



global environmental solutions

Proposed Residential Development
100 Bennelong Road, Olympic Park
Solar Access Study

Report Number 610.13394-R2

13 November 2014

Meriton Apartments Pty Ltd
Level 11, Meriton Tower
528 Kent Street
Sydney NSW 2000

Version: Draft 3

Proposed Residential Development

100 Bennelong Road, Olympic Park

Solar Access Study

PREPARED BY:

SLR Consulting Australia Pty Ltd
ABN 29 001 584 612
2 Lincoln Street Lane Cove NSW 2066 Australia

(PO Box 176 Lane Cove NSW 1595 Australia)
T: 61 2 9428 8100 F: 61 2 9427 8200
E: sydney@slrconsulting.com www.slrconsulting.com

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Client. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Meriton Apartments Pty Ltd. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR Consulting.

SLR Consulting disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
610.13394-R2	Draft 3	13 November 2014	Sophie Wong Kai In	Neihad Al-Khalidy	Neihad Al-Khalidy

Executive Summary

SLR Consulting Pty Ltd (SLR) has been engaged by Meriton Apartments Pty Ltd to assess the daylight access of the residential development at 100 Bennelong Road, Olympic Park with respect to the Residential Flat Design Code and the Sydney Olympic Park Master Plan 2030.

The site is bounded on the west by the Olympic Park railway line and on the east by Bennelong Road. To the immediate west of the site there are two towers (24 and 30 storeys) currently under construction, and to the east is parkland. To the northwest of the site there is a 24-storey SOP tower. These towers will overshadow the proposed development in the afternoons.

The proposed development consists of a west part with 169 apartments and an east part with 162 apartments with ground floor podium and building above.

The *State Environmental Planning Policy (SEPP) 65* supported by the Residential Flat Design Code - Part 03 Building Design, 'Rules of Thumb' is relevant to the assessment of the daylight access into residential components of the proposed development. The above regulation states that:

- Living rooms and private open spaces for at least 70 % in a development should receive a minimum of three hours of direct sunlight between 9.00 am and 3.00 pm in mid-winter. In dense urban areas a minimum of two hours may be acceptable.

The proposed development is required to achieve the following SOPA requirement:

- To achieve high quality living environments, provide a minimum of three hours of direct sunlight per day to living rooms and private open spaces in at least 75 per cent of dwellings within a residential development on 30 June.

This report provides information on the solar access through the living areas windows and open private areas of residential apartment of the proposed development during:

- June 30 between the hours of 7.30 am and 4.30 pm
- June 21 between the hours of 9.00 am and 3.00 pm.

On the basis of the current Solar Access Analysis of the proposed development, SLR has concluded the following:

Results in Accordance with SOPA Requirements:

- 72% of the apartments receive at least 3 hours of sunlight on June 30
- 86% of the apartments receive at least 2 hours of sunlight on June 30

Results in Accordance with SEPP 65 Requirements:

- 68% of the apartments receive at least 3 hours of sunlight on June 21 between the hours of 9.00 am and 3.00 pm
- 84% of the apartments receive at least 2 hours of sunlight on June 21 between the hours of 9.00 am and 3.00 pm

Table of Contents

1	INTRODUCTION	5
1.1	Site Description	5
1.2	Development Description	5
2	SOLAR ACCESS TO RESIDENTIAL BUILDINGS	7
2.1	Daylighting Considerations	7
2.2	Solar Access Analysis	7
2.3	Solar Access Results	8
2.3.1	SOPA Requirements	8
2.3.2	SEPP 65 Requirements	8
3	CONCLUSION	10

TABLES

Table 1	Scenario 1 - Solar Access Summary for each Building on June 30	8
Table 2	Solar Access Summary for each building between 9.00am and 3.00pm on June 21	9

FIGURES

Figure 1	Aerial View of Development Site	5
Figure 2	Level 1 floor plan	6
Figure 3	3D Ecotect Model	8

APPENDICES

Appendix A	Sun Eye Views - June 30
Appendix B	Detailed Solar Access Calculations

1 INTRODUCTION

SLR Consulting Pty Ltd (SLR) has been engaged by Meriton Apartments Pty Ltd to assess the daylight access of the residential development at 100 Bennelong Road, Olympic Park with respect with the Residential Flat Design Code and the Sydney Olympic Park Master Plan 2030.

1.1 Site Description

The site is bounded on the west by the Olympic Park railway line and on the east by Bennelong Road. To the immediate west of the site there are two towers (24 and 30 storeys) currently under construction, and to the east is parkland. To the northwest of the site there is a 24-storey SOP tower. These towers will overshadow the proposed development in the afternoons.

Figure 1 Aerial View of Development Site



Image Courtesy of Nearmap

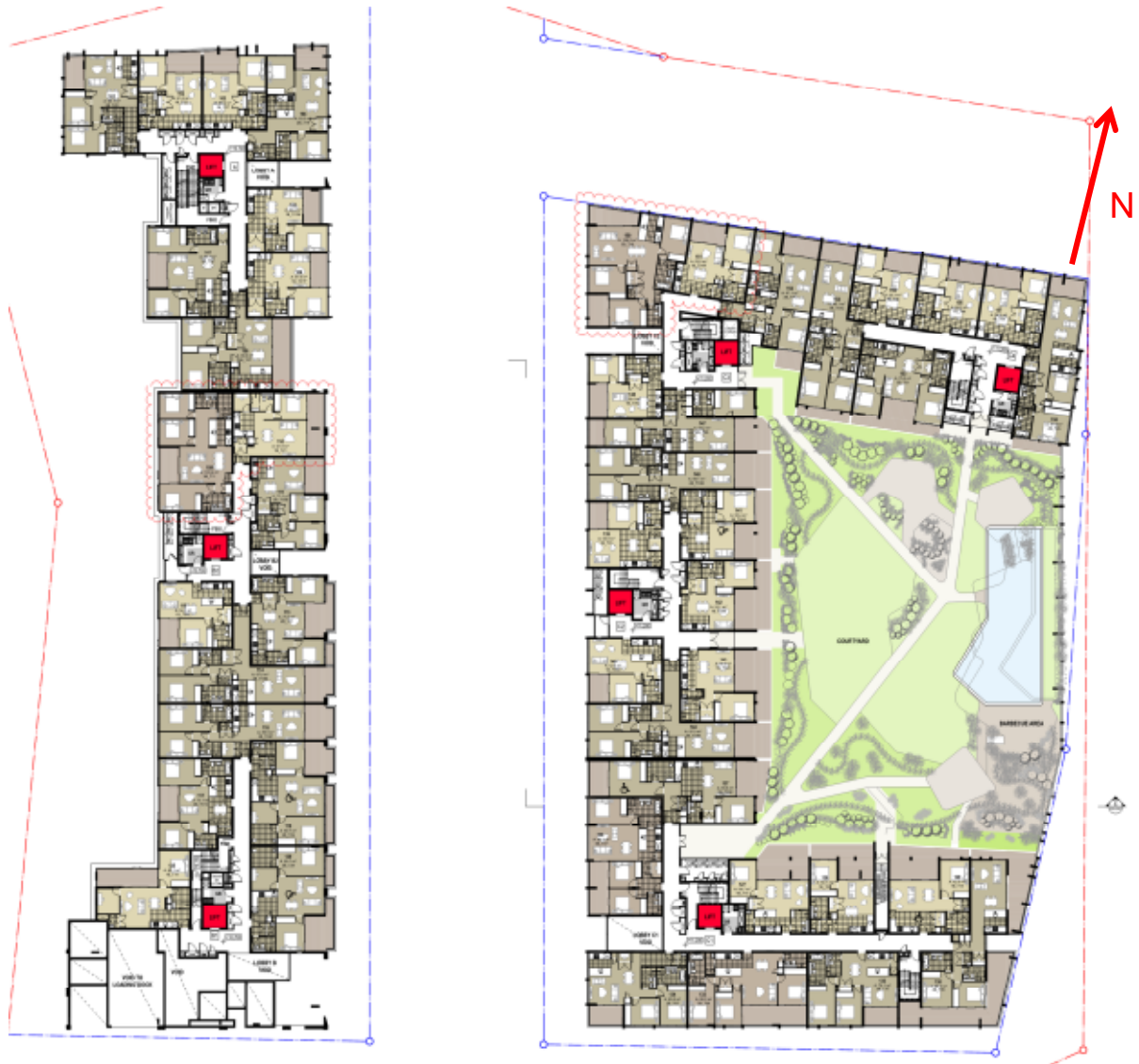
1.2 Development Description

The proposed development consists of two buildings:

- A west part with 169 apartments from ground floor to Level 9
- An east part with 162 apartments with ground floor podium and building above

Figure 2 shows the Level1 floor plan of the proposed development.

Figure 2 Level 1 floor plan



2 SOLAR ACCESS TO RESIDENTIAL BUILDINGS

2.1 Daylighting Considerations

The **State Environmental Planning Policy (SEPP) 65** supported by the Residential Flat Design Code - Part 03 Building Design, 'Rules of Thumb' is relevant to the assessment of the daylight access into residential components of the proposed development. The above regulation states that:

- Living rooms and private open spaces for at least 70 % in a development should receive a minimum of three hours of direct sunlight between 9.00 am and 3.00 pm in mid-winter. In dense urban areas a minimum of two hours may be acceptable.

The proposed development is required to achieve the following SOPA requirement:

- To achieve high quality living environments, provide a minimum of three hours of direct sunlight per day to living rooms and private open spaces in at least 75 per cent of dwellings within a residential development on 30 June.

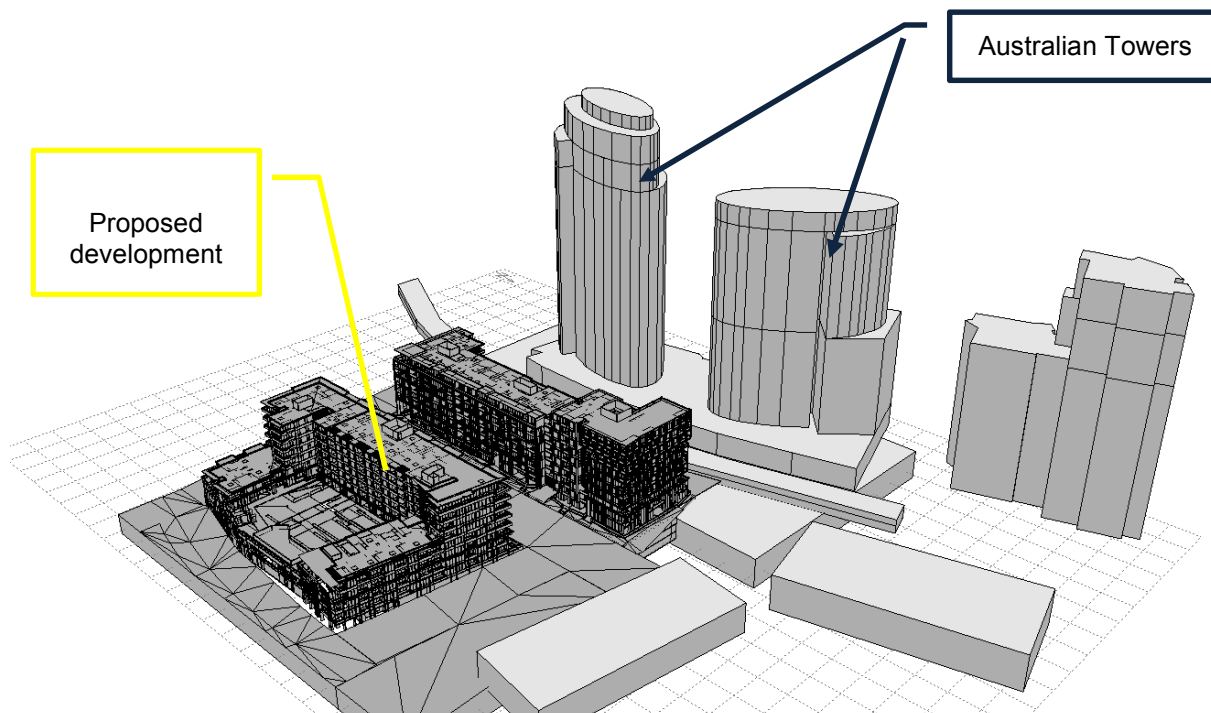
Specific interest therefore lies in the solar access through the living areas windows and balconies of residential apartment of the proposed development on June 30 between the hours of 7.30 am (sunrise) and 4.30 pm (sunset).

2.2 Solar Access Analysis

SLR has imported the latest 3D AutoCAD file provided by the architect into Ecotect, and constructed the surrounding buildings from the plans downloaded from the Department of Planning and Infrastructure website. Sun's eye view diagrams were generated for each 15 minute interval between 7.30 am and 4.30 pm on the June 30 and between 9.00 am and 3.00 pm on June 21 in Ecotect. Sun's Eye View diagrams prepared for each 15 minute interval between 7.30 am and 4.30 pm on June 30 are shown in **Appendix A**. Detailed hours of direct sunlight calculation to each unit are identified in **Appendix B**.

Figure 3 shows the northeast view of 3D model built in Ecotect with the proposed development and the surrounding buildings.

Figure 3 3D Ecotect Model



2.3 Solar Access Results

2.3.1 SOPA Requirements

Results of the Solar Access Analysis with all surrounding buildings, including the Australian and SOP Towers is shown in **Table 1**:

Table 1 Scenario 1 - Solar Access Summary for each Building on June 30

Sun Access Results on June 30 – including Australian Towers					
Building	Number of Apartments	Number of Apartments with at least 3hr of direct sunlight	Number of Apartments with at least 2hr of direct sunlight	Percentage of Apartments with at least 3hr of direct sunlight	Percentage of Apartments with at least 2hr of direct sunlight
West	169	120	145	71%	85.8%
East	162	118	140	72.8%	86.4%
Total	331	238	285	72%	86%

2.3.2 SEPP 65 Requirements

Results of the solar access with all surrounding buildings, including the Australian and SOP Towers to the living rooms and private open spaces of apartments on June 21 between the hours of 9.00am and 3.00 pm as per SEPP 65 are shown in **Table 2**.

Table 2 Solar Access Summary for each building between 9.00am and 3.00pm on June 21

Sun Access Results on June 21 from 9.00am to 3.00pm					
Building	Number of Apartments	Number of Apartments with at least 3hr of direct sunlight	Number of Apartments with at least 2hr of direct sunlight	Percentage of Apartments with at least 3hr of direct sunlight	Percentage of Apartments with at least 2hr of direct sunlight
West	169	115	138	68.0%	81.6%
East	162	111	139	65.7%	85.8%
Total	331	226	277	68%	84%

3 CONCLUSION

SLR Consulting Pty Ltd (SLR) has been engaged by Meriton Apartments Pty Ltd to assess the daylight access of the residential development at 100 Bennelong Road, Olympic Park with respect with the Residential Flat Design Code and the Sydney Olympic Park Master Plan 2030.

The *State Environmental Planning Policy (SEPP) 65* supported by the Residential Flat Design Code - Part 03 Building Design, 'Rules of Thumb' is relevant to the assessment of the daylight access into residential components of the proposed development. The above regulation states that:

- Living rooms and private open spaces for at least 70 % in a development should receive a minimum of three hours of direct sunlight between 9.00 am and 3.00 pm in mid-winter. In dense urban areas a minimum of two hours may be acceptable.

The proposed development is required to achieve the following SOPA requirement:

- To achieve high quality living environments, provide a minimum of three hours of direct sunlight per day to living rooms and private open spaces in at least 75 per cent of dwellings within a residential development on 30 June.

This report provides information on the solar access through the living areas windows and open private areas of residential apartment of the proposed development during:

- June 30 between the hours of 7.30 am and 4.30 pm with the Australian and SOP Towers
- June 21 between the hours of 9.00 am and 3.00 pm.

On the basis of the current Solar Access Analysis of the proposed development, SLR has concluded the following:

Results in Accordance with SOPA Requirements:

- 72% of the apartments receive at least 3 hours of sunlight on June 30
- 86% of the apartments receive at least 2 hours of sunlight on June 30

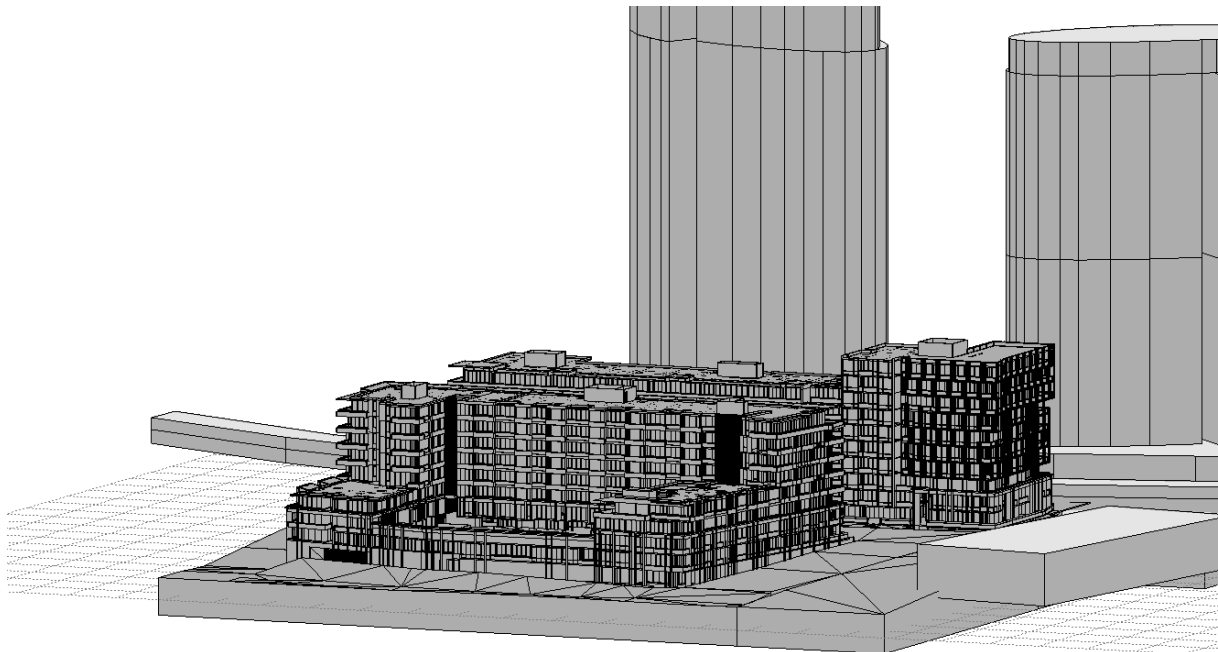
Results in Accordance with SEPP 65 Requirements:

- 68% of the apartments receive at least 3 hours of sunlight on June 21 between the hours of 9.00 am and 3.00 pm
- 84% of the apartments receive at least 2 hours of sunlight on June 21 between the hours of 9.00 am and 3.00 pm.

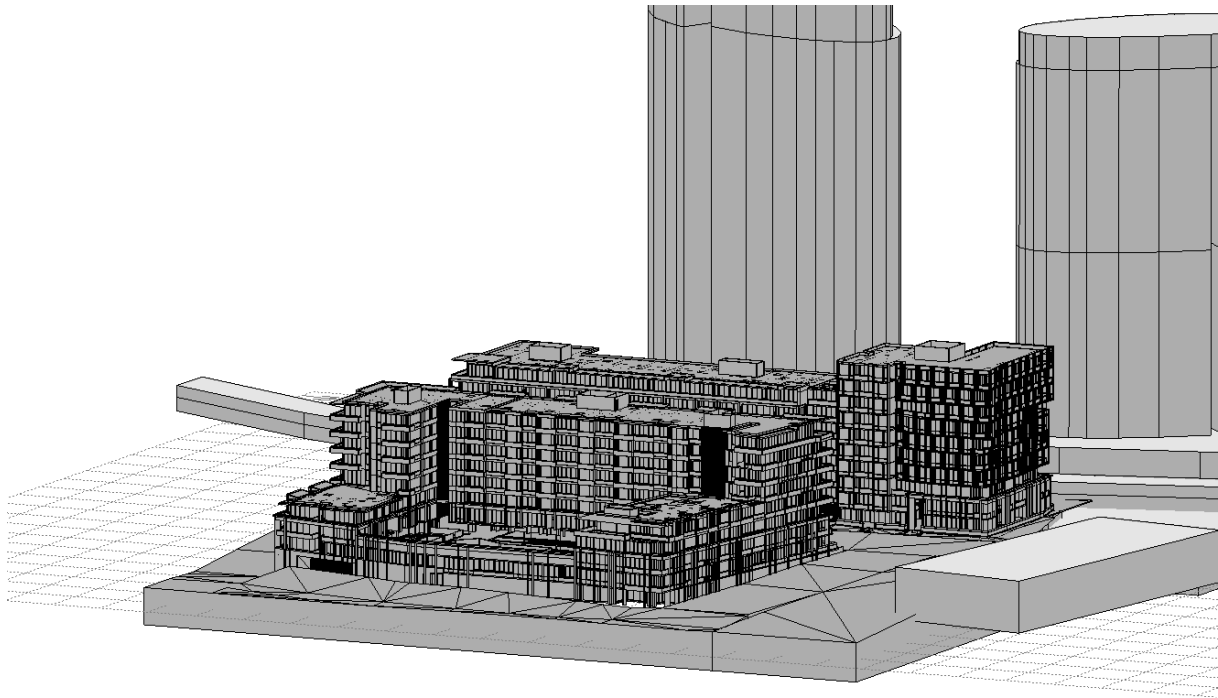
7.30am



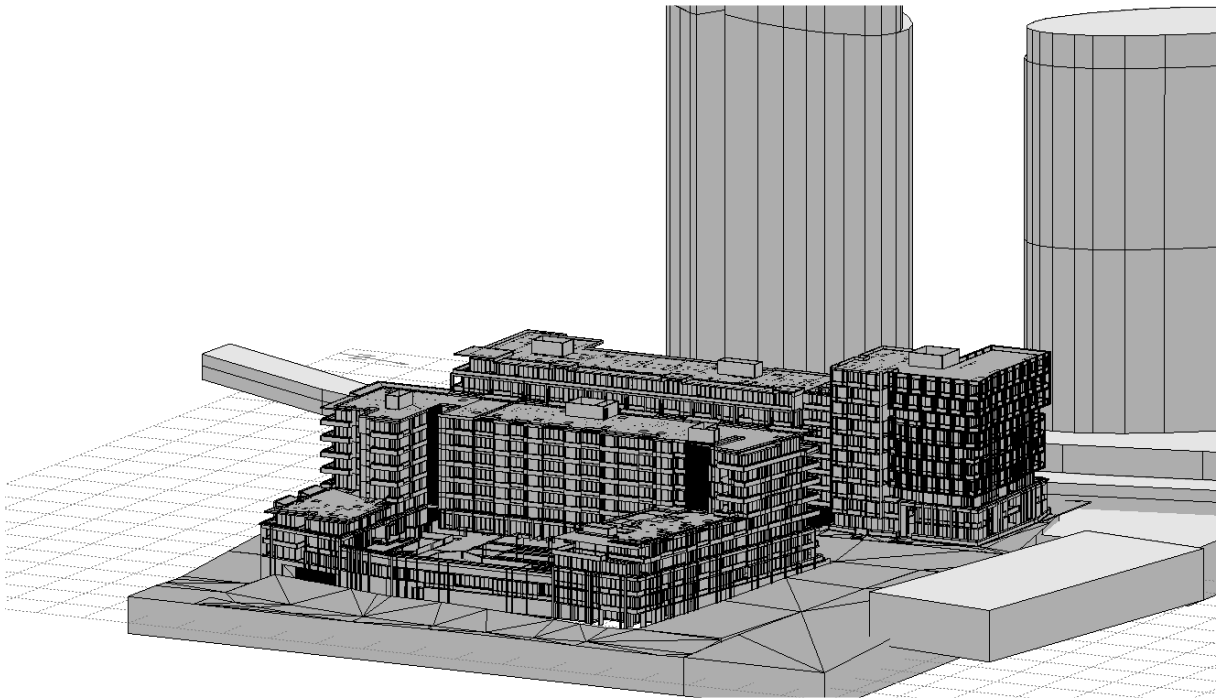
7.45am



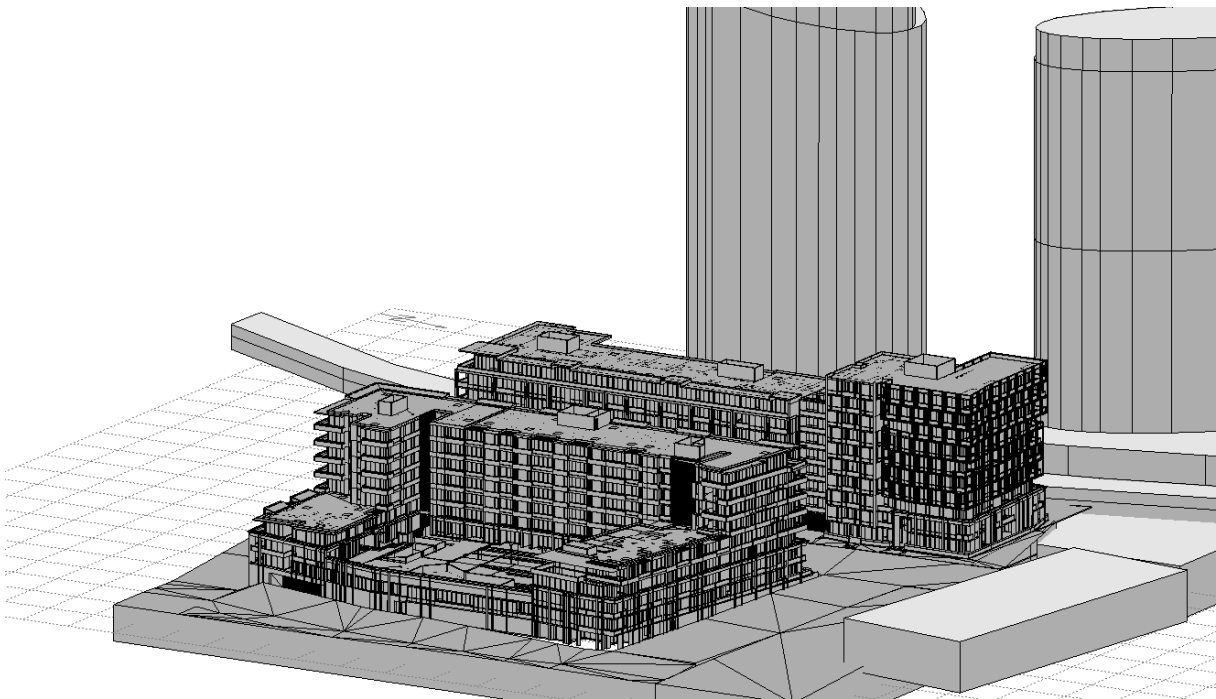
8.00am



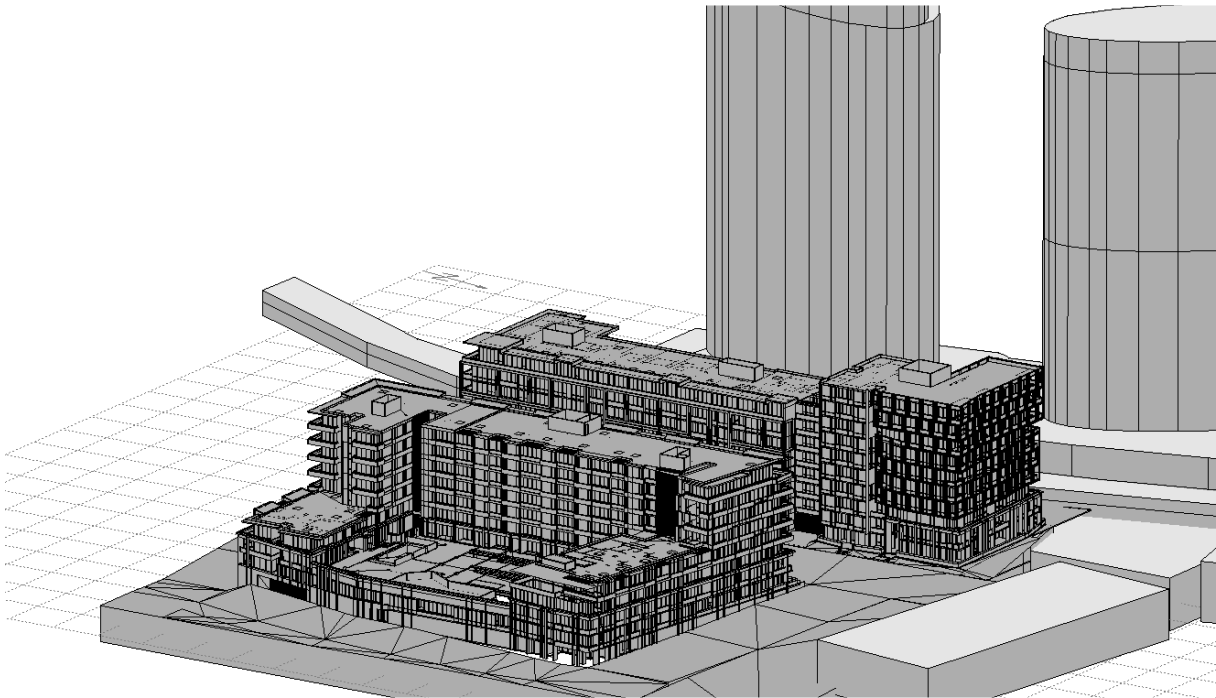
8.15am



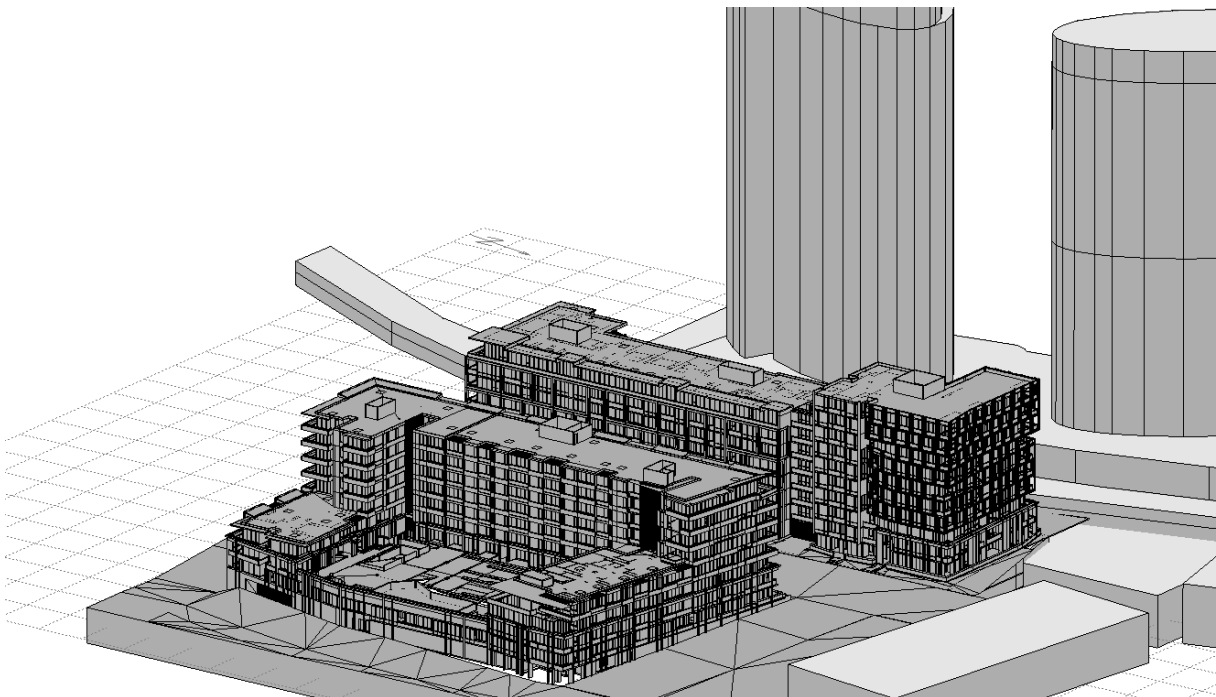
8.30am



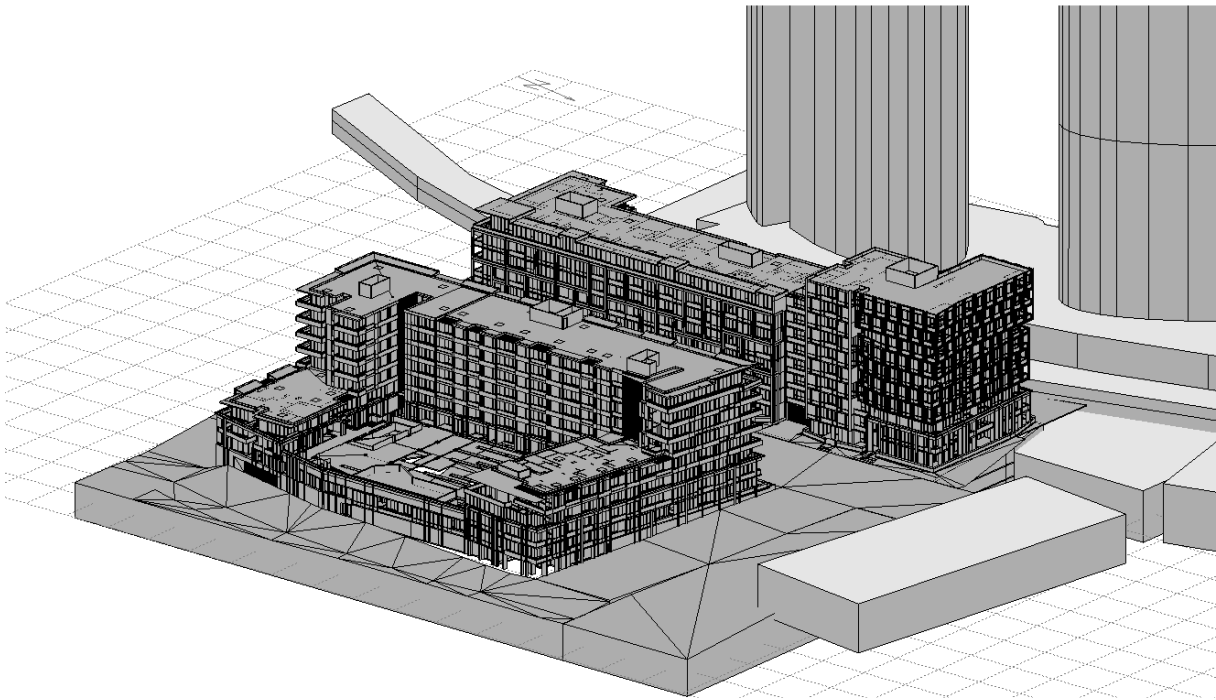
8.45am



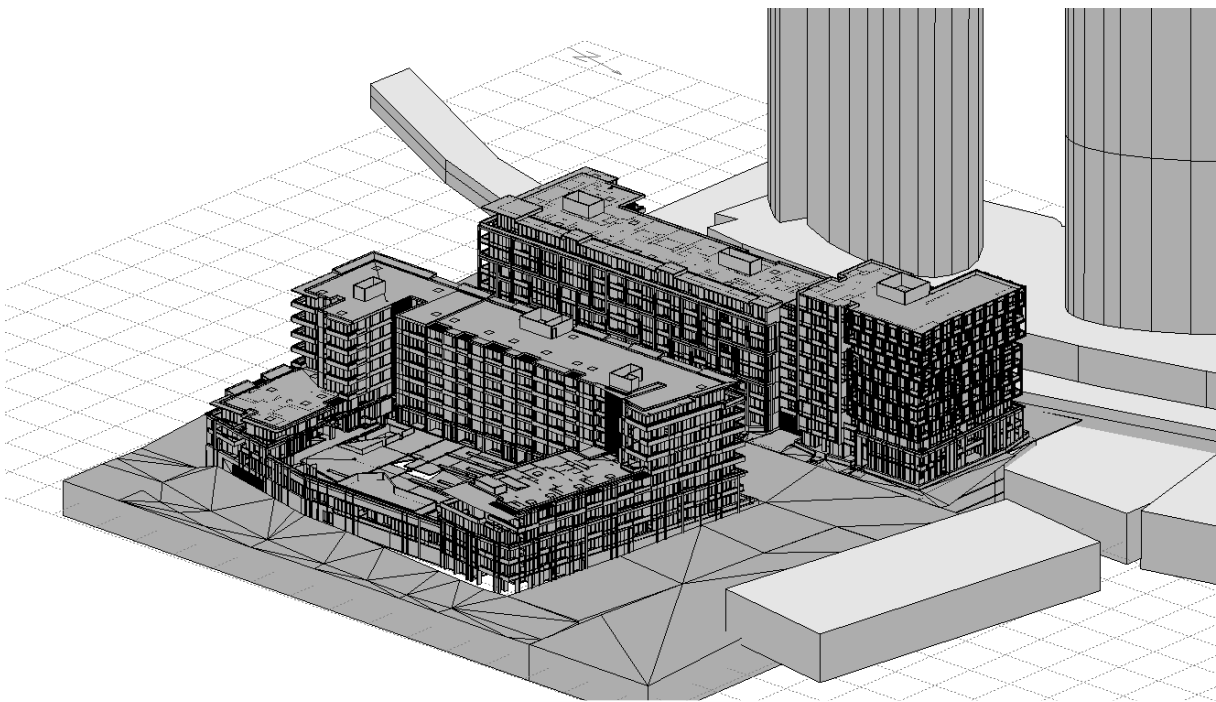
9.00am



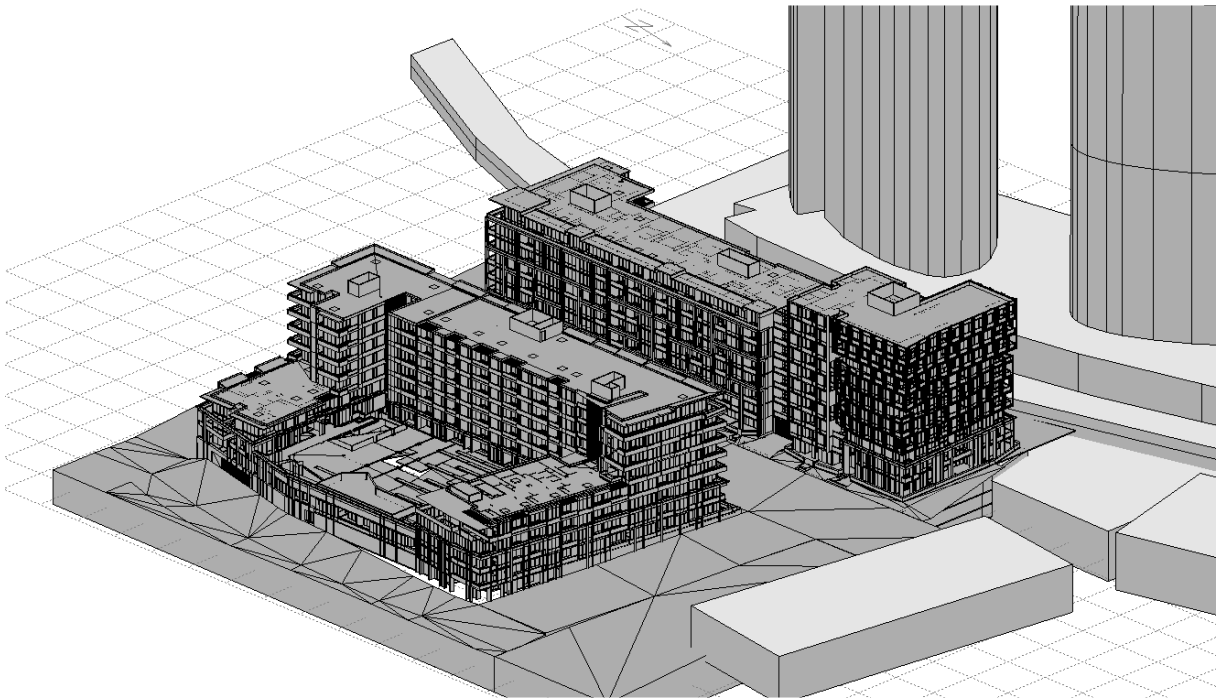
9.15am



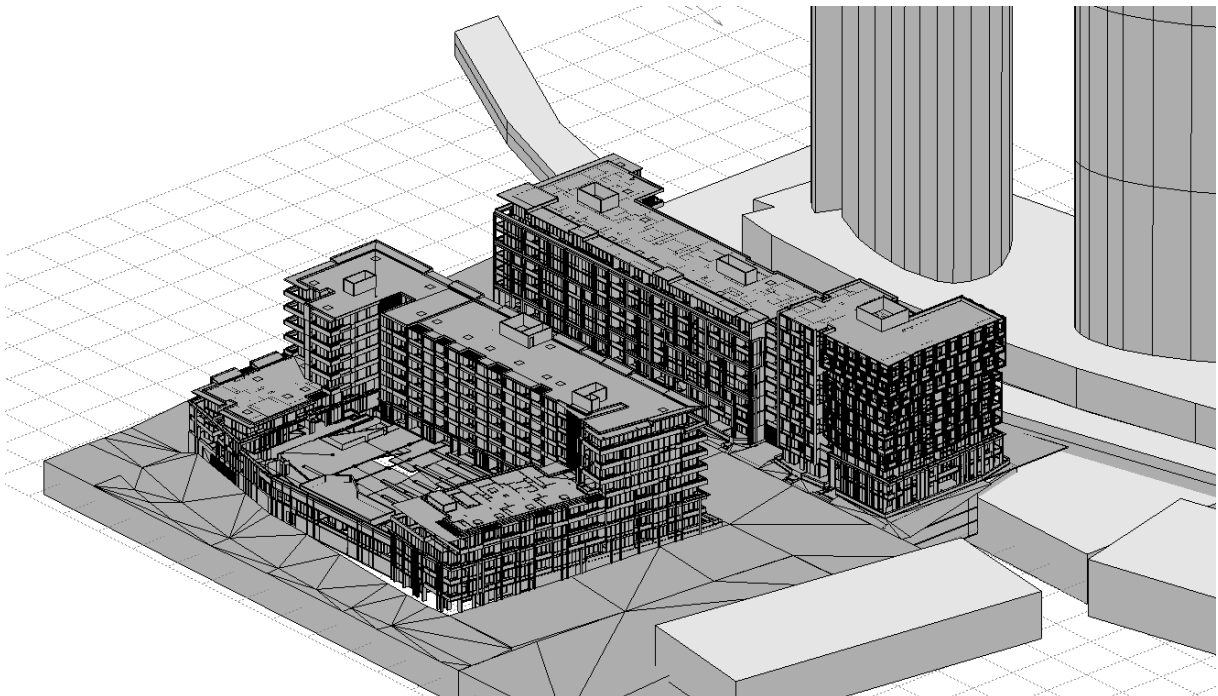
9.30am



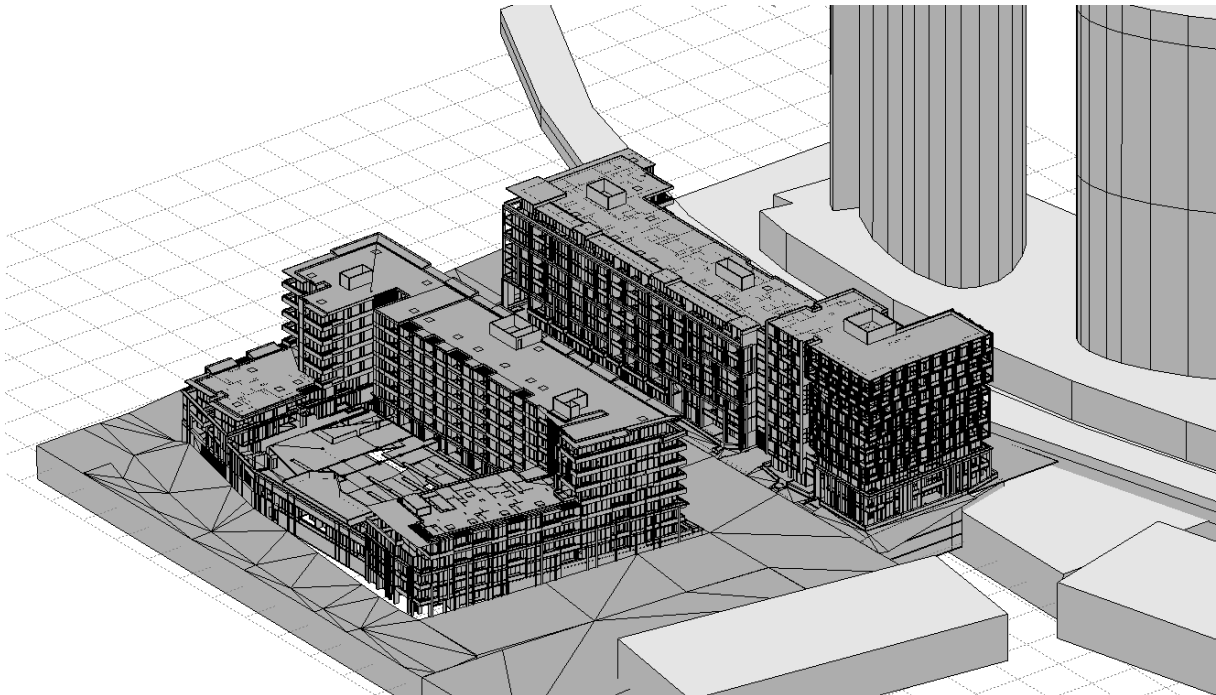
9.45am



10.00am



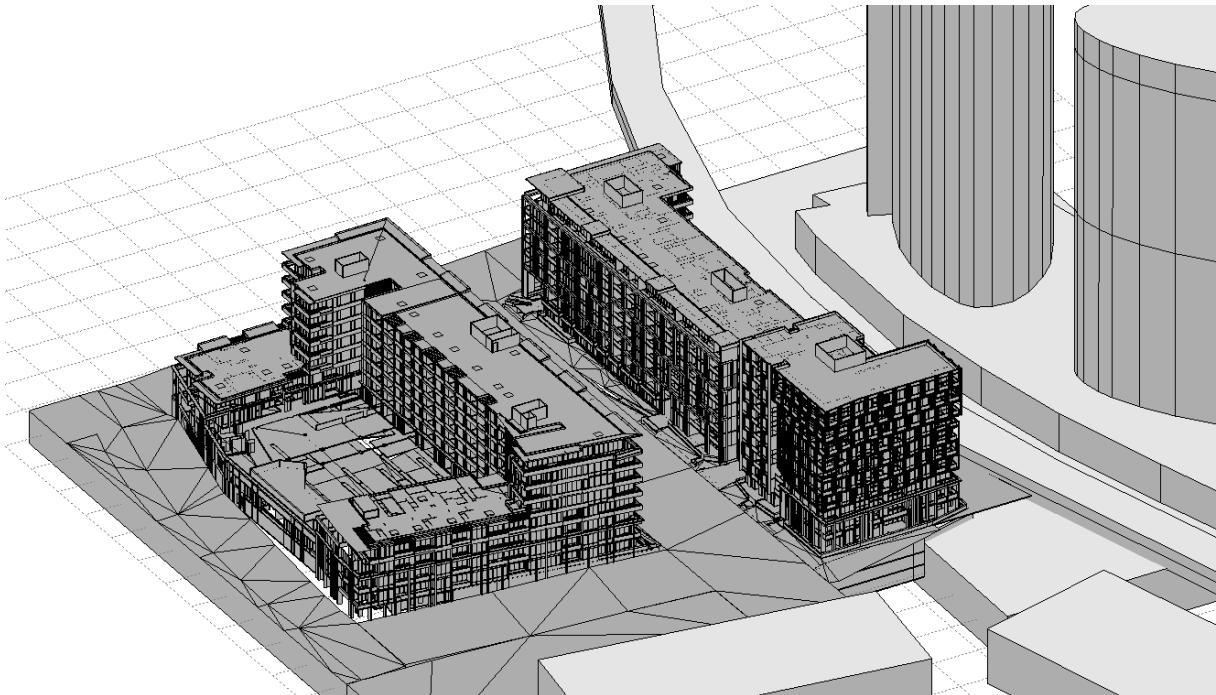
10.15am



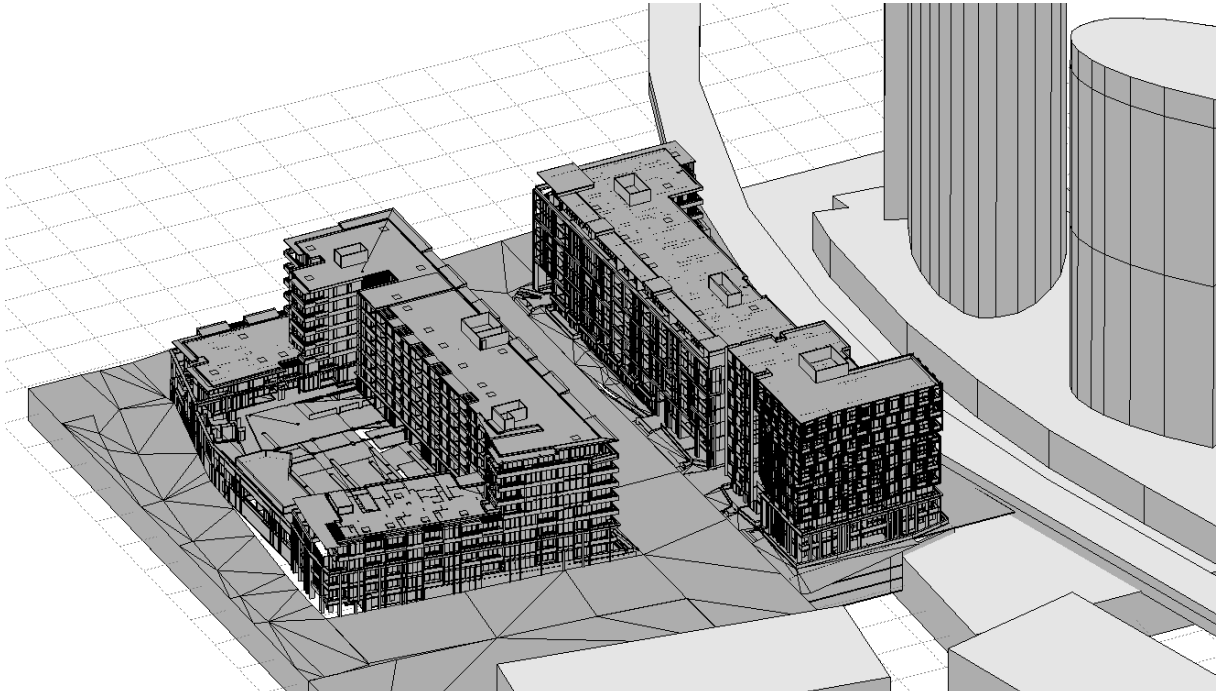
10.30am



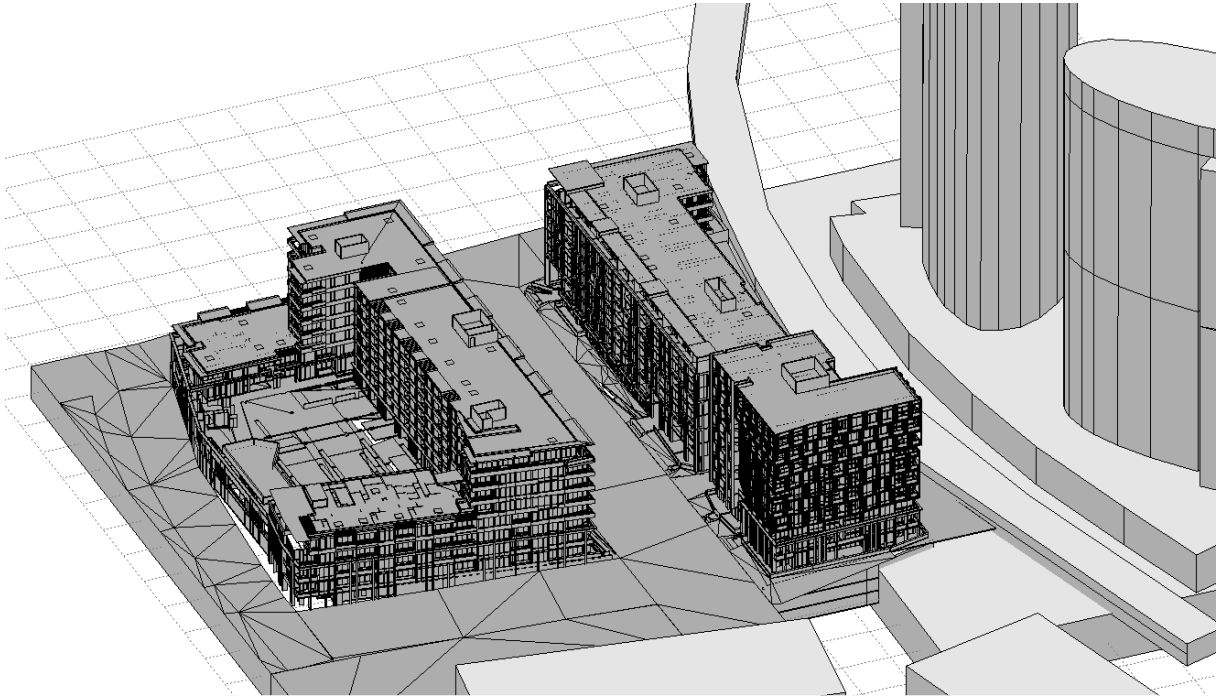
10.45am



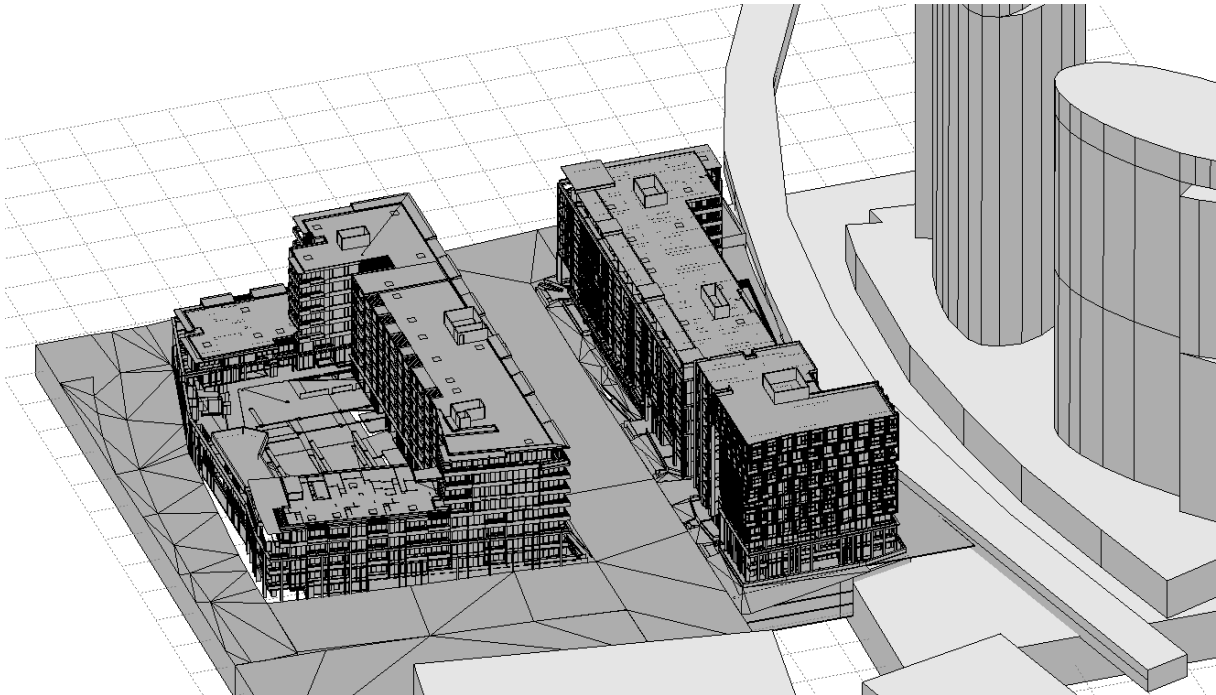
11.00am



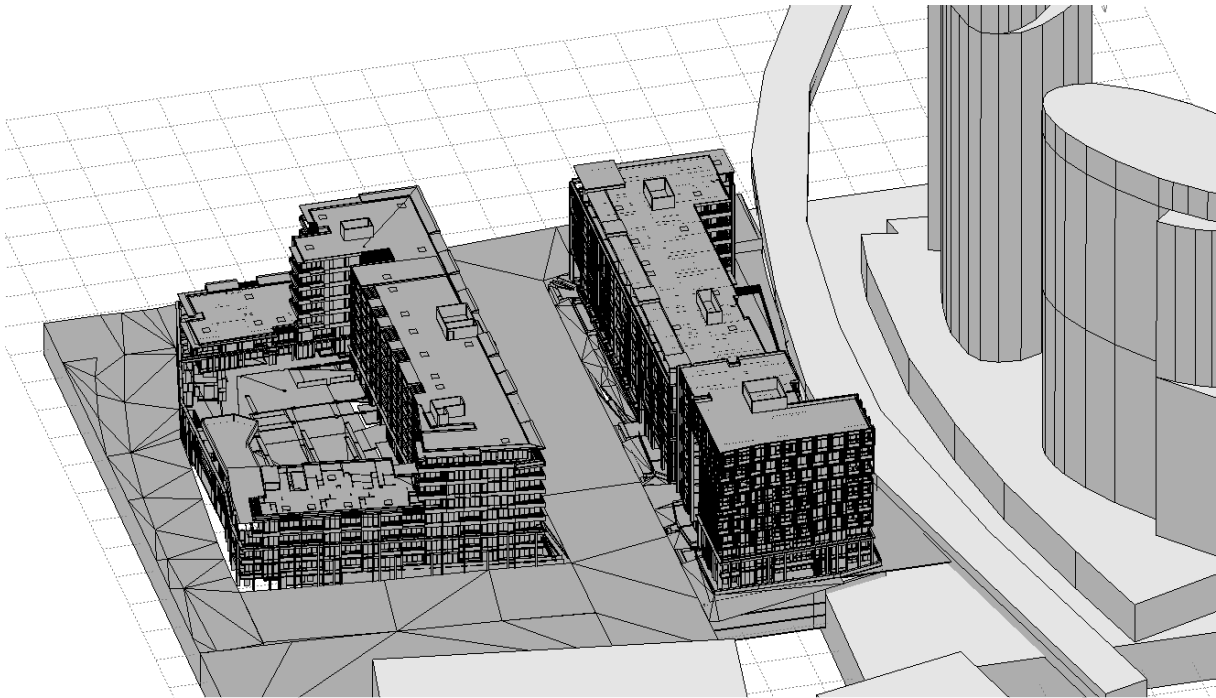
11.15am



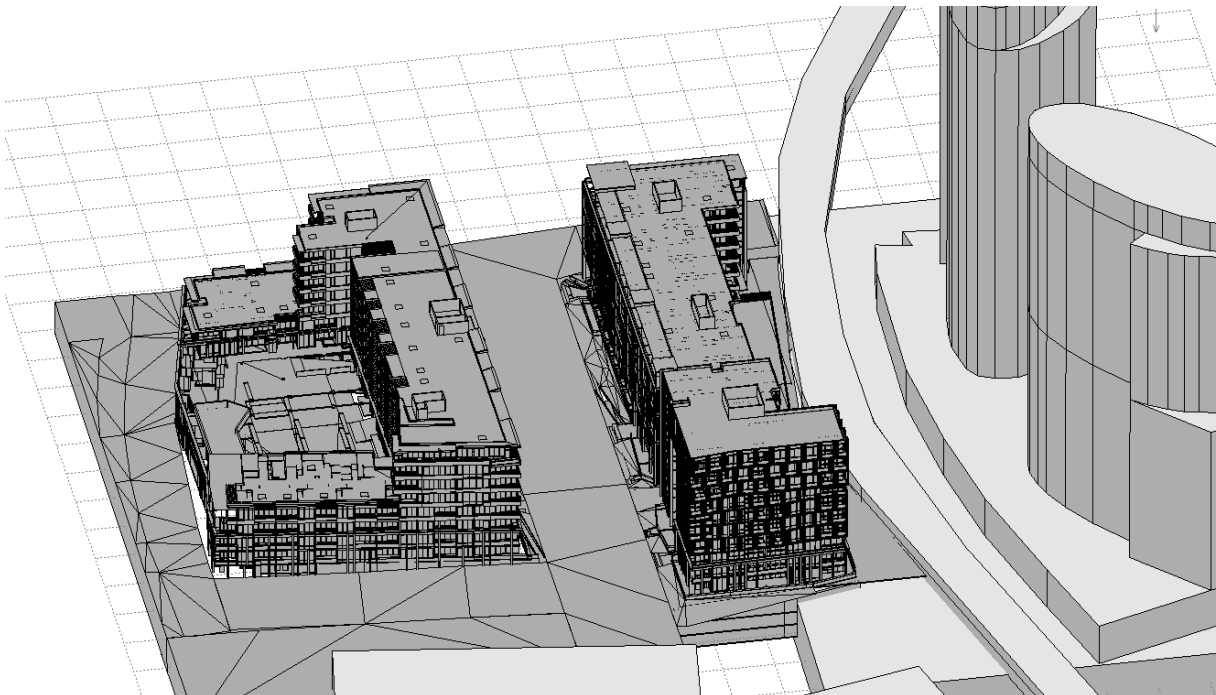
11.30am



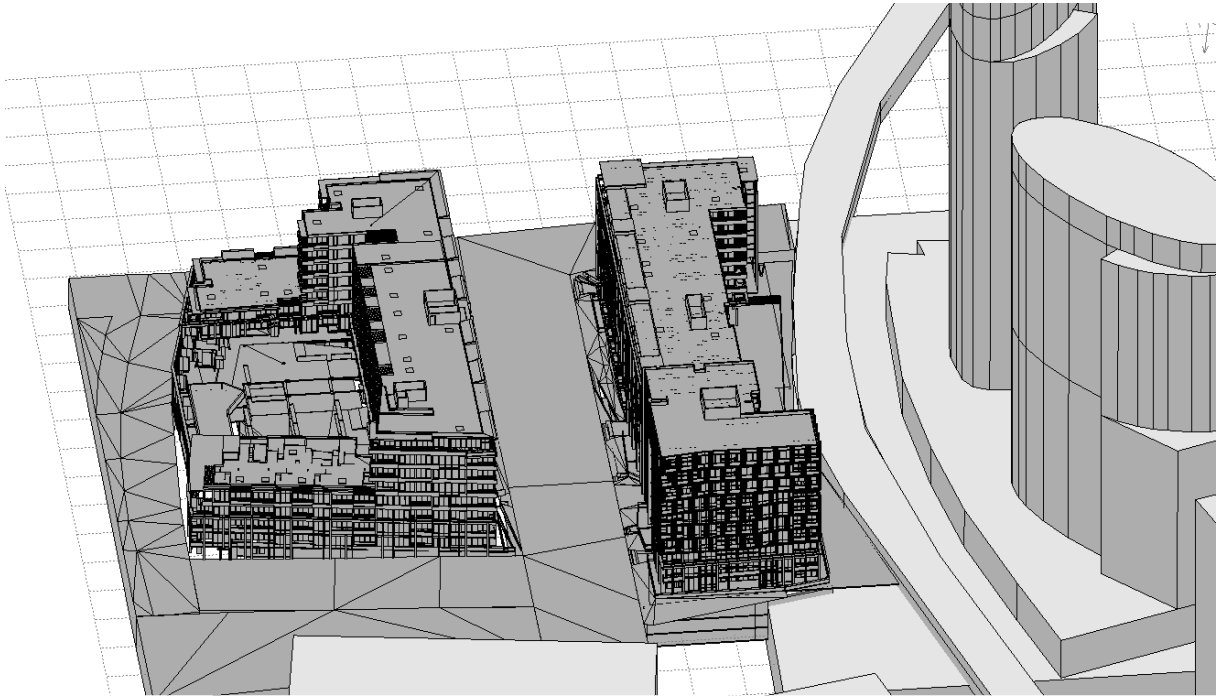
11.45am



12.00pm



12.15pm



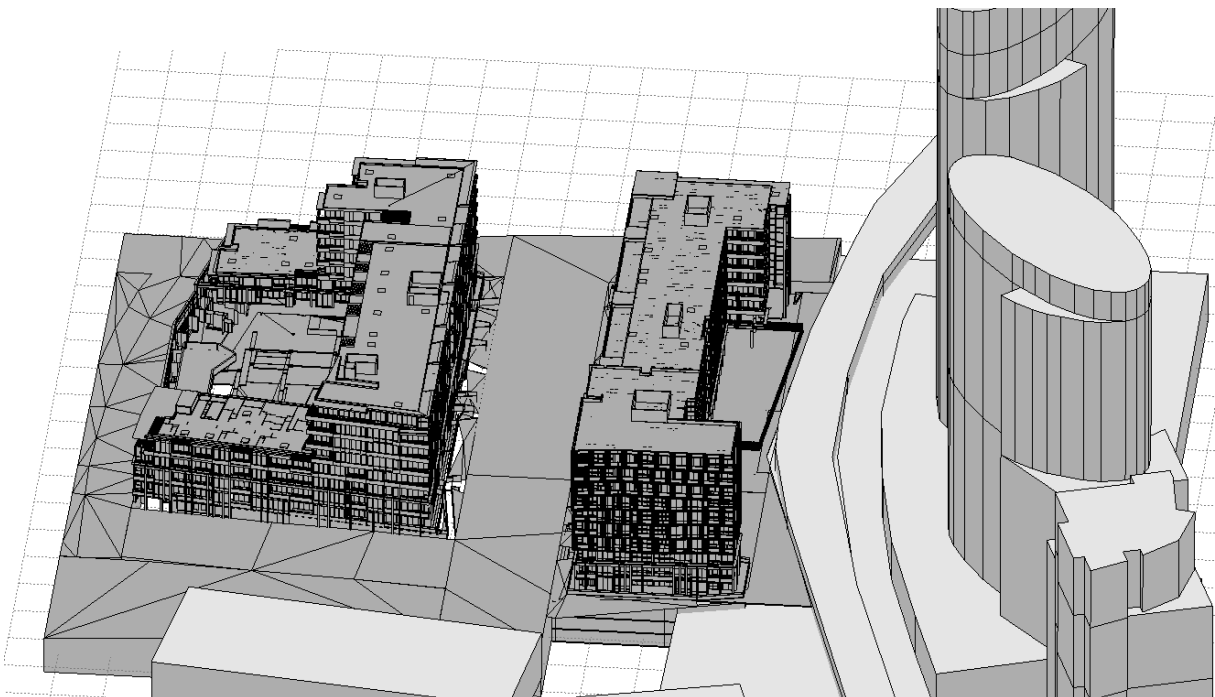
12.30pm



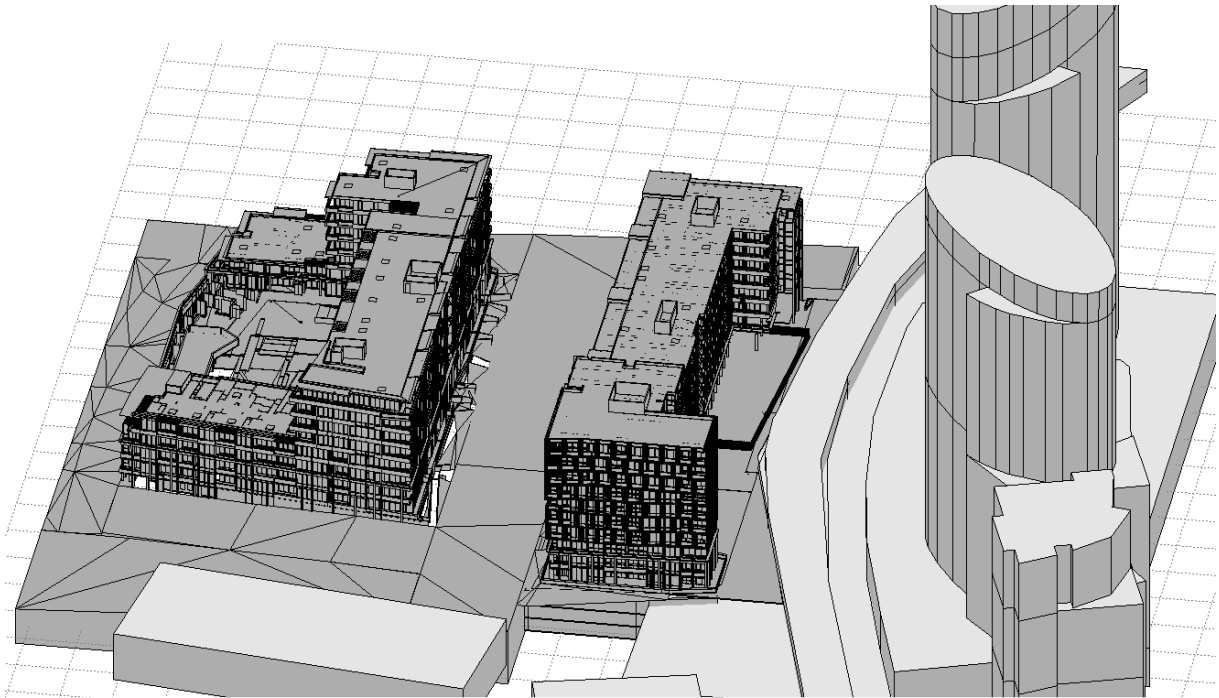
12.45pm



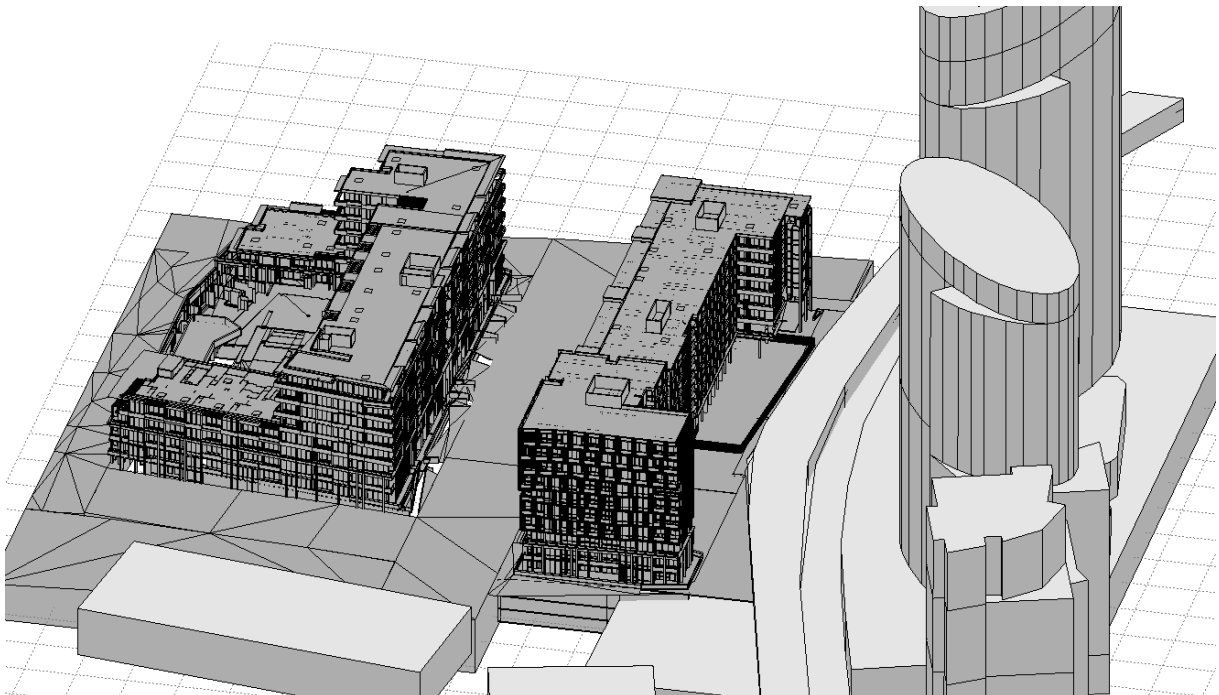
1.00pm



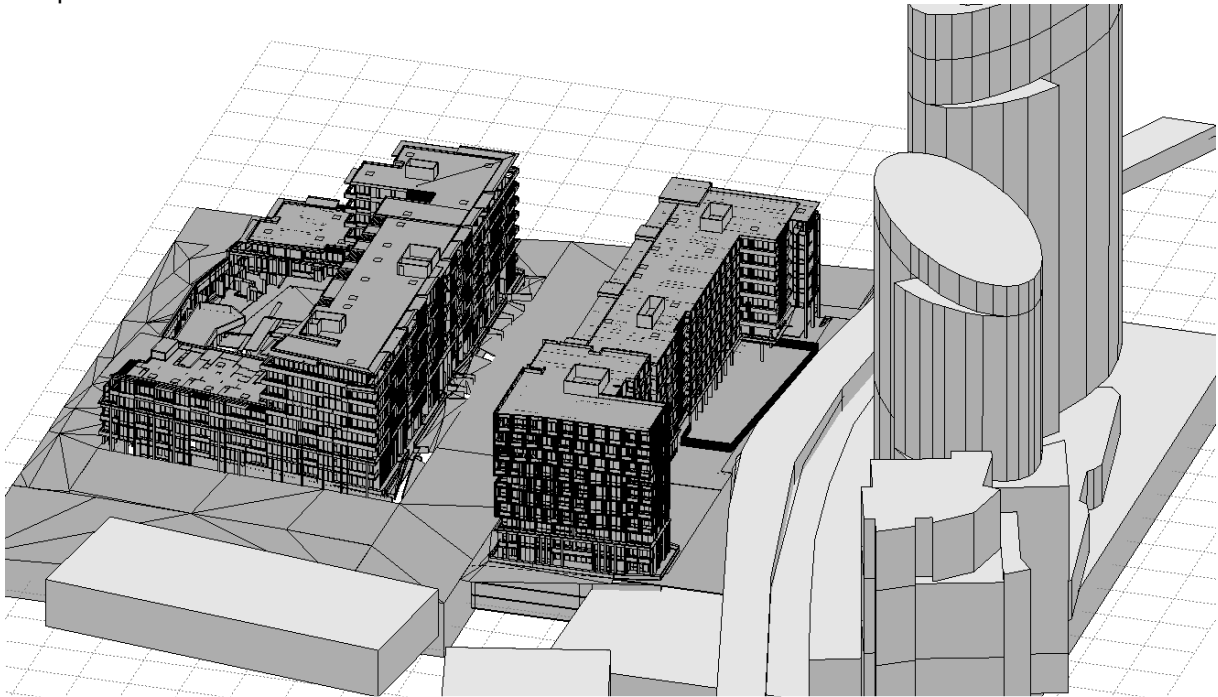
1.15pm



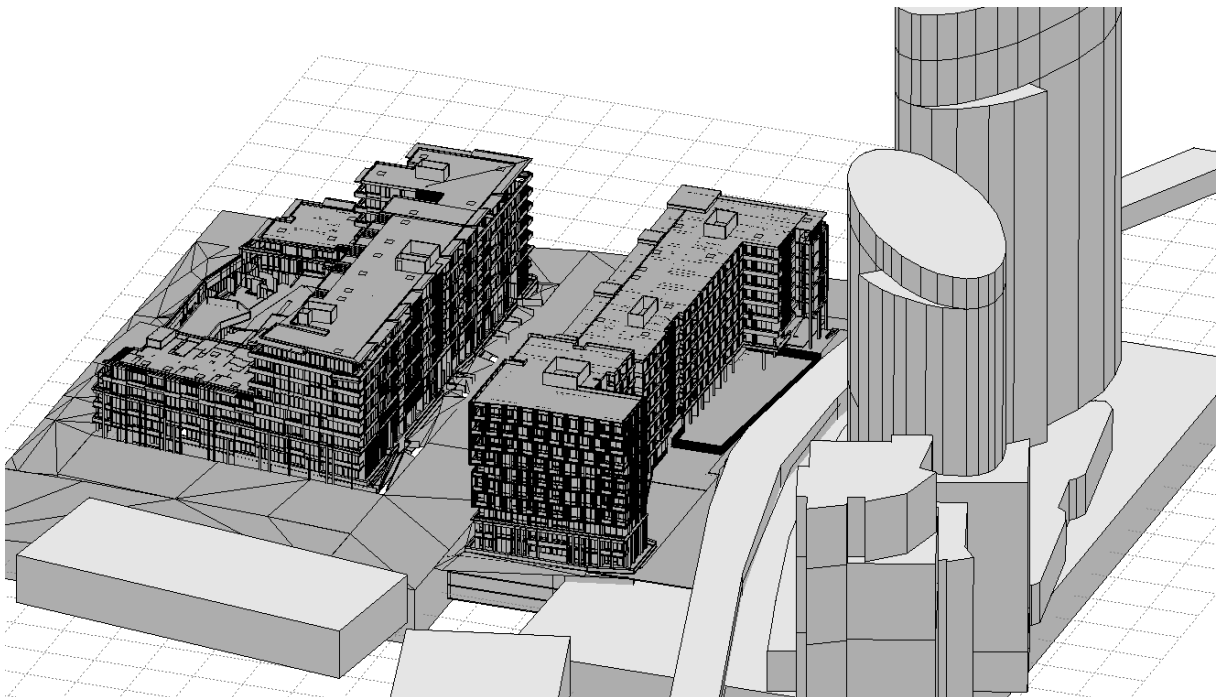
1.30pm



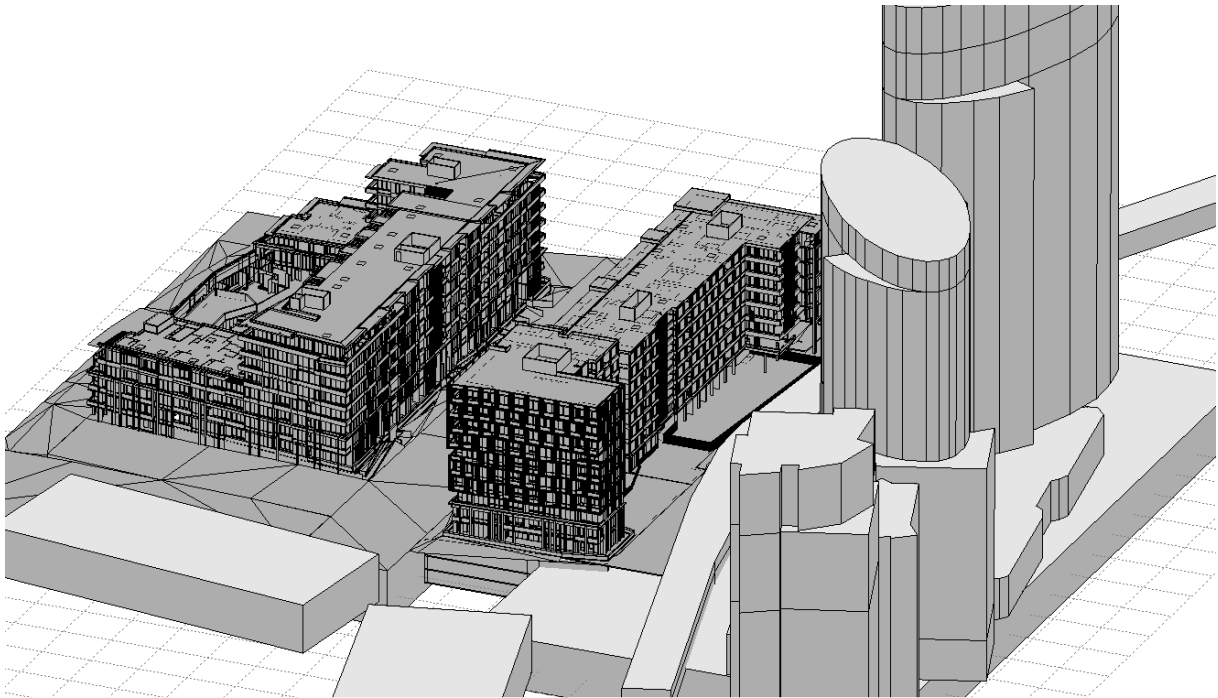
1.45pm



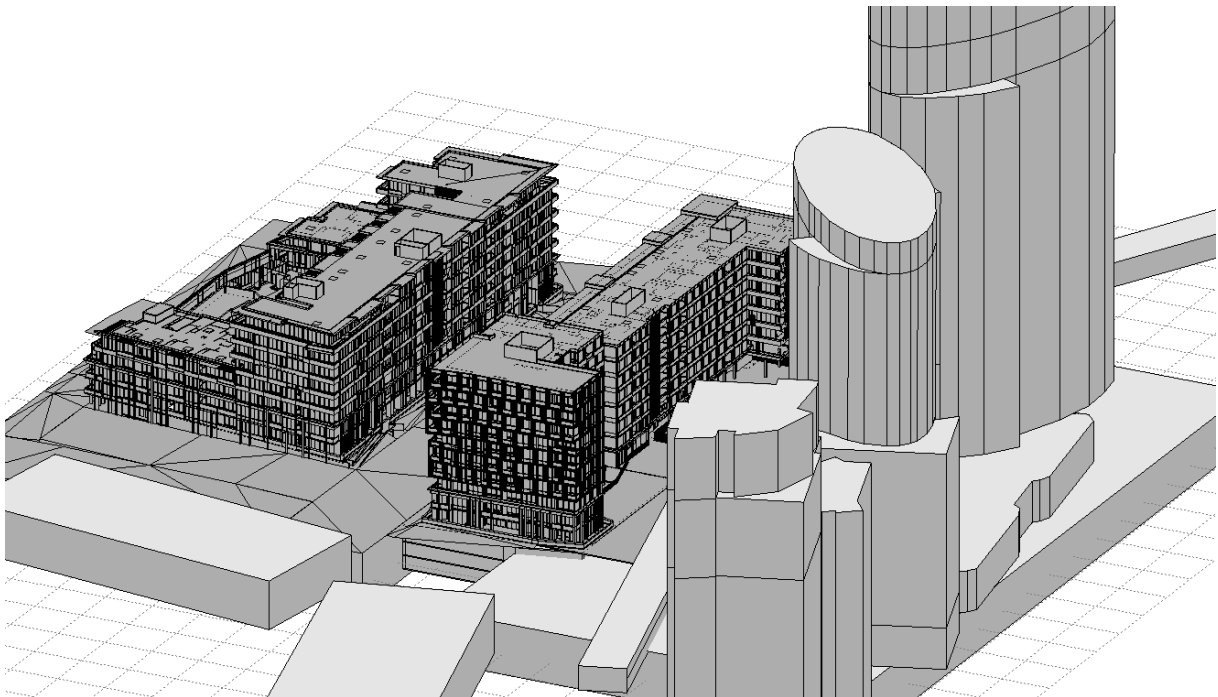
2.00pm



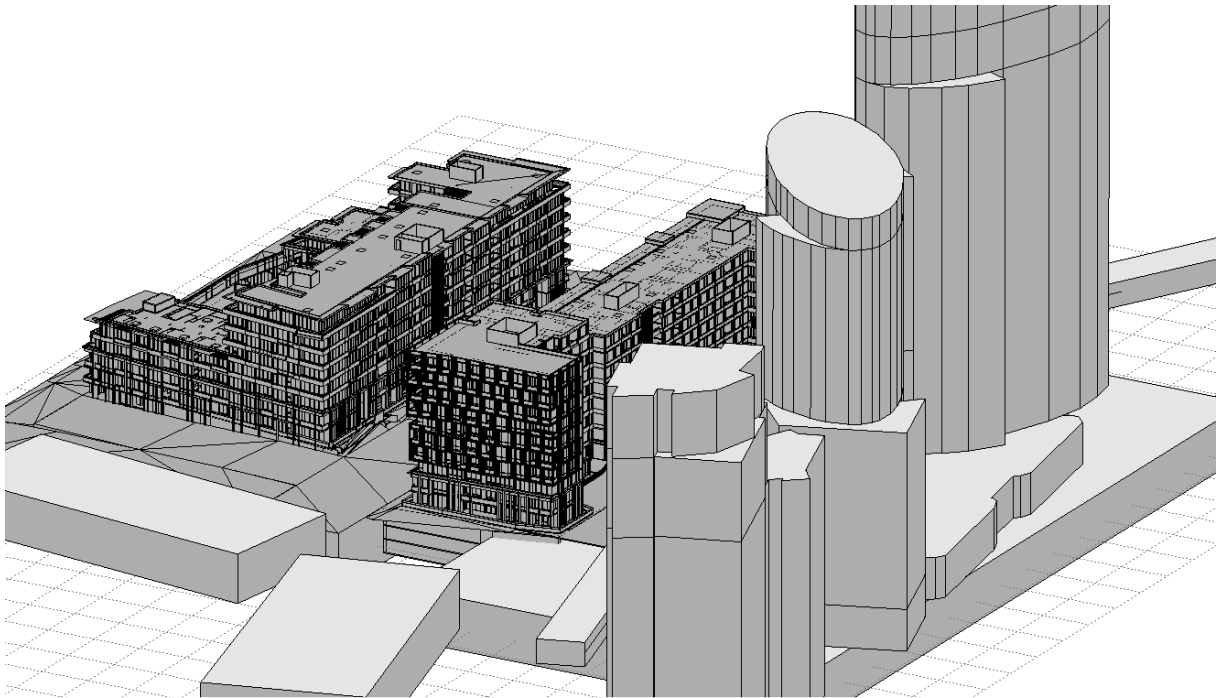
2.15pm



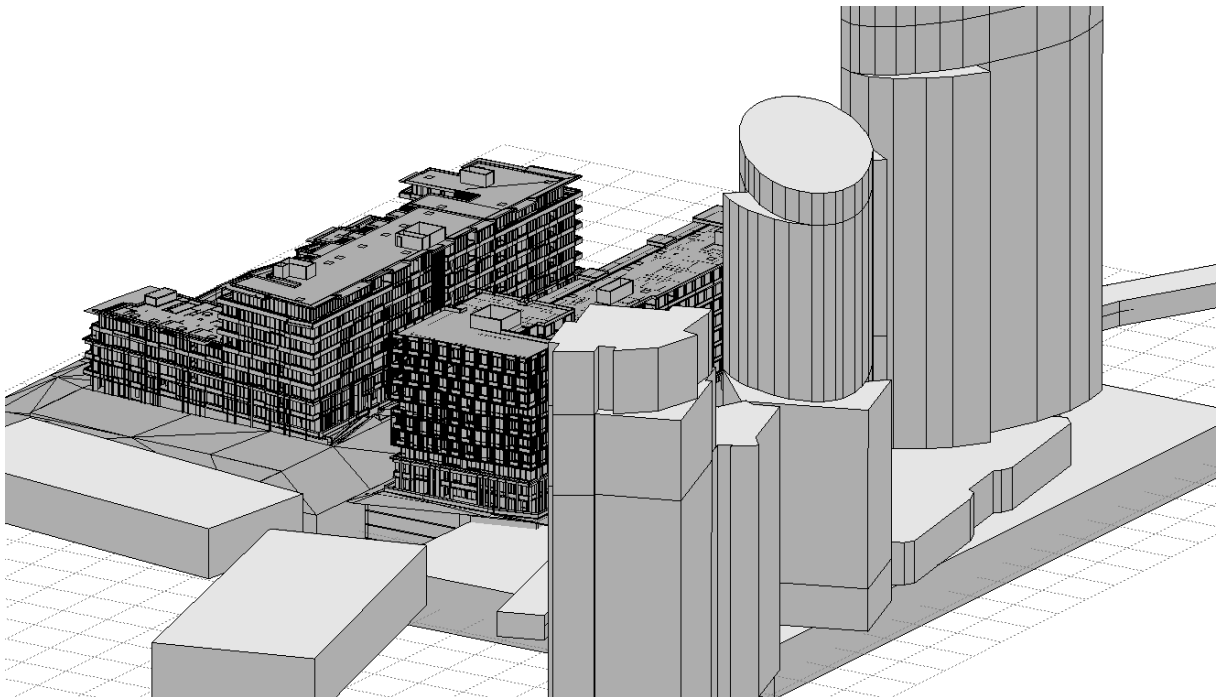
2.30pm



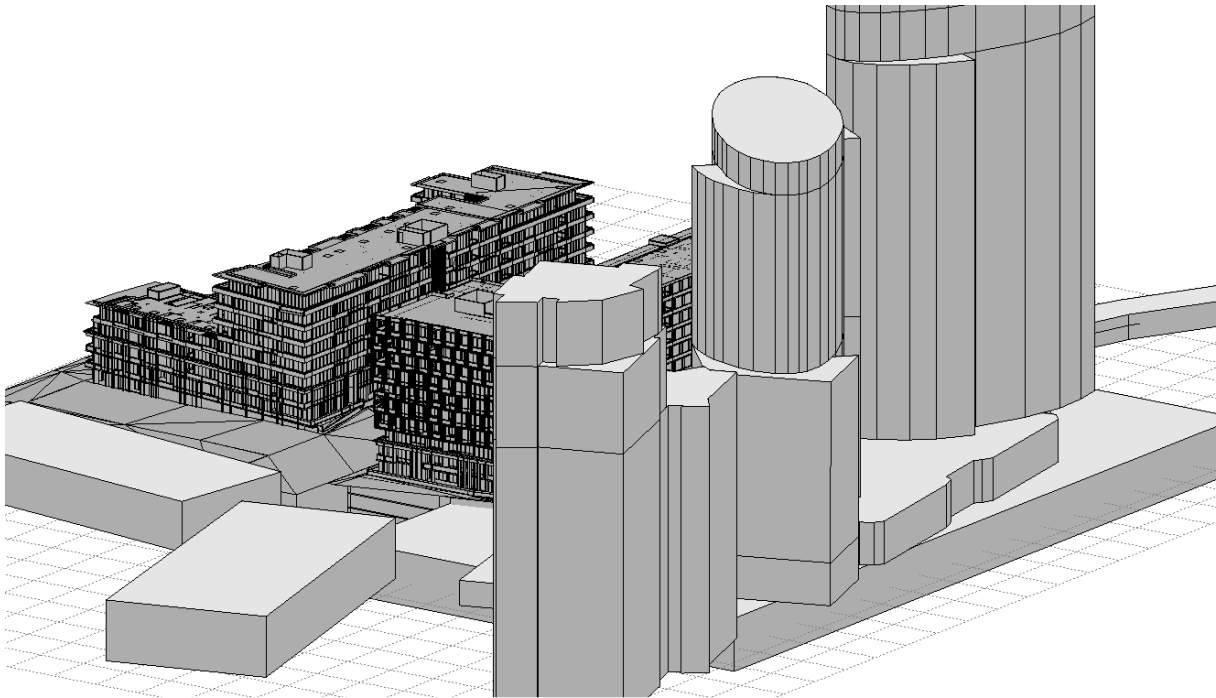
2.45pm



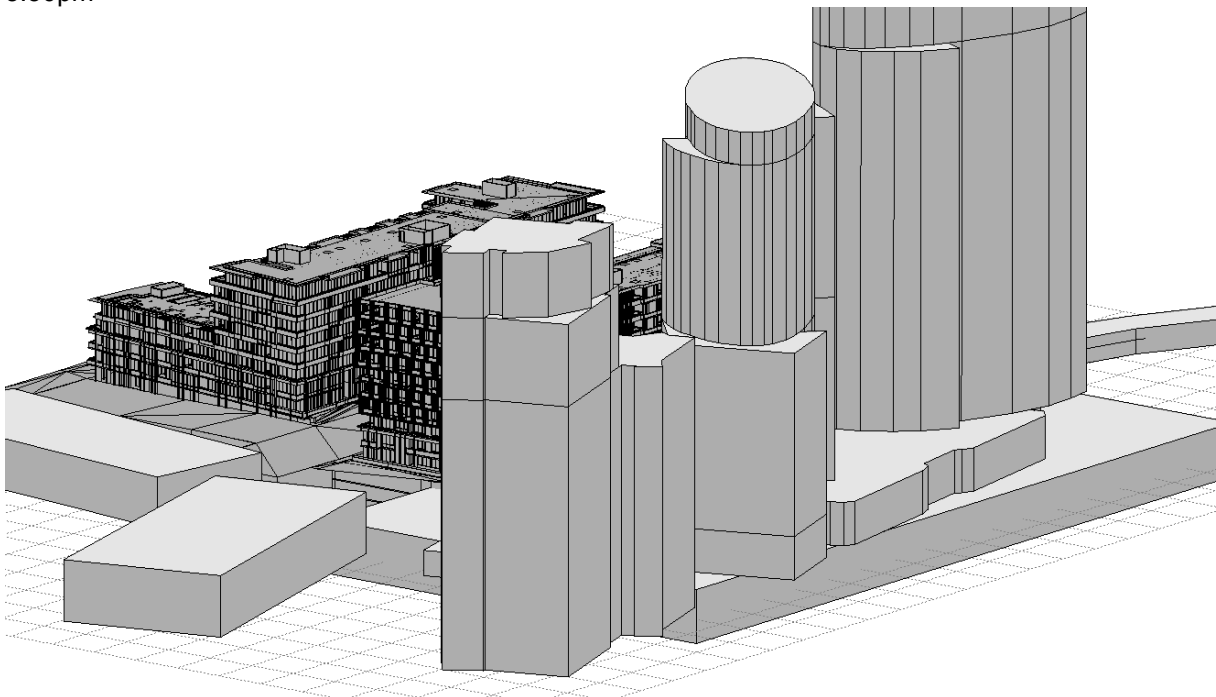
3.00pm



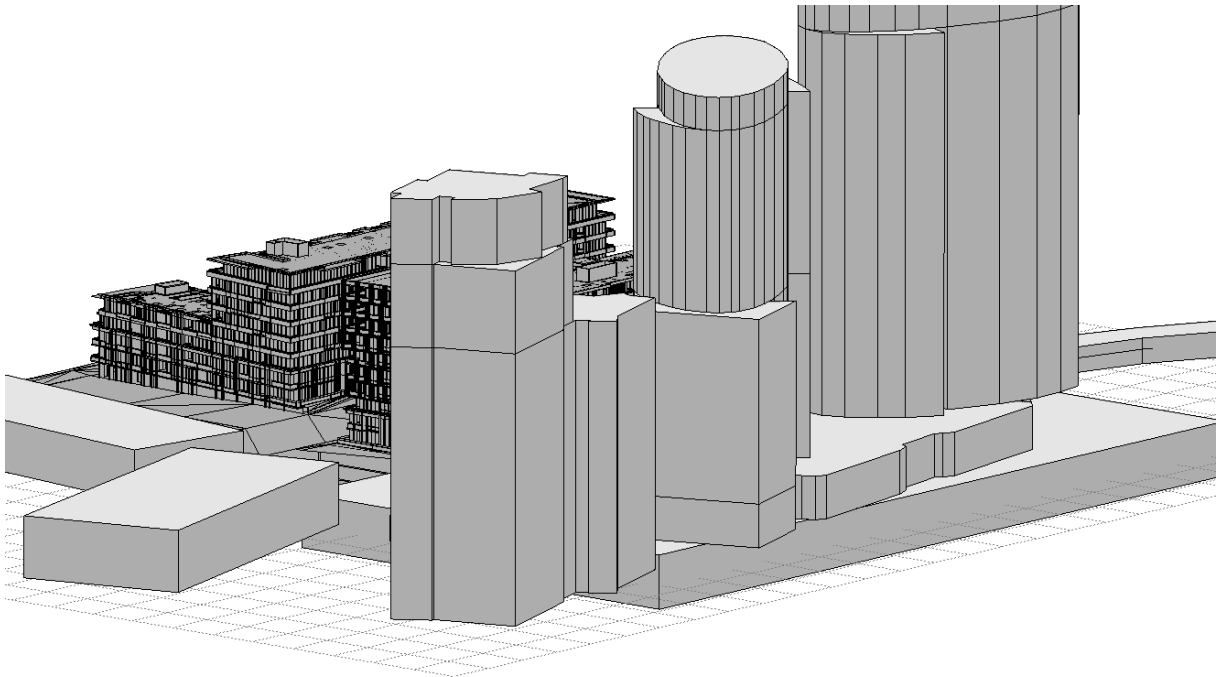
3.15pm



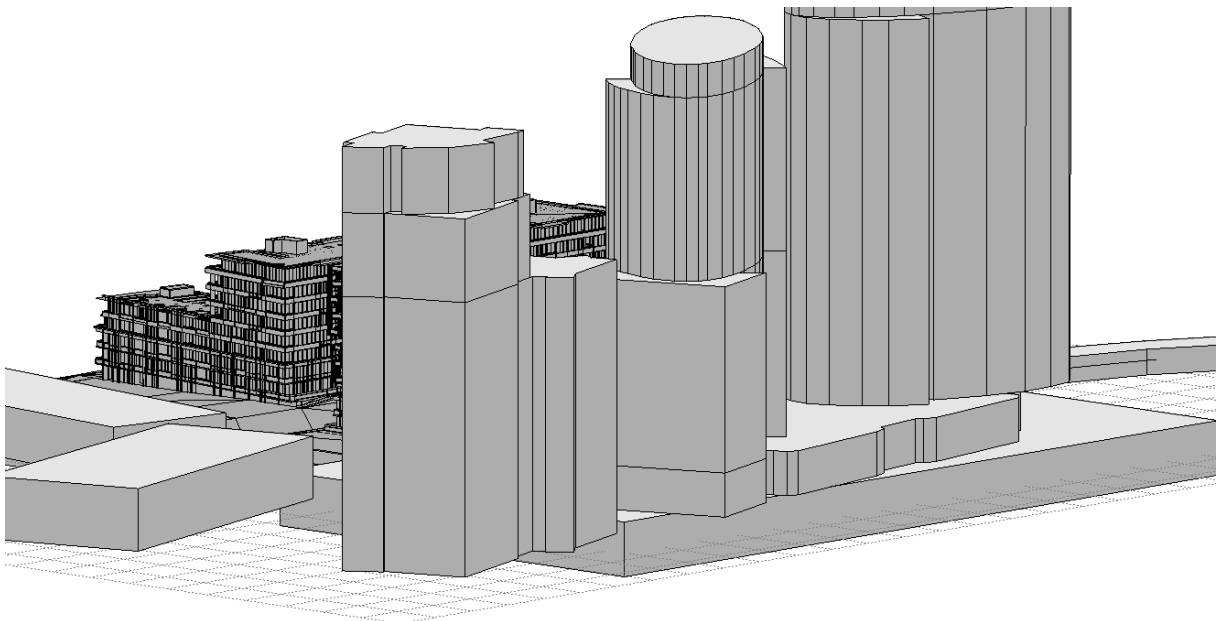
3.30pm



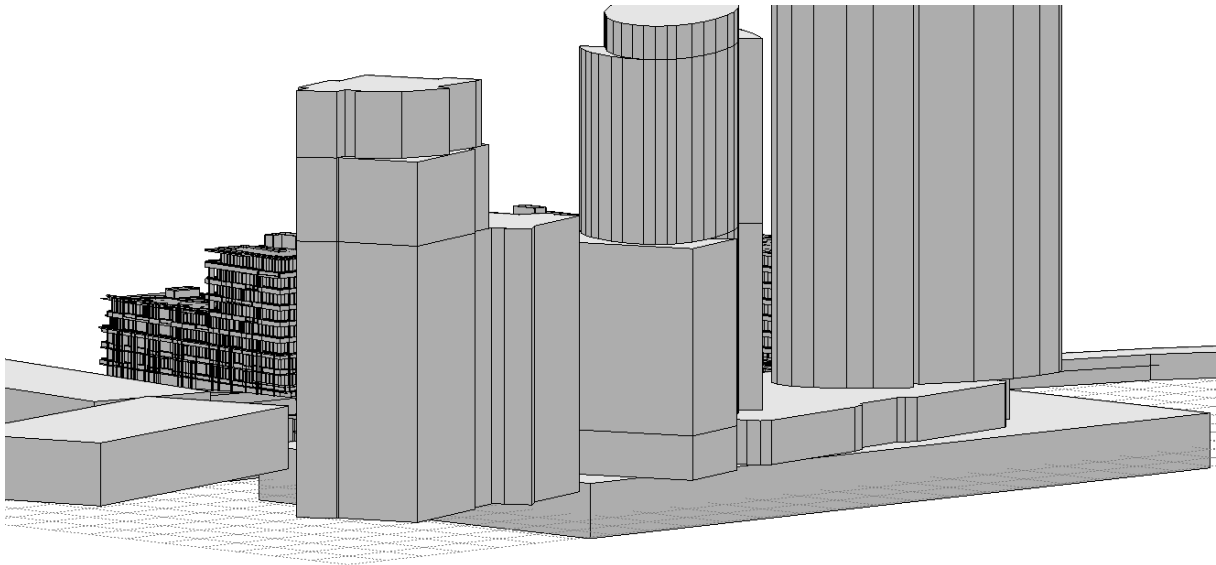
3.45pm



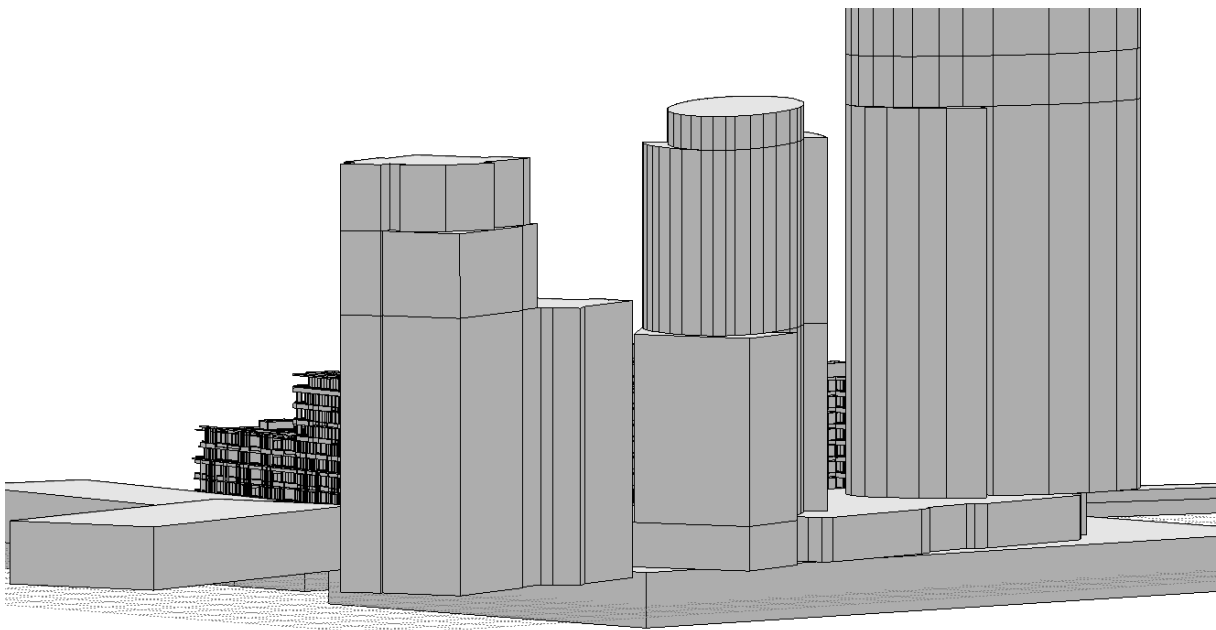
4.00pm



4.15pm



4.30pm



Appendix B

Report Number 610.13394-R2

Page 1 of 1

Detailed Solar Access Calculations

Solar Access Calculations on June 30 from 7.30am to 4.30pm

[illegible]

[illegible]

Block	unit		7:30	7:45	8:00	8:15	8:30	8:45	9:00	9:15	9:30	9:45	10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15	12:30	12:45	13:00	13:15	13:30	13:45	14:00	14:15	14:30	14:45	15:00	15:15	15:30	15:45	16:00	16:15	16:30	Total hr of sunlight betw 7.30am- 4.30pm	3hr sunlight betw 7.30- 16.30	2hr of sunlight betw 7.30- 16.30		
		253																																						0	0	0		
		254		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	9	1	1	
		256		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	9	1	1
		257		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	9	1	1
		258		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	9	1	1
		327		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25			0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	6.25	1	1
		328		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25											3	1	1		
		329																									0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25					2.25	0	1	
		330																									0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25						2	0	0	
		332		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25						0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25						4.75	1	1	
		339																									0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25							1.75	0	0	
		340		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25						0.25	0.25	0.25	0.25	0.25	0.25	0.25							4.75	1	1	
		341		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25																		4.75	1	1		
		342		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25											4.75	1	1		
		343		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25											4.75	1	1		
		344		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25																		4.75	1	1		
		345																									0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25							1.75	0	0	
		347		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25						0.25	0.25	0.25	0.25	0.25	0.25	0.25						4.5	1	1		
		348																									0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25						2	0	1	
		350				0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	8	1	1		
		351		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	8.75	1	1	
		352		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	8.75	1	1	
		353		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	9	1	1	
		354		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	9	1	1	
		355		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	9	1	1	
		356		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	9	1	1	
		357		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	9	1	1	
		427		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25											6.25	1	1		
		428		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25																							3.5	1	1		
		429																									0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25					2.25	0	1	
		430																									0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25					2.25	0	1	
		432		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25						0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25					4.75	1	1		
		439																									0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25					2	0	1		
		440		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25																	4.75	1	1			
		441		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25																	4.75	1	1			
		442		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25																	4.75	1	1			
		443		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25																	4.75	1	1			
		444		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25																	4.75	1	1			
		445																									0.25	0.25	0.25	0.25														

[illegible]