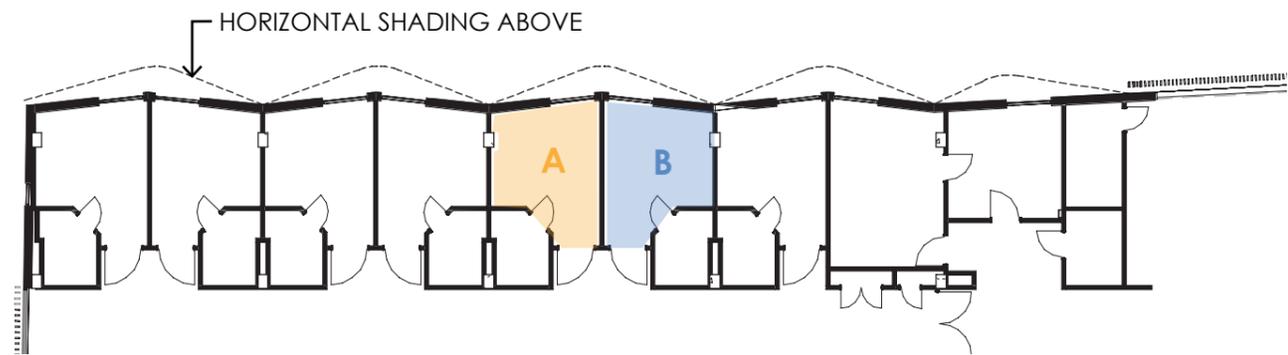


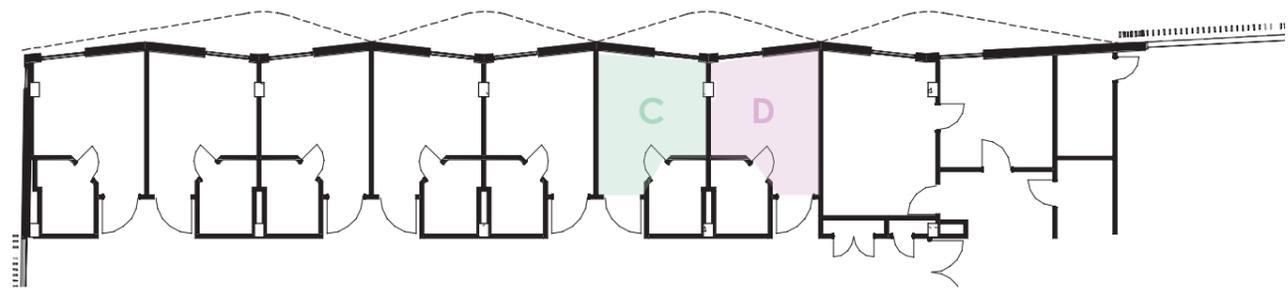
Appendix 5: Facade + Sun Study

PROPOSED DESIGN OPTION

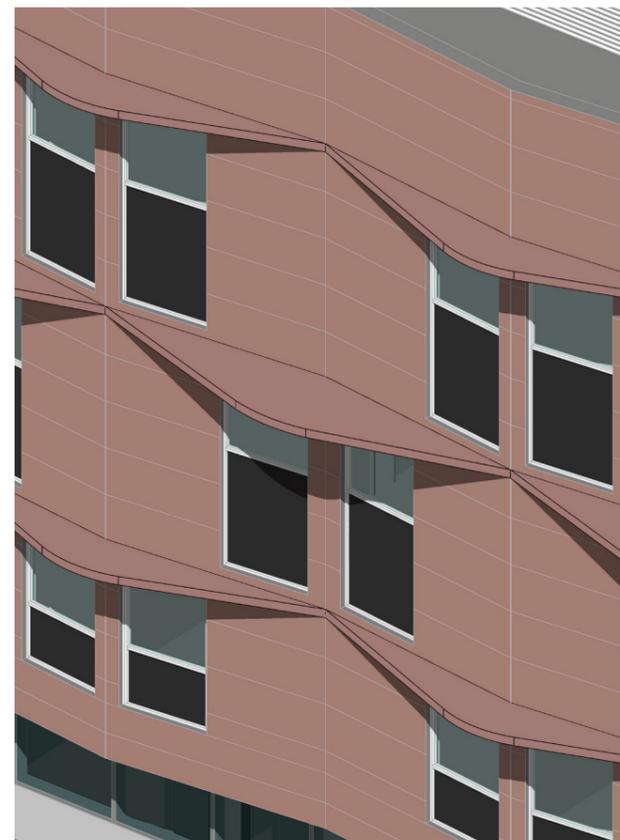
WEST FACADE - SUMMER SOLSTICE 21 DEC



LEVEL 2 FLOOR PLAN
(not to scale)



LEVEL 3 FLOOR PLAN
(not to scale)

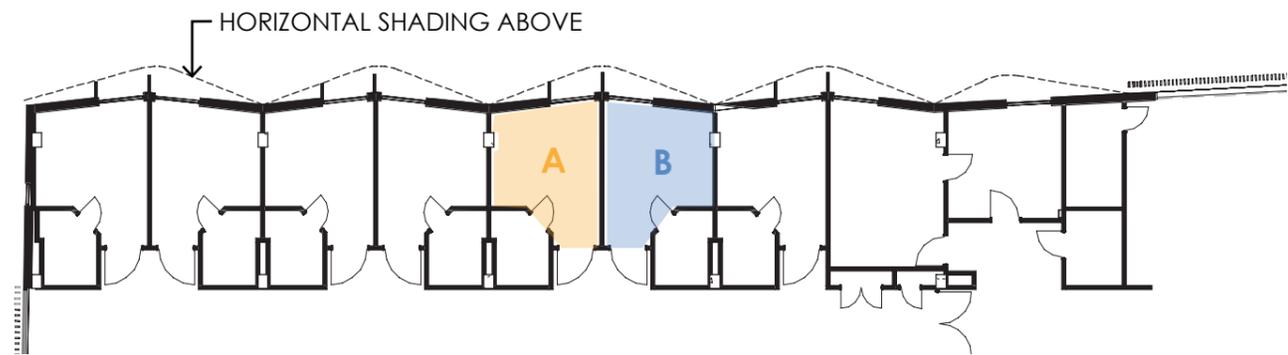


- Horizontal sun shading provided over windows
- Shading is effective up to 4pm
- Shading is not effective at 5pm
- Users will need to rely on additional shading devices at 5pm

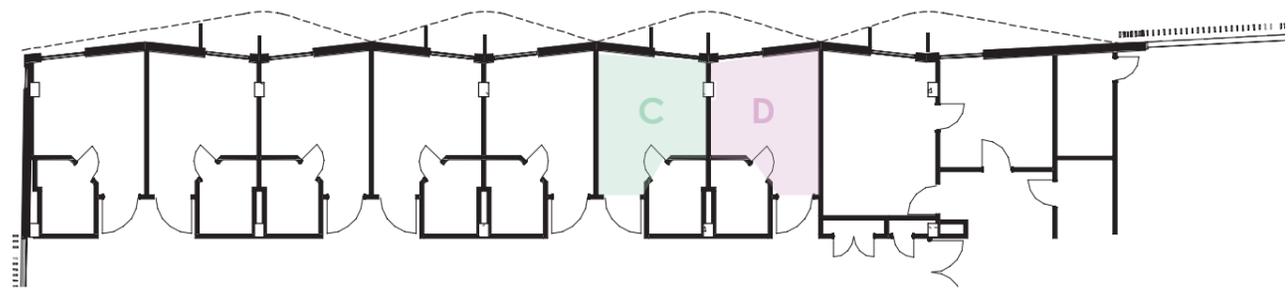
	BEDROOM A	BEDROOM B	BEDROOM C	BEDROOM D	
1PM	NO SUN SHADING				
	HORIZONTAL SHADING				
3PM	NO SUN SHADING				
	HORIZONTAL SHADING				
5PM	NO SUN SHADING				
	HORIZONTAL SHADING				

PROPOSED DESIGN OPTION PLUS VERTICAL SHADING - EXPLORATION

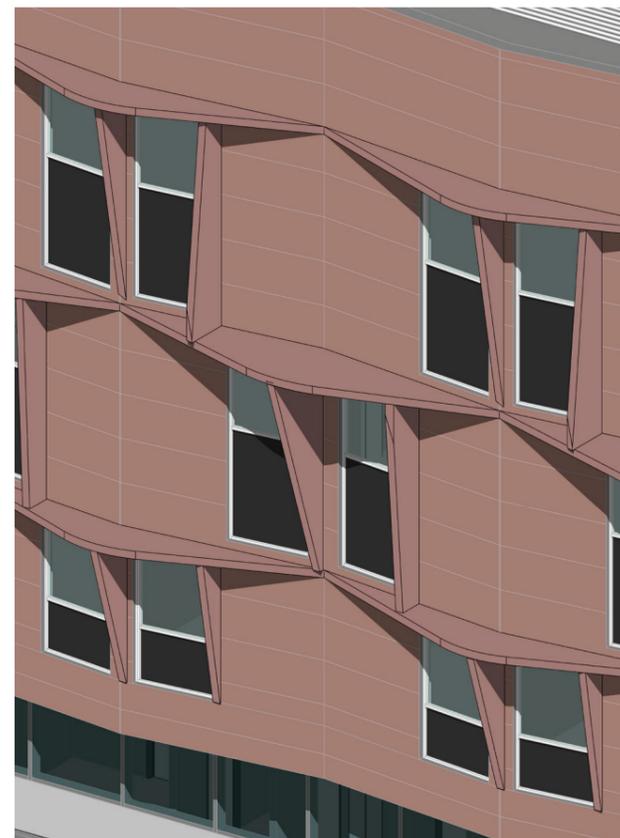
WEST FACADE - SUMMER SOLSTICE 21 DEC



LEVEL 2 FLOOR PLAN
(not to scale)



LEVEL 3 FLOOR PLAN
(not to scale)

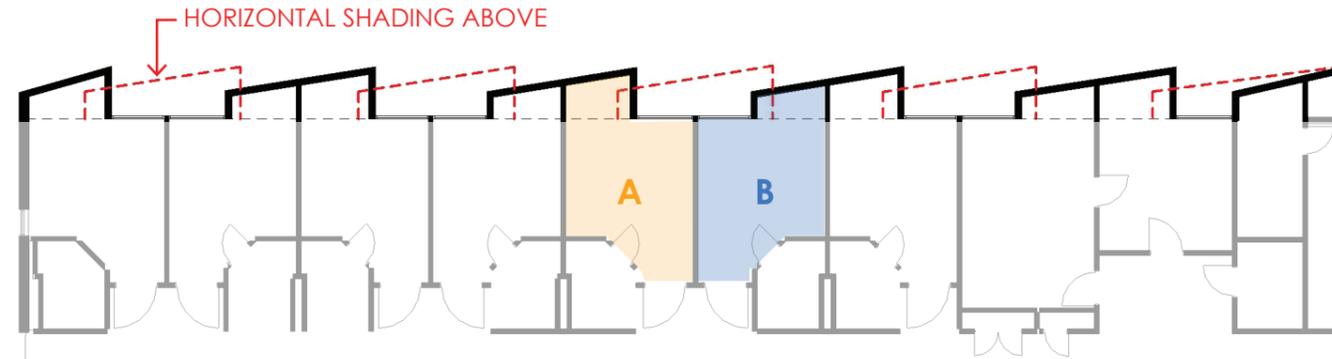


- Horizontal sun shading with additional vertical fins
- Shading is still effective up to 4pm from horizontal shade. Vertical fins do not provide any additional shade up to this time.
- Shading is not effective at 5pm
- Users will need to rely on additional shading devices at 5pm
- Vertical fins that do not block the wetlands outlook are not effective for sun shading in this orientation

	BEDROOM A	BEDROOM B	BEDROOM C	BEDROOM D
1PM				
NO SUN SHADING				
HORIZONTAL SHADING				
3PM				
NO SUN SHADING				
HORIZONTAL SHADING				
5PM				
NO SUN SHADING				
HORIZONTAL SHADING				

FACADE DESIGN OPTION 01

WEST FACADE - SUMMER SOLSTICE 21 DEC



LEVEL 2 FLOOR PLAN
(not to scale)



- Built out walls provide vertical shading to recessed windows
- Built out walls alternate between levels to provide horizontal shading to level below
- Built out up to 1500mm = additional cost
- 18% approximate increase in room area through added depth = additional cost
- Shading is partially effective at 3pm
- Shading is not effective at 5pm for room type B (50% of rooms)



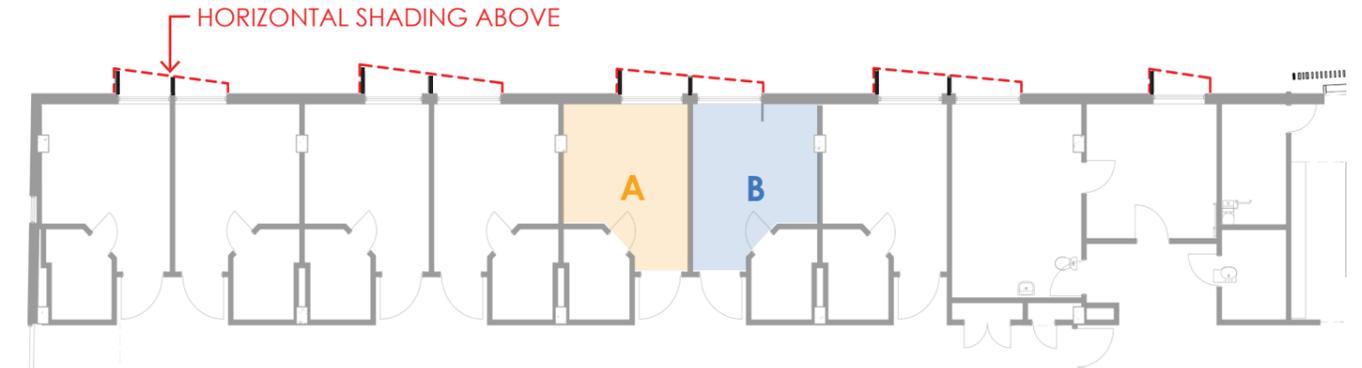
SHADING
3PM



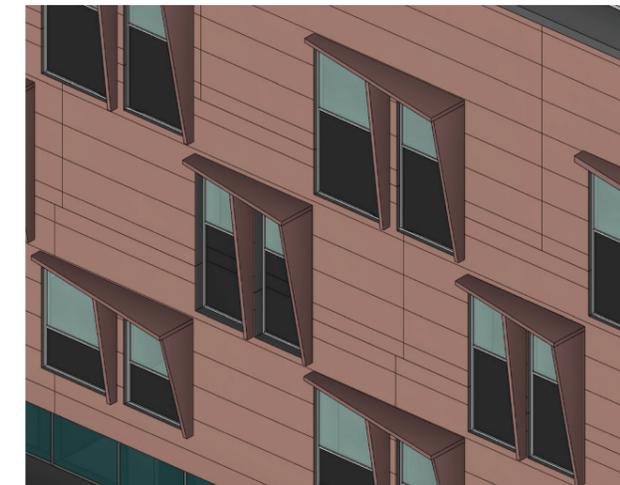
SHADING
5PM

FACADE DESIGN OPTION 02

WEST FACADE - SUMMER SOLSTICE 21 DEC



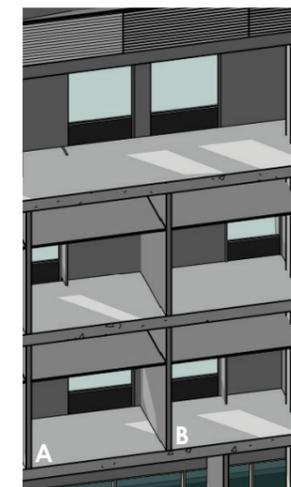
LEVEL 2 FLOOR PLAN
(not to scale)



- Vertical and horizontal fins provide sun shading over windows
- Shading somewhat effective at 3pm
- Shading is only partially effective at 5pm
- No increase in room size
- Fins are not as well integrated into the facade, detracting from the rhythm of the design intent



SHADING
3PM



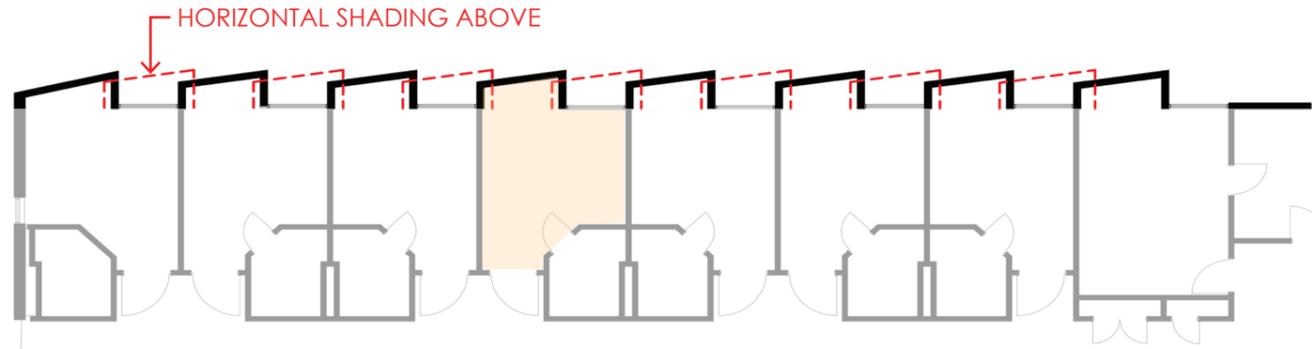
SHADING
5PM

SUMMARY

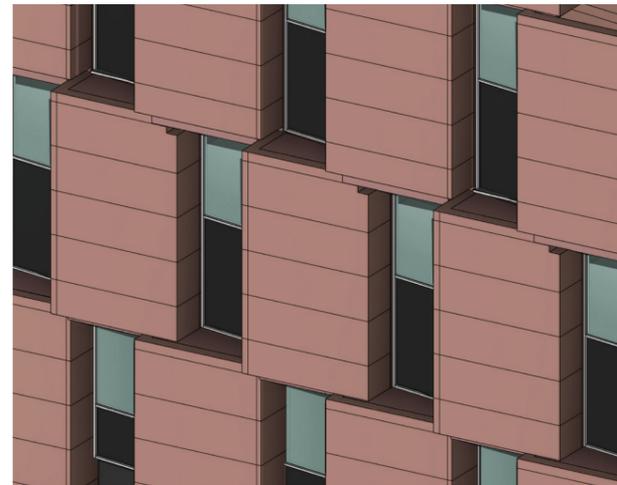
- The facade design options demonstrate that alternative designs have been explored during the design process.
- The explored design options do not provide significantly better passive solar shading than the proposed design.
- The horizontal shading in the proposed design is shown to be highly effective at key times.
- Coupled with the proposed high performance glazing and window treatment, the proposed design was selected as the best solution.

FACADE DESIGN OPTION 03

WEST FACADE - SUMMER SOLSTICE 21 DEC



LEVEL 2 FLOOR PLAN
(not to scale)



- Built out walls create depth to provide horizontal and vertical shading for individual windows
- Built out walls alternate between levels to provide horizontal shading to level below
- 12% approximate increase in room area through added depth = additional cost
- Shading is somewhat effective at 3pm
- Shading is only partially effective at 5pm



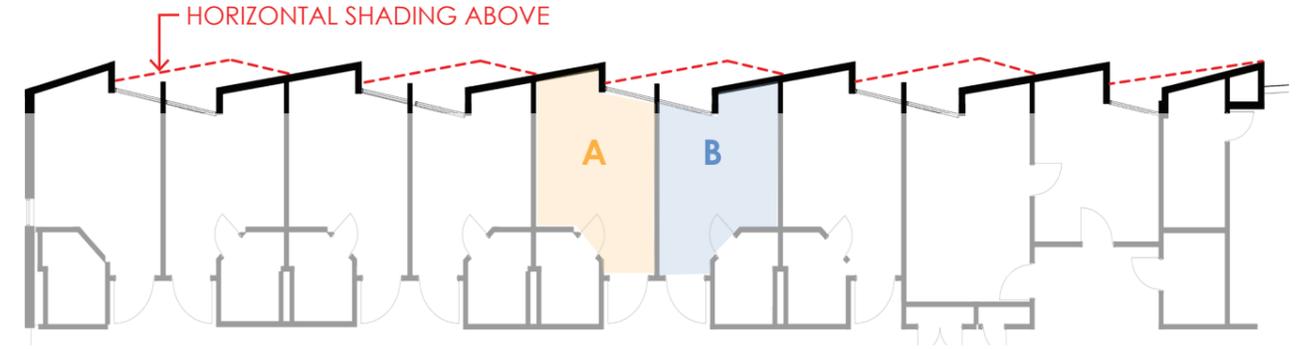
SHADING
3PM



SHADING
5PM

FACADE DESIGN OPTION 04

WEST FACADE - SUMMER SOLSTICE 21 DEC



LEVEL 2 FLOOR PLAN
(not to scale)



- Built out walls provide depth and shading, alternating between levels to provide horizontal shading to level below
- Windows are angled away from the setting western sun
- Walls built out up to 1.5m, 12% approx. increase in floor area = additional cost
- Shading somewhat effective at 3pm
- Shading effective for room type A at 5pm; only partially effective for room type B
- Users will still need to rely on additional shading devices at this time



SHADING
3PM



SHADING
5PM

SUMMARY

- The facade design options demonstrate that alternative designs have been explored during the design process.
- The explored design options do not provide significantly better passive solar shading than the proposed design.
- The horizontal shading in the proposed design is shown to be highly effective at key times.
- Coupled with the proposed high performance glazing and window treatment, the proposed design was selected as the best solution.