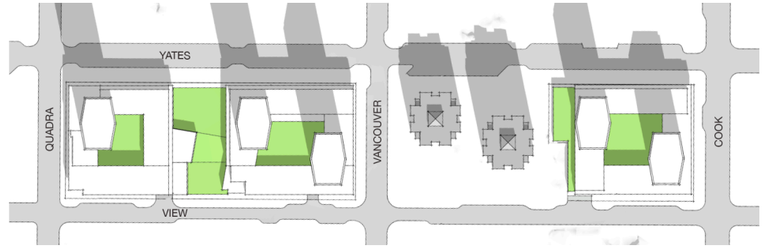
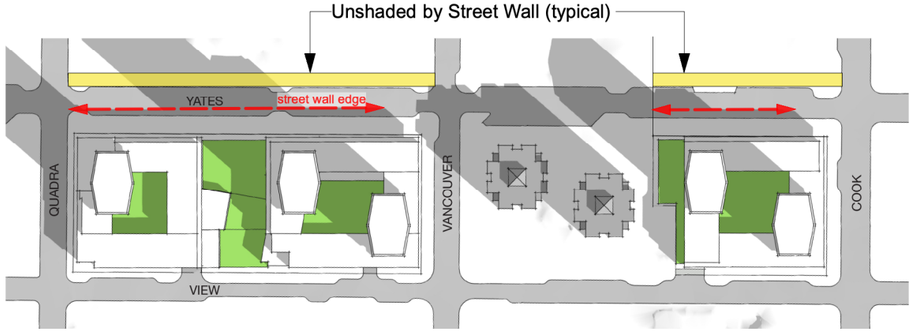


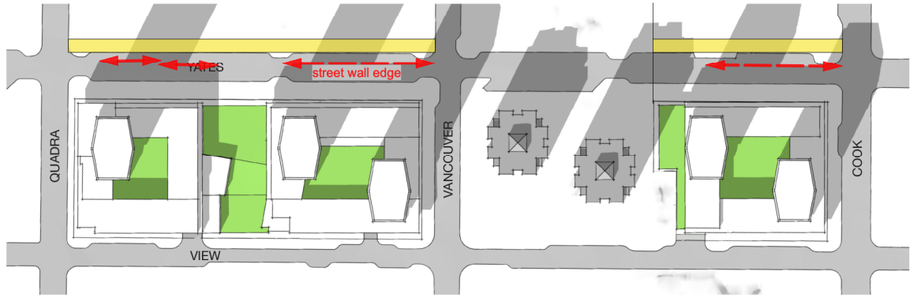
Harris Green Shadow Studies

A test of the Urban Design Guidelines | Section 3.1.c)

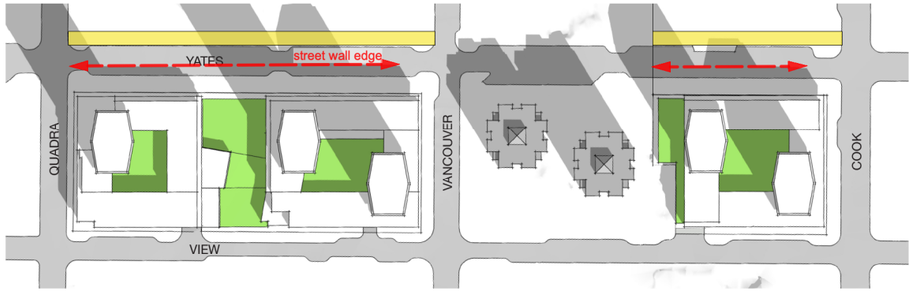
DAU #1930
October 30, 2020



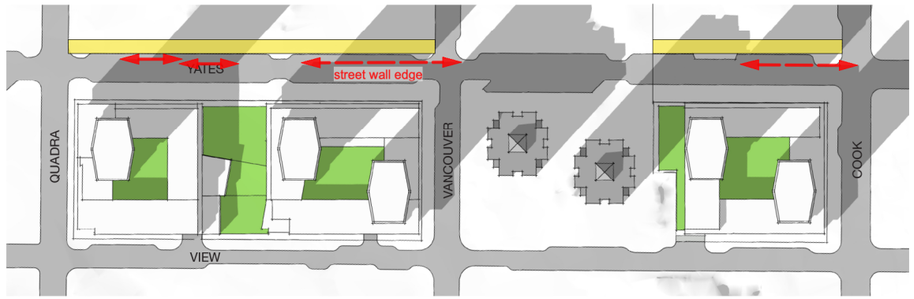
Equinox | 10:00am



Equinox | 2:00pm

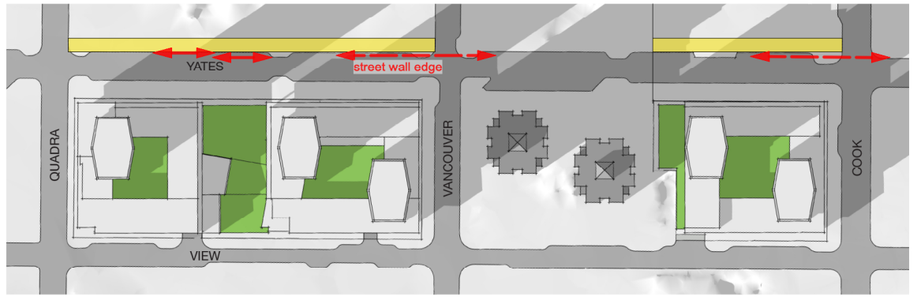


Equinox | 11:00am



Equinox | 3:00pm

Equinox | 12:00pm



Equinox | 4:00pm

Equinox | 1:00pm

General Notes:
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2. September 22 was used as the date of the Equinox.
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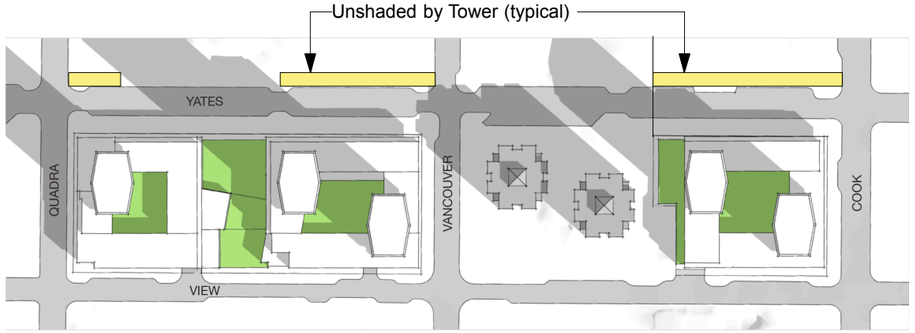
4. All calculations are relative and are not to scale.

UD Guideline 3.1. c) i)
Limit the scale and height of the street wall to allow approximately 5 hours of sunlight to reach the opposite side of Yates street between 10 am and 4 pm at the equinoxes.

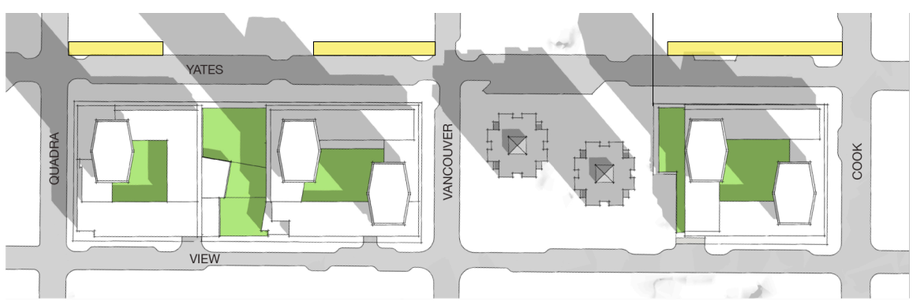
Summary (Yates):
Street wall shadow does not reach the sidewalk between 10:00am - 4:00pm

Harris Green Shadow Studies | Street Wall Shading on Yates Street Sidewalk

DAU #1930
October 28, 2020

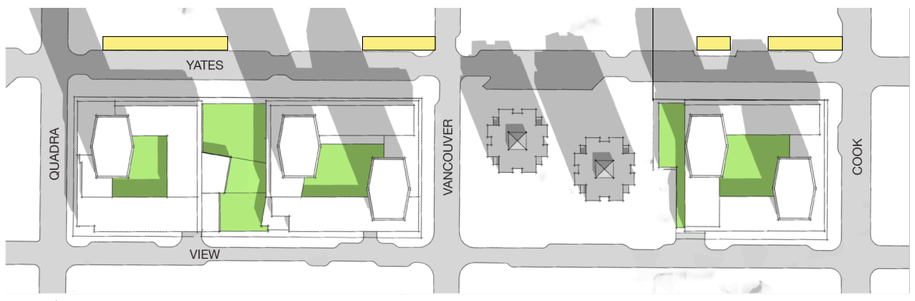


Equinox | 10:00am

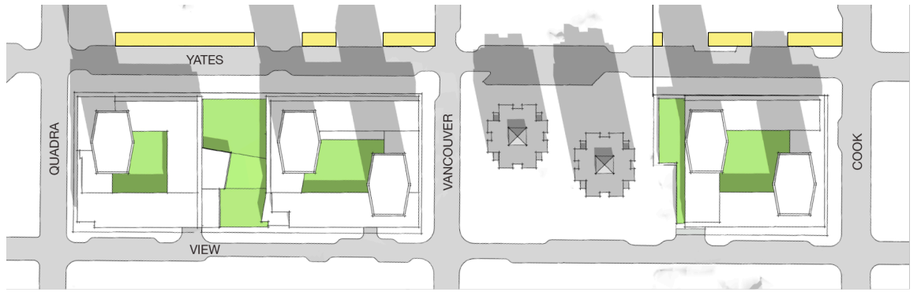


Equinox | 10:30am

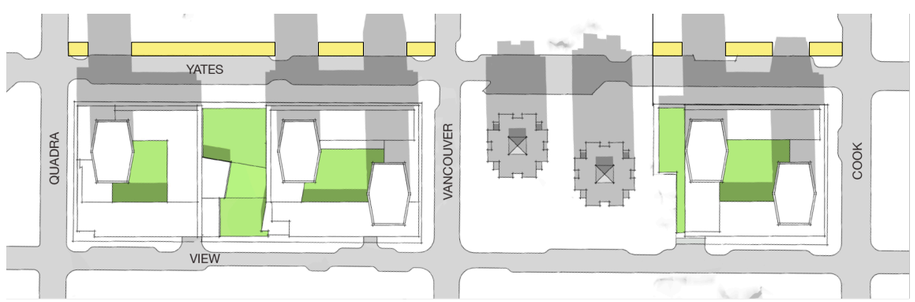
Equinox | 11:00am



Equinox | 11:30am



Equinox | 12:00pm



Equinox | 12:30pm

Equinox | 1:00pm

Equinox | 1:30pm

General Notes:
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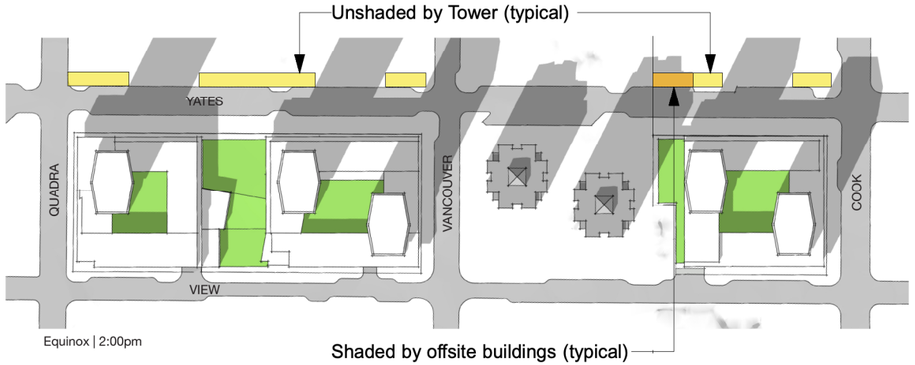
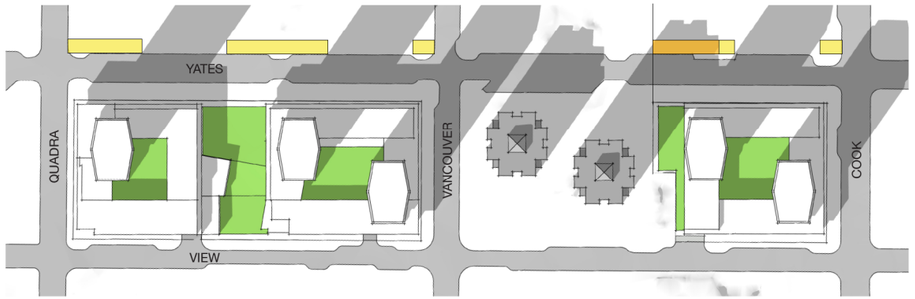
UD Guideline 3.1. c) ii)
Where unshaded by existing offsite conditions, locate tall buildings that are within these city blocks to allow 4.5 hours of sunlight to reach the opposite side of surrounding streets over approximately 50% of the length of the sidewalk between 10 am and 4 pm at the equinoxes.

DAU #1930
October 30, 2020

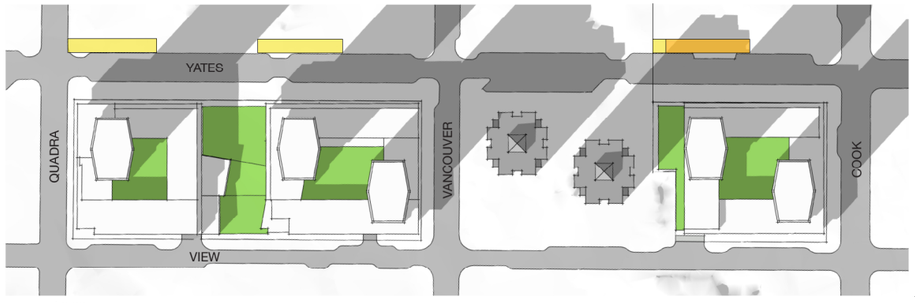
Harris Green Shadow Studies | Tower Shading on Yates Street Sidewalk (pg 1 of 2)



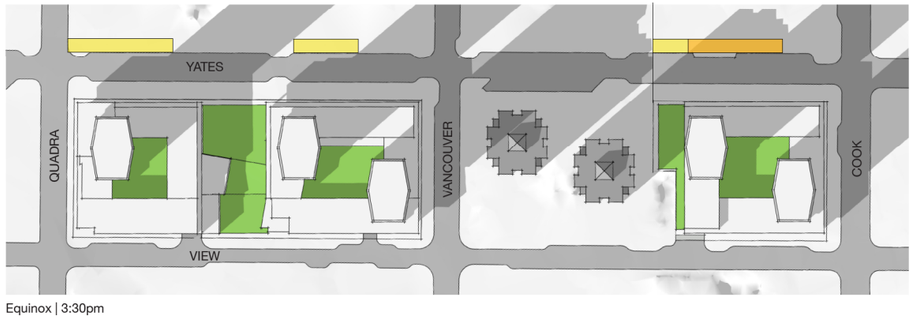
Equinox | 2:00pm



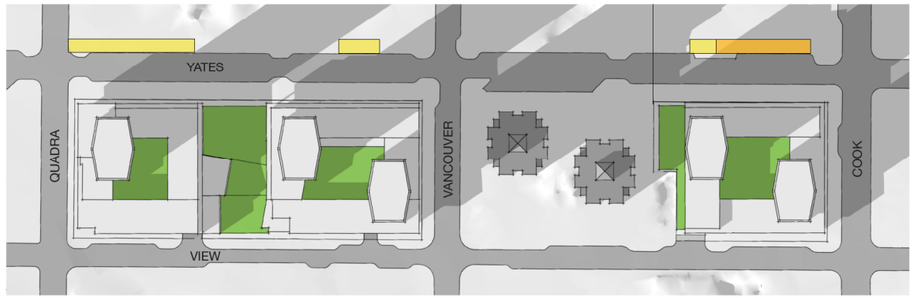
Equinox | 2:30pm



Equinox | 3:00pm



Equinox | 3:30pm



Equinox | 4:00pm

General Notes:
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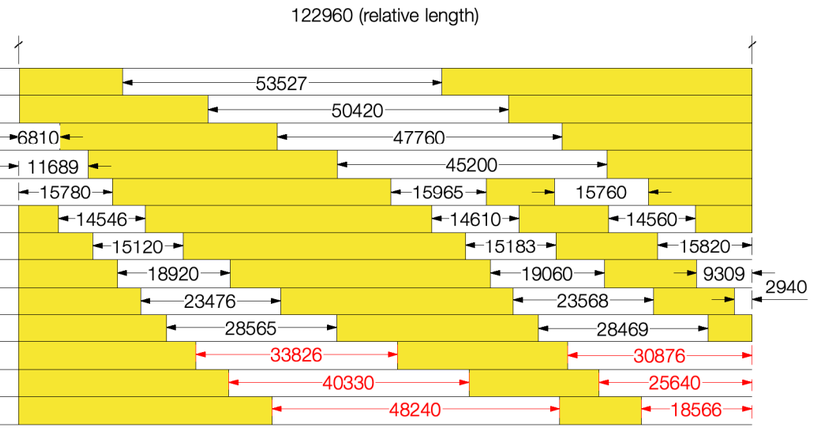
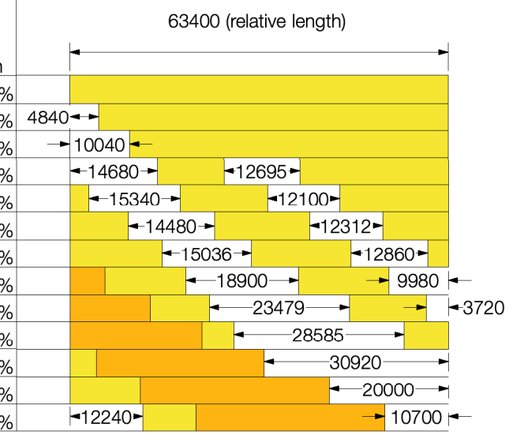
900 Block

	approx. length in shade	% in sun
10:00am	53527	56%
10:30am	50420	59%
11:00am	54710	56%
11:30am	56889	54%
12:00pm	47505	61%
12:30pm	43716	64%
1:00pm	46123	62%
1:30pm	47289	62%
2:00pm	49424	60%
2:30pm	57034	54%
3:00pm	64702	47%
3:30pm	65970	46%
4:00pm	66806	46%



1045 Block

	approx. length in shade by onsite buildings	% in sun
10:00am	0	100%
10:30am	4840	92%
11:00am	10040	84%
11:30am	27375	57%
12:00pm	27440	57%
12:30pm	26792	58%
1:00pm	27896	56%
1:30pm	28880	54%
2:00pm	27199	57%
2:30pm	28585	55%
3:00pm	30920	51%
3:30pm	20000	68%
4:00pm	22940	64%



UD Guideline 3.1. c) ii)
Where unshaded by existing offsite conditions, locate tall buildings that are within these city blocks to allow 4.5 hours of sunlight to reach the opposite side of surrounding streets over approximately 50% of the length of the sidewalk between 10 am and 4 pm at the equinoxes.

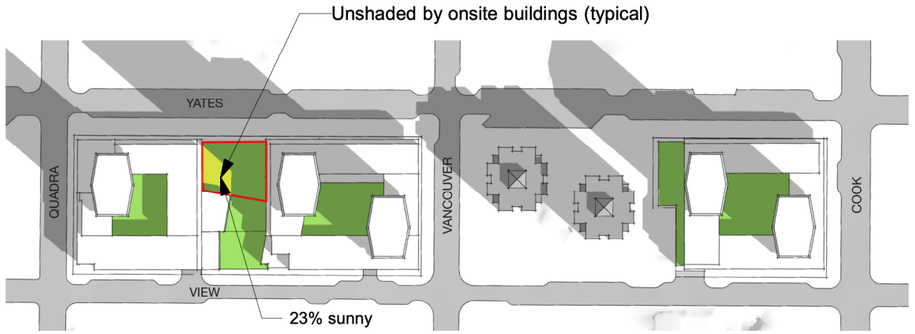
Summary (Yates Street):
900 Block
Onsite towers do not shade more than 50% of the sidewalk between 10:00 and 2:30pm = approx. 4.5 hours.

1045
Onsite towers do not shade more than 50% of the sidewalk between 10:00 and 4:00 = 6 hours

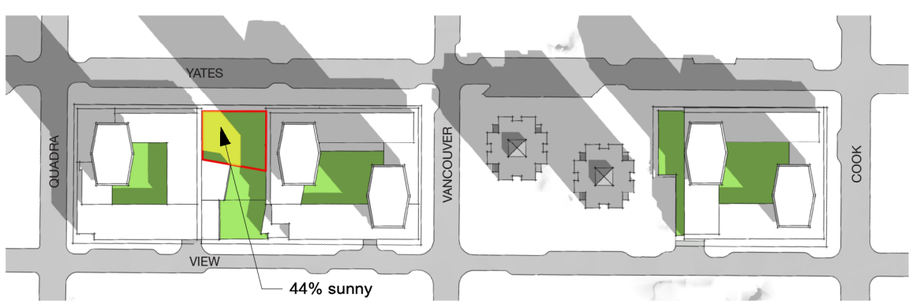
Note shade is cast by offsite buildings and is not considered by these calculations to be shaded.

Shaded by onsite buildings
Unshaded by onsite buildings
Shaded by offsite buildings

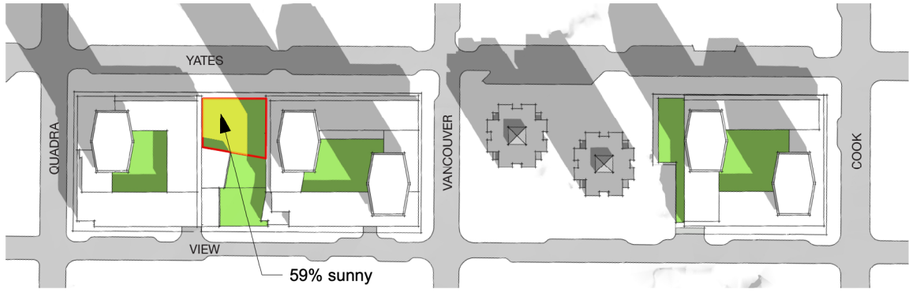
DAU #1930
October 28, 2020



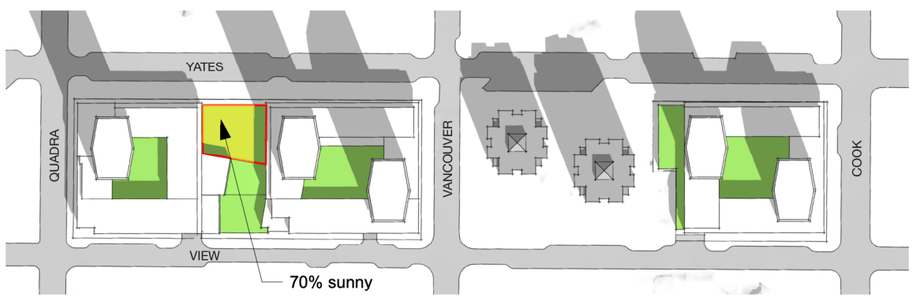
Equinox | 10:00am



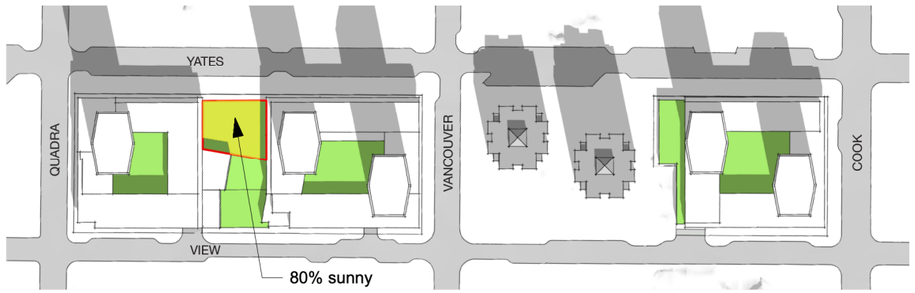
Equinox | 10:30am



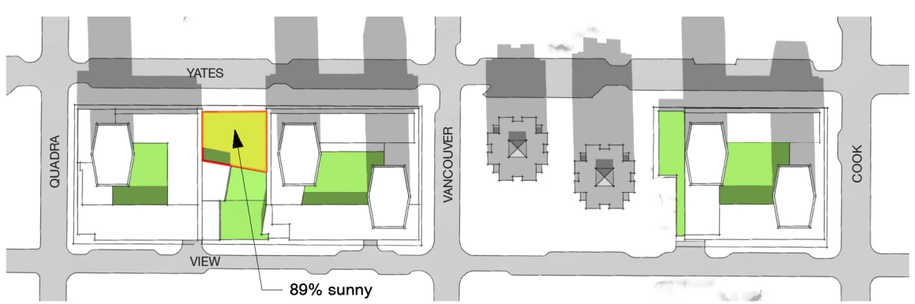
Equinox | 11:00am



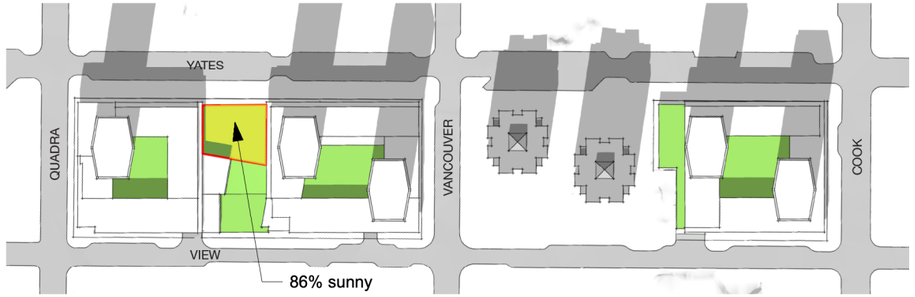
Equinox | 11:30am



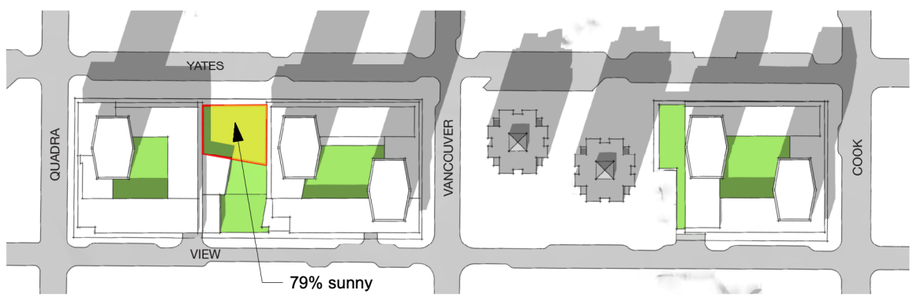
Equinox | 12:00pm



Equinox | 12:30pm



Equinox | 1:00pm



Equinox | 1:30pm

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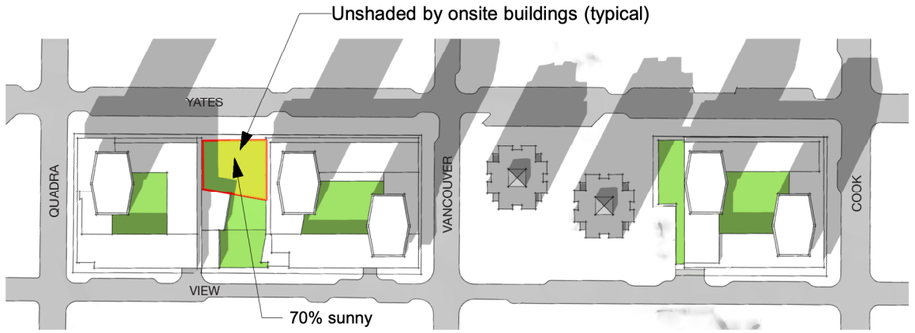
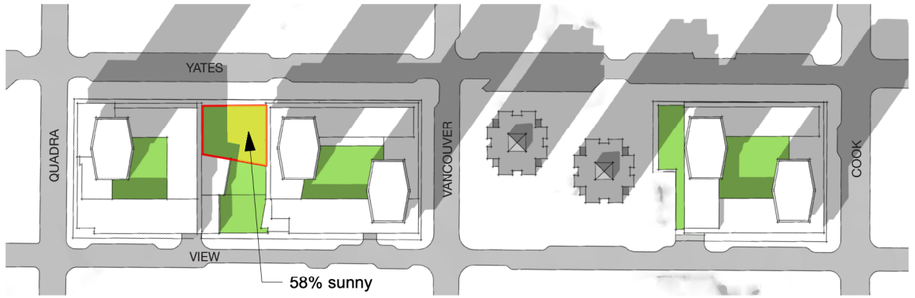
UD Guideline 3.1. c) iii)
Limit the scale and height of the buildings to allow 3 hours of sunlight to reach approximately 50% of the Yates Street Plaza between 10 am and 4 pm at the equinoxes.

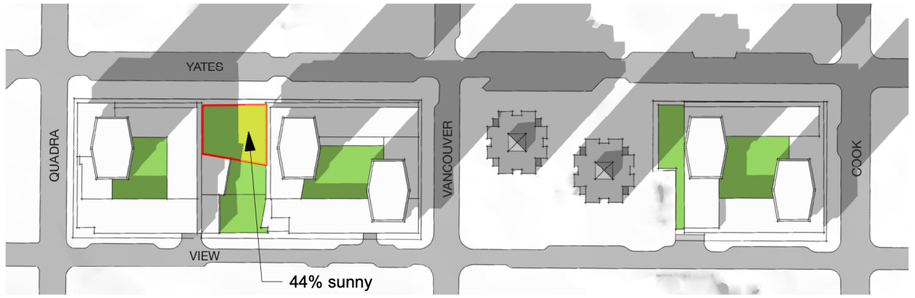
DAU #1930
October 28, 2020



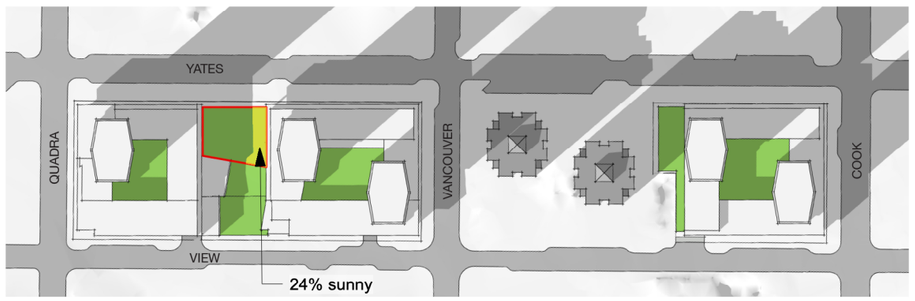
Equinox | 2:00pm



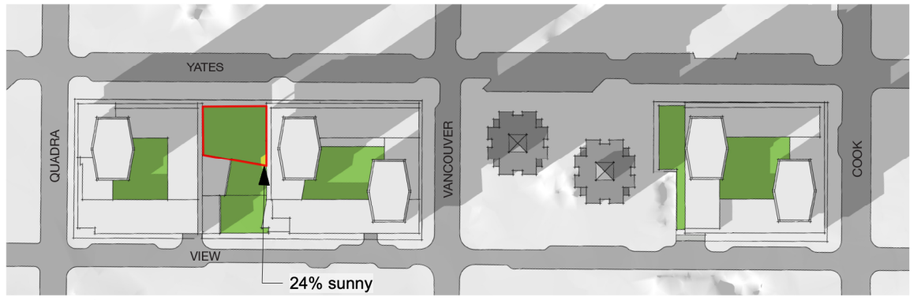
Equinox | 2:30pm



Equinox | 3:00pm



Equinox | 3:30pm



Equinox | 4:00pm

Plaza sunlight

	% in sun
10:00am	23%
10:30am	44%
11:00am	59%
11:30am	70%
12:00pm	80%
12:30pm	89%
1:00pm	86%
1:30pm	79%
2:00pm	70%
2:30pm	58%
3:00pm	44%
3:30pm	24%
4:00pm	2%

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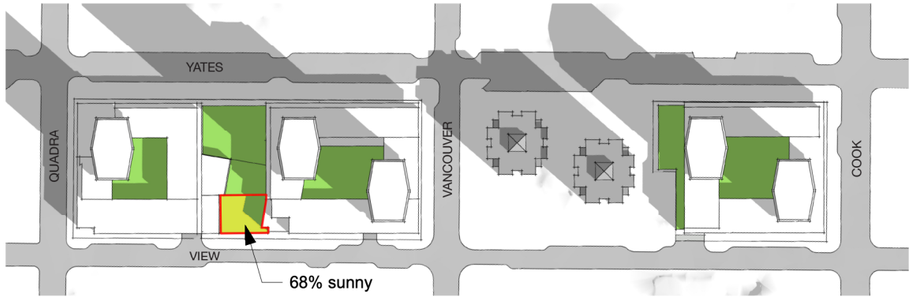
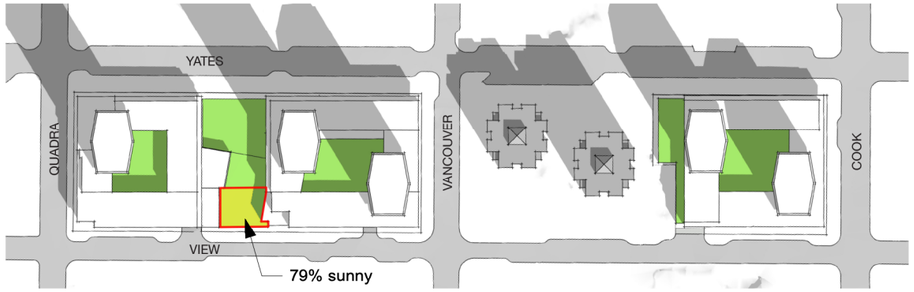
UD Guideline 3.1. c) iii)
Limit the scale and height of the buildings to allow 3 hours of sunlight to reach approximately 50% of the Yates Street Plaza between 10 am and 4 pm at the equinoxes.

Summary:
The Plaza has sunlight for 50% or more of its area between 11:00am - 2:30pm = 3.5 hrs

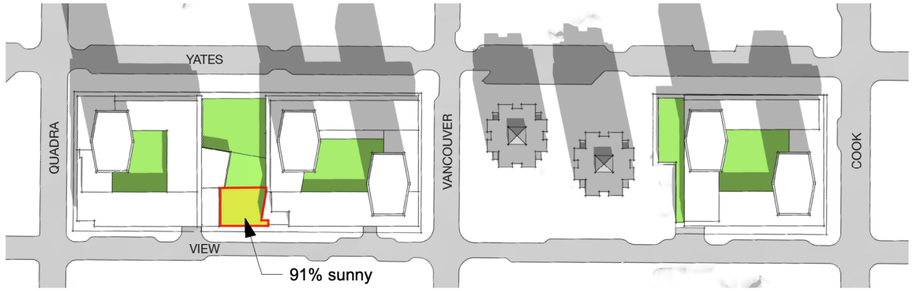
DAU #1930
October 28, 2020



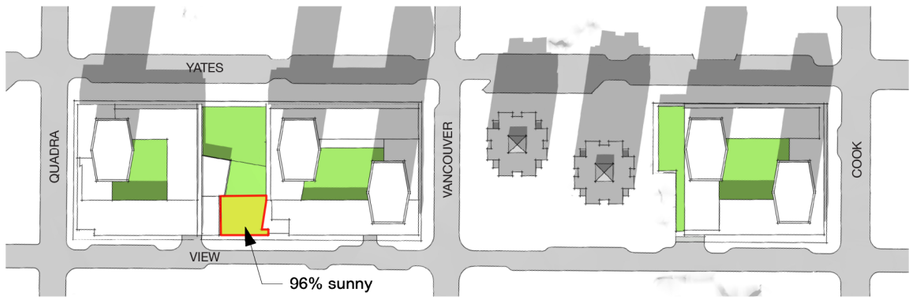
Equinox | 10:00am



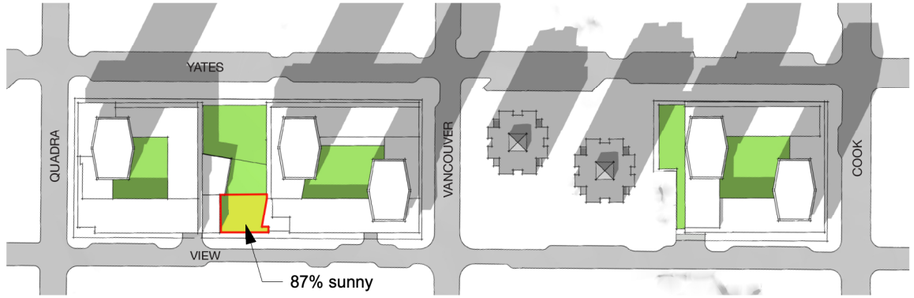
Equinox | 11:00am



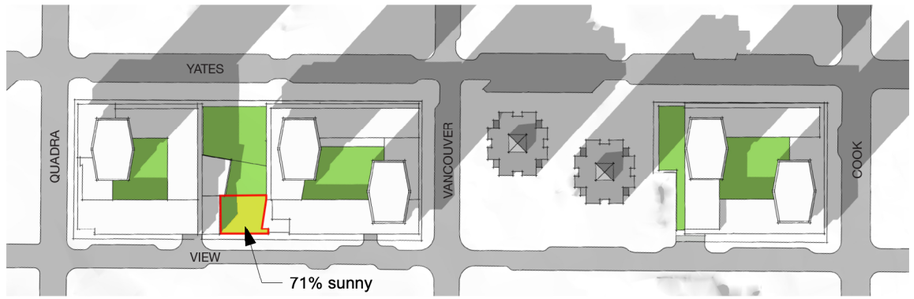
Equinox | 12:00pm



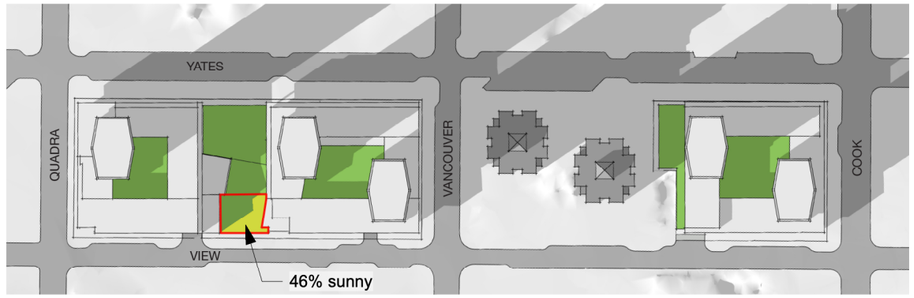
Equinox | 1:00pm



Equinox | 2:00pm



Equinox | 3:00pm



Equinox | 4:00pm

View St. Green sunlight

	% in sun
10:00am	68%
11:00am	79%
12:00pm	91%
1:00pm	96%
2:00pm	87%
3:00pm	71%
4:00pm	46%

General Notes:
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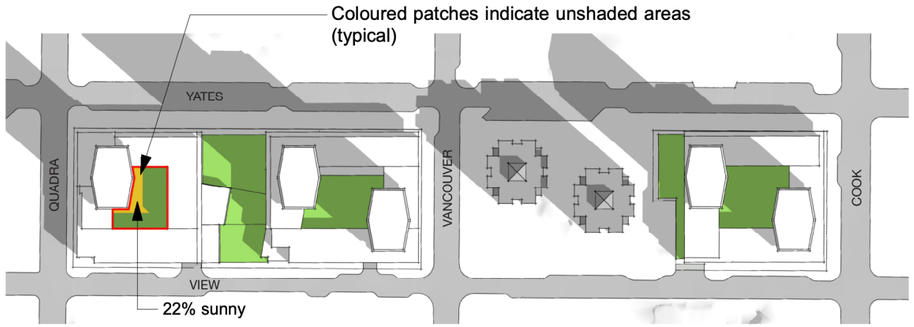
UD Guideline 3.1. c) iv)
Limit the scale and height of the buildings within these city blocks to allow 5 hours of sunlight to reach approximately 50% of the View Street Green between 10 am and 4 pm at the equinoxes.

*Note existing offsite buildings may interfere with sunlight reaching the Green.

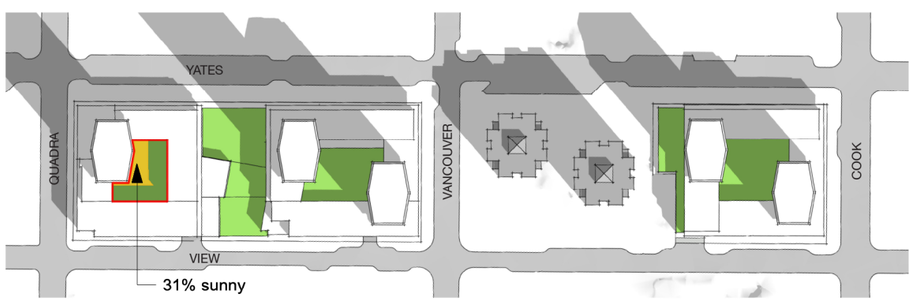
Summary:
The Green has sunlight for 50% or more of its area between 10am - 3:00pm

Harris Green Shadow Studies | Shading of the View Street Green

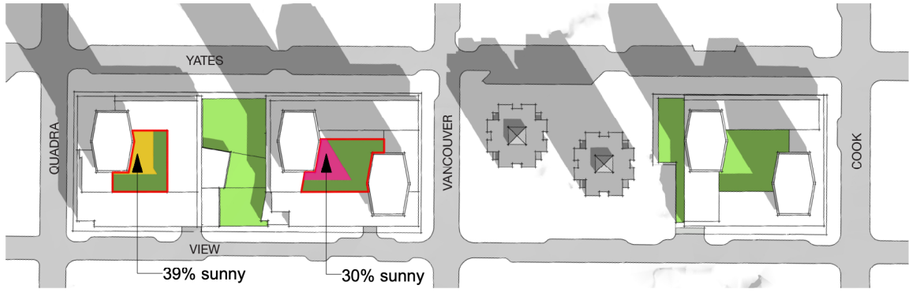
DAU #1930
October 28, 2020



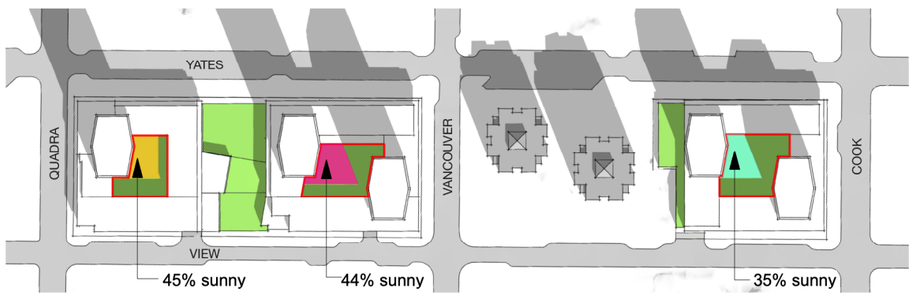
Equinox | 10:00am



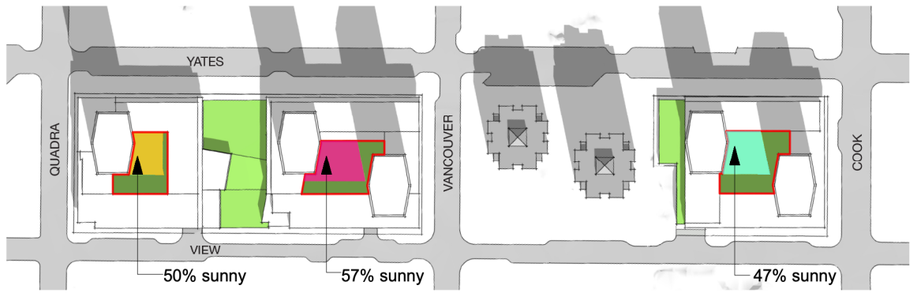
Equinox | 10:30am



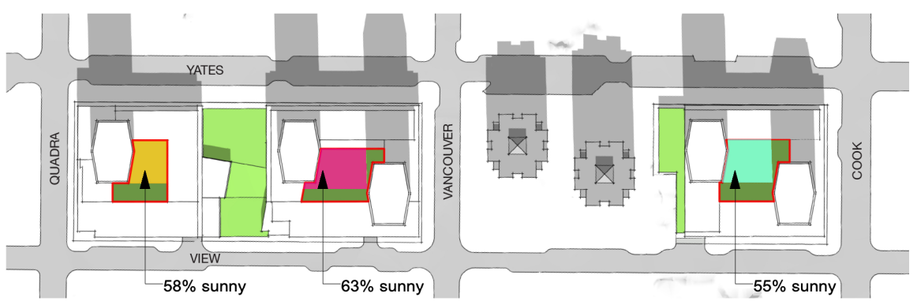
Equinox | 11:00am



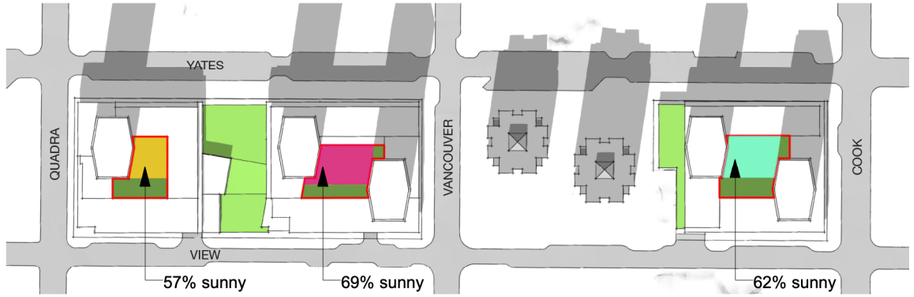
Equinox | 11:30am



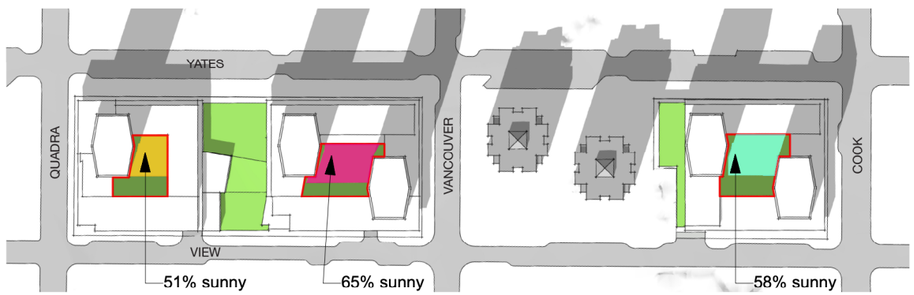
Equinox | 12:00pm



Equinox | 12:30pm



Equinox | 1:00pm



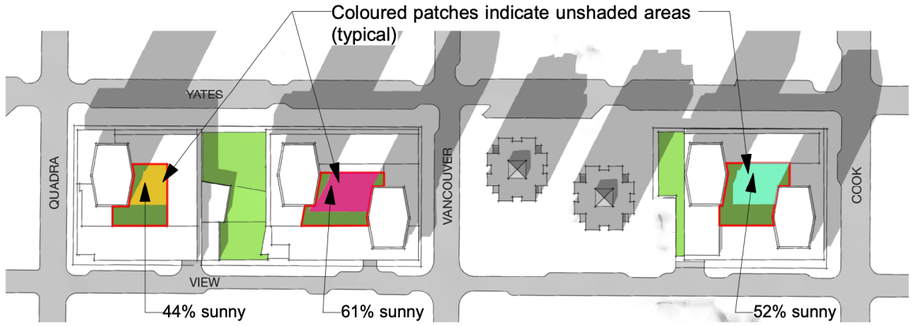
Equinox | 1:30pm

General Notes:
1. Shadow studies are done using the Sketch Up file provided by IBI on October 13, 2020
2. September 22 was used as the date of the Equinox.
3. All calculations are approximate and have been generated from 2D views of the Sketch Up model.
4. All calculations are relative and are not to scale.

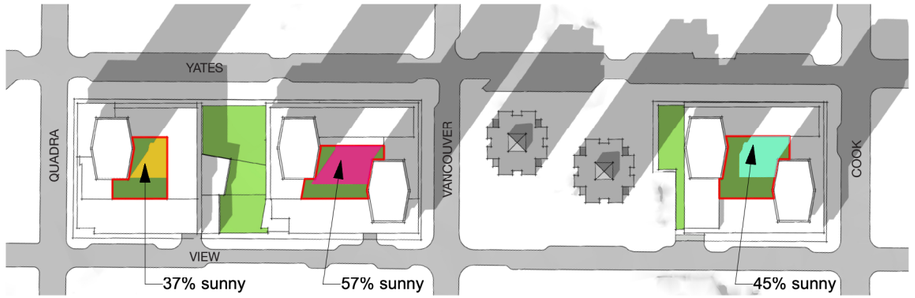
UD Guideline 3.1. c) v)
Limit the scale and height of the buildings surrounding the private courtyards to allow 3 hours of sunlight to reach approximately 30% of the courtyard area between 10 am and 4 pm at the equinoxes.

Harris Green Shadow Studies | Shading of Courtyards (pg 1 of 2)

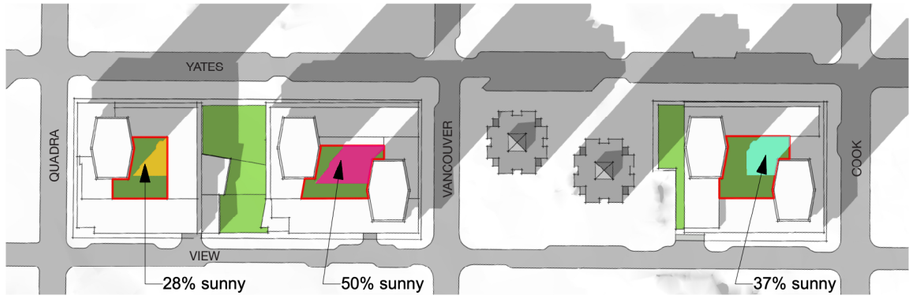
DAU #1930
October 28, 2020



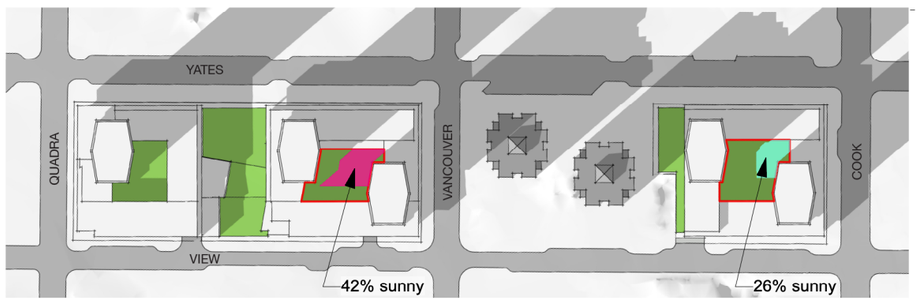
Equinox | 2:00pm



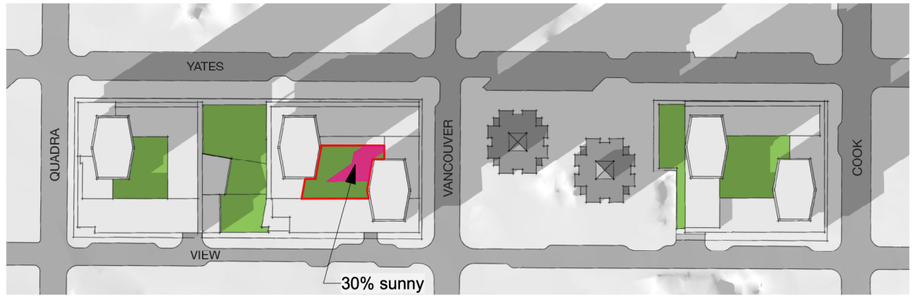
Equinox | 2:30pm



Equinox | 3:00pm



Equinox | 3:30pm



Equinox | 4:00pm

Courtyards

	Courtyard 1	Courtyard 2	Courtyard 3
	% in sun	% in sun	% in sun
10:00am	22%	-	-
10:30am	31%	-	-
11:00am	39%	30%	-
11:30am	45%	44%	35%
12:00pm	50%	57%	47%
12:30pm	58%	63%	55%
1:00pm	57%	69%	62%
1:30pm	51%	65%	58%
2:00pm	44%	61%	52%
2:30pm	37%	57%	45%
3:00pm	28%	50%	37%
3:30pm	-	42%	26%
4:00pm	-	30%	-

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Summary:
Courtyard 1: has sunlight for 30% or more of its area between 10:30am - 2:30pm = 4 hrs

Courtyard 2: has sunlight for 30% or more of its area between 11:00am - 4:00pm = 5 hrs

Courtyard 3: has sunlight for 30% or more of its area between 11:30am - 3:00pm = 3.5 hrs

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