor Amenity Areas that are impacted (including children's play areas, school yards, tot lots, and park features such as sandboxes, wading pools etc., and outdoor amenity areas used by seniors and those associated with commercial and employment areas during spring, summer, fall and winter), meeting this criteria. The pool area on the adjacent apartment site is minorly impacted from 7:20 p.m. onward on June 21, however this private pool does not fit the definition of Communal Outdoor Amenity Area.

Common at grade outdoor amenity area that is part of the proposed development has a Sun Access Factor of:

- ♦ June 21 57%
- ♦ September 21 50%
- ♦ December 21 32%

Majority of the shadow cast on the outdoor amenity is due to the existing buildings. (June 21 - Only 23% of shadow is due to the proposed building C; September 21 - only 30% of shadow is due to the proposed building C; December 21 - only 35% of shadow is due to the proposed building C; the remaining shadow is due to the existing buildings).

b) Outdoor Amenity At Building C Rooftop

#### This criterion is met.

The proposed building C allows more than 50% sun coverage on the Communal Rooftop Outdoor Amenity Areas on the Fifth floor on each of the following dates June 21, September 21 and December 21.

- ♦ June 21 54%
- ♦ September 21 65%
- ◆ December 21 80%

#### 3.3. Public Realm

#### This criterion is met.

Low and Medium Density Residential Streets: Argyle Rd. and Privet Ct.

The proposed development casts a minor amount of shadowing at 5:48 p.m. on September 21 on the east and west sides of Argyle Road, meeting this criterion

Mixed Use, Commercial, Employment and High Density Residential Street: Dundas Street West.

The proposed development has minimum shadowing impact on Dundas Street West at 9:12 a.m. on September 21st and it moves fully off this area by 10:12 am, meeting this criterion.

Public Open Spaces, Parks and Plazas

Parkerhill Park is located to the north west of the proposed development. The proposed development casts no incremental shadowing on the park, meeting this criterion

3.4. Turf and flower gardens in Public Parks

#### This criterion is met.

No existing neighboring public open spaces, parks and plazas. The greenland buffer located at the rear of the proposed development (G1 and G2 area) is considered a waterway for stormwater management.

3.5. Building faces to allow for the possibility of using solar energy

#### This criterion is met.

On September 21st at 8:35 a.m, the new building has minimum impact on the townhouses located across the Dundas Street West and it moves fully off this area by 9:12 am. Incremental shadows from the new building does not fall on any other properties containing low-rise residential buildings including townhouses, detached and semi-detached dwellings, meeting this criterion.



### **APPENDIX A**

NAME			PAGE	
June 21				
<b>5.37</b> am	EDT	Sunrise	04	
<b>7.07</b> am	EDT	Sunrise + 1.5h	05	
<b>7.20</b> am	EDT	Solar Noon - 6h	06	
<b>8.20</b> am	EDT	Solar Noon - 5h	07	
<b>9.20</b> am	EDT	Solar Noon - 4h	80	
<b>10.20</b> am	EDT	Solar Noon - 3h	09	
<b>11.20</b> am	EDT	Solar Noon - 2h	10	
<b>12.20</b> pm	EDT	Solar Noon - 1h	11	
<b>1.20</b> pm	EDT	Solar Noon	12	
<b>2.20</b> pm	EDT	Solar Noon + 1h	13	
<b>3.20</b> pm	EDT	Solar Noon + 2h	14	
<b>4.20</b> pm	EDT		15	
<b>5.20</b> pm	EDT		16	
<b>6.20</b> pm	EDT		17	
<b>7.20</b> pm	EDT		18	
<b>7.33</b> pm	EDT		19	
<b>9.03</b> pm	EDT	Sunset	20	
September 21				
<b>7.05</b> am	EDT	Sunrise	21	
<b>8.35</b> am	EDT	Sunrise + 1.5h	22	
<b>9.12</b> am	EDT	Solar Noon - 4h	23	
<b>10.12</b> am	EDT	Solar Noon - 3h	24	
<b>11.12</b> am	EDT	Solar Noon - 2h	25	
<b>12.12</b> pm	EDT	Solar Noon - 1h	26	
<b>1.12</b> pm	EDT	Solar Noon	27	
<b>2.12</b> pm	EDT	Solar Noon + 1h	28	
<b>3.12</b> pm	EDT		29	
<b>4.12</b> pm	EDT	Solar Noon + 3h	30	
<b>5.12</b> pm	EDT	Solar Noon + 4h	31	
<b>5.48</b> pm	EDT	Sunset - 1.5h	32	
<b>7.18</b> pm	EDT	Sunset	33	
December 21				
<b>7.49</b> am	EST	Sunrise	34	
<b>9.19</b> am	EST	Sunrise + 1.5h	35	
<b>10.17</b> am	EST	Solar Noon - 2h	36	
<b>11.17</b> am	EST	Solar Noon - 1h	37	
<b>12.17</b> pm	EST	Solar Noon	38	
<b>1.17</b> pm	EST	Solar Noon + 1h	39	
<b>2.17</b> pm	EST	Solar Noon + 2h	40	
<b>3.15</b> pm	EST	Sunset – 1.5h	41	
<b>4.45</b> pm	EST	Sunset	42	



**TOP VIEW SHADOW STUDY** 2570 -2590 ARGYLE RD, MISSISSAUGA. ON



























































































































































