

PETER J. LESDOW
ARCHITECT



SUN/SHADOW STUDY

FOR THE

**CITY OF NIAGARA FALLS
OFFICIAL PLAN AMENDMENT &
RE-ZONING APPLICATION**

COLBORNE COURT APARTMENTS DEVELOPMENT
3777, 3787, 3791 & 3815 PORTAGE ROAD & PART OF 3828 ST. PETER AVENUE
NIAGARA FALLS, ONTARIO

PETER J. LESDOW
A R C H I T E C T

PLANNING & DEVELOPMENT
CITY OF NIAGARA FALLS
4310 Queen Street
P.O. Box 1023
Niagara Falls, ON
L2E 6X5

May 16, 2025,

**RE: SHADOW IMPACTS ON SURROUNDING LANDS
OFFICIAL PLAN AMENDMENT AND ZONING APPLICATION**
PROJECT: COLBORNE COURT APARTMENTS
**ADDRESS: 3777, 3787, 3791 & 3815 PORTAGE ROAD & PART OF
3828 ST. PETER AVENUE**
OWNER: REGENT NORTH PROPERTIES INC.
**PROPOSAL: 204-UNIT APARTMENT DWELLING CONSISTING OF THREE
BUILDINGS WITH HEIGHTS OF 5½ TO 12 STOREYS.**
AGENT: PETER J. LESDOW ARCHITECT

This Sun and Shadow Study has been prepared for the Official Plan Amendment and Re-Zoning Application with the City of Niagara Falls for the proposed Colborne Court Apartment development. It provides support for this application for this apartment development at the above-described properties in Niagara Falls.

The study follows the format as outlined in the City of Niagara Falls Study Terms of Reference dated December 2023 which includes:

- Part A Project Description, Location and Surrounding uses and spaces.
- Part B Analysis – Sun and Shadow Study drawings in accordance with the Terms of Reference Criteria and Table 1: Shadow Study Times. Note that due to criteria requirements the drawings are in a 24"x36" format and are included as an attachment to this study.
- Part B2 Mitigation design Strategies to reduce the coverage of shadows on Private and Public Areas and improve sun exposure.
- Part C Conclusion – A review and discussion of the Sun and Shadow drawings results meeting 4.0 Shadow Impact Criteria of the Terms of Reference.
- Checklist Completed form outlining the criteria in the preparation of the Sun and Shadow Study drawings including signed declaration by Peter J. Lesdow Architect that the information submitted is accurate and concurs with the criteria submission of the application.

Peter J. Lesdow
A r c h i t e c t

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Part A
Project Description,
Location Surrounding
Uses and Spaces

PART A

PROJECT DESCRIPTION

The apartment development proposal requires an Official Plan and Re-Zoning By-Law amendment to allow:

- Existing 3815 Portage Road apartment building to increase from 2½ to 6½ storeys for a total of 55 apartment units.
- Existing 3791 Portage Road apartment building to increase from 2½ to 5½ storeys for a total of 53 apartment units.
- New 12-storey, 94-unit apartment building to replace existing commercial properties at 3777 and 3787 Portage Road.

Parking for this development is provided predominantly in the proposed parking structure at the north-west corner of the property and below grade. Surface parking will also be provided.



APARTMENT DEVELOPMENT LOOKING WEST FROM PORTAGE ROAD

Project Location

This development is to be located at:

3777, 3787, 3791 & 3815 Portage Road & Part Lot of 3828 St. Peter Avenue in Niagara Falls, Ontario.

Latitude: 43° 07'04" North

Longitude: 79° 06'01" West

Surrounding Uses and Spaces

The Uses and Spaces surrounding the development are as follows:

South

- Zoned Residential 1D (Southwesterly) and General Commercial (Southeasterly)
- Individual Private Residences and Small Businesses

West

- Zoned Residential 1D
- Individual Private Residences

North

- Zoned Residential 1D (Northwesterly) and General Commercial (Northeasterly)
- Individual Private Residences and Small Businesses

East

- Portage Road
- Across Portage Road Zoned General Commercial
- Strip plaza with parking towards the road.

Part B – Analysis

Part B1 – Sun and Shadow
Study Drawings

Part B2 - Mitigation

PART B ANALYSIS

B1 DRAWINGS

The Sun/Shadow Study drawings were prepared in accordance with the City of Niagara Falls Sun/Shadow Study Terms of Reference dated December 2023, 3.0 Methodology Table 1: Shadow Study Times and B1: Drawings.

To provide a suitable scale for legibility and the coverage are required by the Terms of Reference the drawings are in a 'D' sized page (915mm x 610mm) was necessary.

In total, four dates at nine hourly intervals generates thirty-six Sun/Shadow drawings, numbered SH-1 to SH-36 are included with this report and form part of this analysis.

B2 MITIGATION

The position of the two existing apartment buildings plays a significant role with respect to Sun and Shadowing of this site and area.

Within the existing arrangement a third apartment building has been strategically placed to reduce shadow impacts.

There are four Sun/Shadow design strategies considered in the apartment complex massing design.

- 12-Storey Tower placement.
- Reduction of proposed 3791 Portage Road (Westerly apartment) addition height.
- Orientation of buildings.
- Separation of buildings.

Below is a discussion of each of these design strategies implementation for this apartment complex design.

1. 12-STOREY TOWER PLACEMENT

The new 12-storey apartment building was placed on the extreme northwest corner of the site, which is the furthest away from existing residential properties and will therefore reduces the effects of shadowing on these properties.

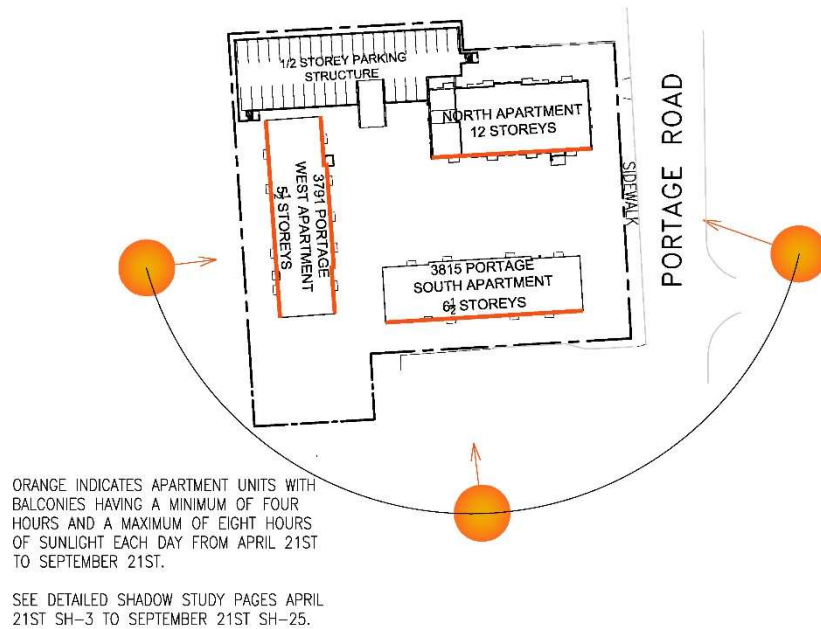
2. WEST APARTMENT HEIGHT

The existing west apartment block bordering individual homes beside was made the lowest on site at 5½ storeys. This was done to reduce the visual impact of the development to the residents and reduce the impact of shadows on these properties.

3. ORIENTATION OF BUILDINGS

The existing southeast apartment and new 12-storey north-east apartments are oriented east-to-west on the property. Not only does this orientation significantly reduce the buildings visual mass facing Portage Road, but it also provides the maximum amount of sun exposure for the apartment units themselves. In the sites apartment building arrangement well over three-quarters of the apartment units with their associated balconies will have a minimum of four hours of sunlight, and as much as eight hours per day from April 21st to September 21st.

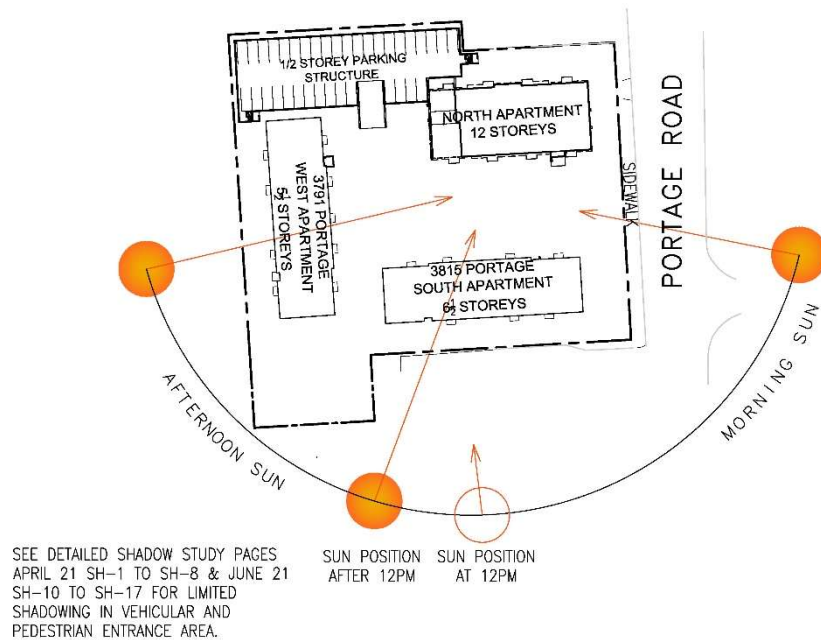
The illustration below shows the apartment building elevations which will receive the amounts of sunlight noted described above.



4. SEPARATION OF TOWERS ON SITE

The apartment buildings are the maximum distance apart from each other that they can possibly be.

This maximized separation of the buildings on site provides for the most possible sun exposure into the vehicular and pedestrian entrance area between the buildings as shown in the illustration below.



The Design Strategies as described above and implemented in this development have contributed to it and its surrounding properties receiving the maximum sun exposure possible considering the existing placing and physical massing of the buildings. These Design Strategies have mitigated or limited the impacts of shadows and helped in meeting the Sun/Shadow Terms of Reference 4.0 Shadow Impact Criteria.

PART C

CONCLUSION

This conclusion is based on the review of all thirty-six Sun/Shadow drawings enclosed with this study. This review analyzes how the apartment development adheres to the Terms of Reference 4.0 Shadow Impact Criteria of exposure, coverage times and dates.

The conclusion follows the same format as 4.0 Shadow Impact Criteria which is identified as the indented **blue text**. The review of the drawings is summarized below each subsection is in black text.

4.2 Private Realm

4.2.1 – Outdoor Residential Amenity Spaces on Adjacent Properties

To minimize the impact of shadow on existing adjacent properties from new development, adjacent residential amenity areas should receive at a minimum of 6 hours of sunlight between 10am to 6pm.

- April 21 to September 21

Based on the shadow analysis, this development will continue to allow adjacent residential amenity areas to receive a minimum of 6 hours of sunlight between 10:00am to 6:00pm daily from April 21 to September 21, therefore meeting Shadow Impact Criteria 4.2.1.

4.2.2 - Outdoor Residential Amenity Spaces within the proposed development

To maximize the functionality of private outdoor amenity spaces associated with new developments with rear yards, rooftop spaces, balconies, decks, and other shared common spaces, amenity areas should receive at least 4 hours of sun between 10am to 6pm.

- April 21 to September 21

The apartment development does not propose outdoor amenity areas other than balconies for its residents.

Balconies are found on nearly every face of the buildings and those with southern exposure will receive no less than 8 hours of sunlight daily throughout the year. Those with western exposure will receive full sunlight from 1:00pm until 6:00pm, for 5 hours of sunlight daily. The easterly facing balconies will receive sunlight from 10:00am until about 2:00pm, for 4 hours of sunlight daily from April 21st to September 21st. Balconies on the north side of the buildings will receive 1 to 2 hours of sunlight daily in June, but this is typical of any building with a northern exposure and cannot be remedied.

It must be noted that a practically designed apartment building will usually have a portion of its elevations along with its associated balconies with a northern exposure which will have no exposure to the sun. Exceptions to such a situation would be a building whose length runs north-to-south across a site with minimum width at its north end without balconies. However, not all sites are conducive to such a positioning, and in this case such a building would tend to create a wider shadow. It should be noted that the existing south building at 3815 portage Road already has half of its apartment units facing north which we can do nothing about. For this reason, the Shadow Impact Criteria requesting all building elevations or balconies to have a minimum of four hours of sunlight is not reasonable or attainable and should be amended in consideration of northern exposed elevations.

Balconies which are on the east, south and west building elevations meet or exceed the criteria of 4.2.2 for full sun exposure. As noted above the 4.2.2 Criteria is not attainable for balconies with a northern exposure which is typical for many apartment buildings.

4.3 PUBLIC REALM

4.3.1 – Public Outdoor Amenity Spaces

Communal Outdoor Amenity Spaces include school yards, children's play areas, public outdoor pools, community gardens, privately owned public spaces, Civic and Cultural Spaces, and other outdoor public areas.

Shadows cast by existing buildings and shadows from proposed buildings should allow for 5 hours of full sun between 10am-6pm on:

- April 21

School yards and children's play areas should receive at least 3 hours of sun on:

- December 21st (10am to 3pm)

Communal outdoor amenity spaces as defined above are not within proximity to this apartment development. For this reason, this development will not provide any shadowing to such outdoor amenities.

4.3.2 – Sidewalk areas and boulevards along the frontage of the development

Streets with residential and mixed-uses, enlivened with people on sidewalks, patio spaces, trees, and where significant numbers walk, cycle, or ride transit should continue to receive a minimum of 4 hours of sun 10am to 6pm.

- April 21st (The south sides of streets with East and West orientations may receive less sunlight)

The study shows that on dates April 21, June 21 and September 21, four hours of sun exposure is maintained on the westerly sidewalk of Portage Road from the hours of 10:00am to 2:00pm. On December 21, two hours of sun exposure is maintained in the same area from 10:00am to 12:00pm.

The development meets the criteria of 4.3.2 providing four hours of sunlight across bordering sidewalks for the months of April to September at a minimum. However, it does not meet that criterion in the winter months, as December 21 studies show two hours of daylight.

That said, any building over two storeys on the west side of a road would have to be pulled significantly into the property, beyond any prescribed by-laws front yard setback, to avoid casting a shadow across an adjacent sidewalk during the winter months. As it stands, none of the apartment towers on the west side of Portage Road meet 4.3.2 Criteria on December 21st.

4.3.3 – Parks, Open spaces, and natural heritage areas

Shadows cast by existing buildings and proposed developments surrounding parks and other open spaces should not exceed 3 hours in duration between the hours of 10am to 6pm on:

- April 21st
- September 21st

There are no parks, open spaces or natural heritage areas in proximity to this development, therefore there will be no shadowing impacts to these areas, resulting in it meeting 4.3.3 Criteria requirements.

(Natural heritage areas subject to an Environmental Impact Study (EIS) that requires additional sunlight should be identified).

There are no Natural Heritage Areas in the surrounding areas.

The Sun/Shadow Study's review of this apartment development shows that it meets or exceeds all Terms of Reference 4.0 Shadow Impact Criteria. There are some minor exceptions as follows:

1. Regarding balconies:
 - a. Those which are on the east, south and west building elevations meet or exceed the 4.2.2 criteria for full sun exposure.
 - b. The existing 3815 apartment building already has 50% of its balconies facing north.
 - c. Practically designed apartment buildings will have units with their associated balconies with a north exposure and for this reason the Shadow Impact Criteria for north-facing balconies should be amended accordingly.
2. Regarding sidewalks:
 - a. The Sun/Shadow studies shown of April 21, June 21 and September 21 for the development meet Criteria 4.3.2 by providing sidewalks areas with a minimum of four hours of sunlight per day.
 - b. The Sun/Shadow studies shown of December 21 for the development do not meet Criteria 4.3.2 by providing sidewalks areas with a minimum of two hours of sunlight per day.
 - c. It was further discussed that any tall building would have to be pulled significantly into a property to avoid shadows across sidewalks during winter months. No apartment buildings along the west side of Portage Road will satisfy 4.3.2 Criteria on December 21st.

Therefore, aside from the two noted items described above, the Sun/Shadow Study supports this Official Plan Amendment and Re-Zoning Application.

Respectfully,



Peter J. Lesdow
B.A., B.Arch., O.A.A., M.R.A.I.C., N.C.A.R.B.



CHECKLIST

Declaration of Consultants

Checklist

1.General	
A. Name of the Project: Colborne Court	B.Date: May 16, 2025
C. Address of Application: 3777, 3787, 3791 & 3815 Portage Rd & Part of 3828 St. Peter Ave.	D.Name of Consultant: Peter J. Lesdow Architect
E. Phone number and email of the Consultant: 905-357-1112 plesdow@cogeco.net	

2.Project Description	
A.Short Description of the Project: Apartments to provide 204 units with one floor of parking below grade.	
B. Number of buildings for this Application: Three	
C.Number of Floors : 5.5, 6.5 & 12	D. Height in Metres : 16.9, 19.9 & 36.9
E.Did you submit the 3d Model for this project? Yes..... No.....	
File Format Submitted:	

3.Massing Information	
A.Software Used	B.Terrain Corrected :
If Other describe below:	Yes..... No.....

4.Massing Model Location	
A.Coordinates Used: Longitude: 43° 04'06" N Latitude: 79° 08'05" W	B.Solar North Matches True North? Yes..... No.....

5.Shadow Diagrams Information	
A.Are you fully compliant with all of the technical specifications in the Terms of Reference? Yes..... No.....	
B.Do the Shadow Diagrams use a standard metric scale?	Yes..... No.....
C.Are the Shadow Diagrams provided in Colour?	Yes..... No.....
D.Does the Shadow Diagrams use The City's Shadow Study Drawing Standards – Colour Analysis? Yes..... No.....	

5.Shadow Diagrams Information – Continued

D.Date Used for Shadow Analysis: As prescribed

Year.....

Month.....

E.Daylight Savings Time considered?

Yes.....

No.....

6.General Comments

Declaration of Consultant

I Peter J. Lesdow (Print name)

certify that I have examined the contents of the application, certify that the information submitted with it is accurate and concur with the submission of the application.

Date: MAY 16 2025

Signature of Consultant:

