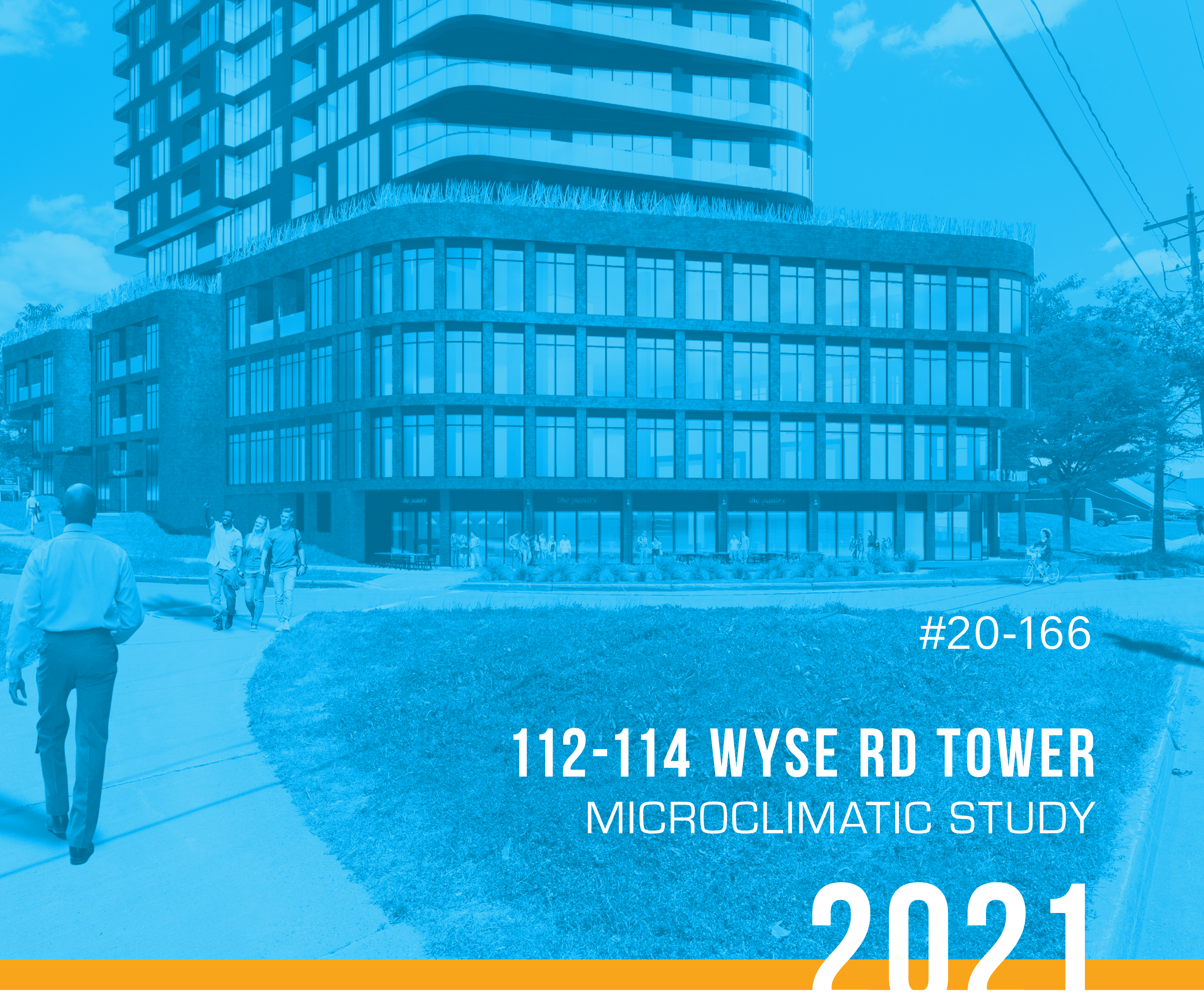


112-114 WYSE RD TOWER

MICROCLIMATIC STUDY

2021

MAY 4, 2021

submitted by:

fathom

fathom

112-114 WYSE ROAD
MICROCLIMATE STUDY

FIG 1. 112-114 WYSE ROAD tower looking east

The proposed 19-storey residential development project is located at the eastern corner of Wyse Road and Nantucket Avenue (see Figure 1). The site is surrounded by commercial retail to the north, a 7-storey hotel and 17-storey office tower to the south, the Halifax Transit Bridge Terminal to the north-east, and the Zatzman Sportsplex immediately adjacent to the south-east (See Fig 2).

The following qualitative wind assessment analyzes the probable qualitative wind impacts on surrounding properties and public spaces as a result of the removal of the 1 storey building and replacement with a single 17-storey building. This assessment follows the protocols outlined in the Centre Plan Land Use Bylaw (Appendix 1).

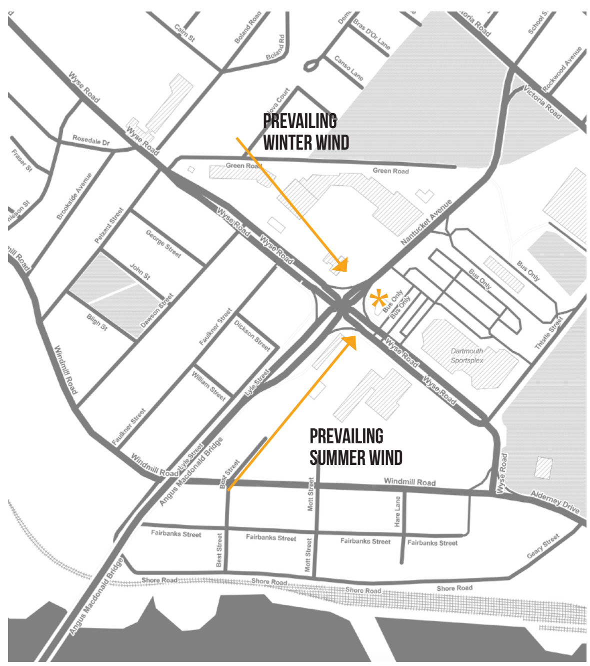


Fig. 1. Site Context

Fig. 2. Surrounding Building Heights looking North

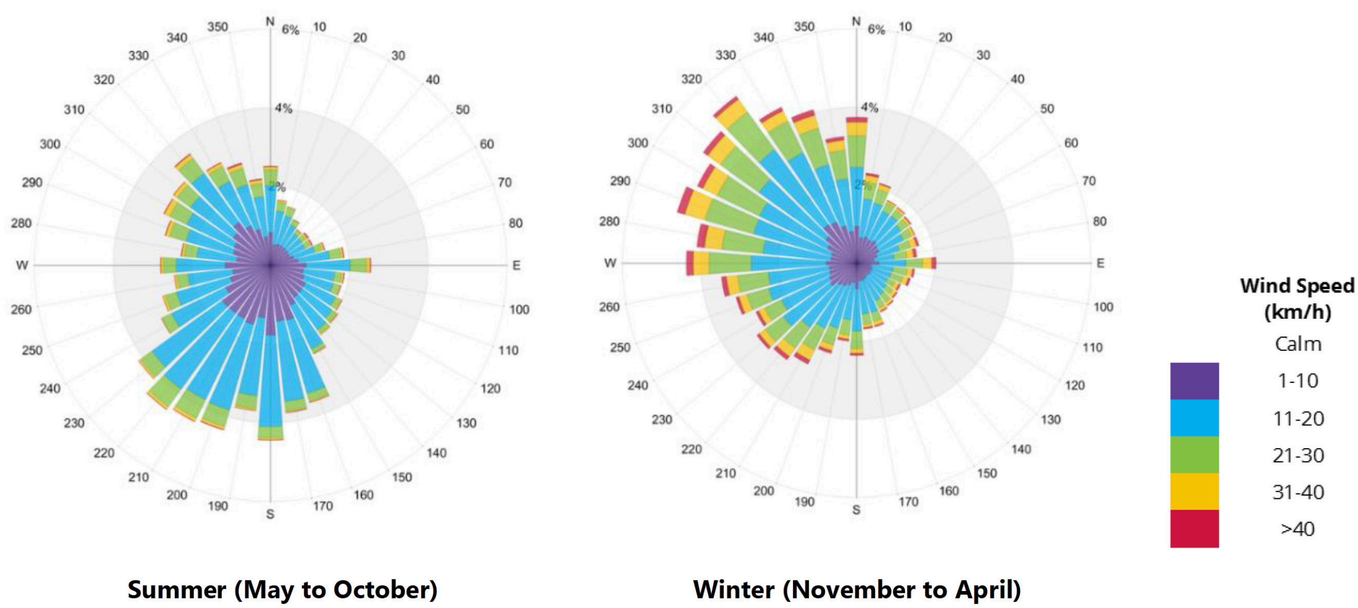


Fig. 3. Seasonal distribution of winds approaching Shearwater Airport (1988–2017)

METHODOLOGY

This microclimate study was designed to estimate human thermal comfort changes resulting from changes to wind conditions and solar conditions surrounding the new development. For this assessment a series of computer simulations were prepared using a 3D solar modelling application and a computational fluid dynamic (CFD) model to assess changes at the ground level for a variety of pedestrian activity types.

WIND DATA

Wind data was gathered from the local Shearwater Airport between 1988 and 2017 to understand the intensity, frequency, and direction of winds near the proposed site. The resulting wind diagrams (Fig. 4) were taken from the Centre Plan Land Use Bylaw for the key study periods (May to October and Nov to April). These charts show that the highest and most frequent wind speeds annually and then monthly during the summer and winter. The coastal conditions in Dartmouth bring winds from many different directions throughout the year resulting in prevailing winds mostly from south and southwest in the summer and from the northwest in the winter. For most of the year, winds rarely come from the north-east or south-east quadrant. The wind simulations therefore focus on winds from the north-west and south-west quadrants mainly. In this location, wind speeds rarely exceed 30 km/hr in the summer (May to Oct), while in the winter (Nov-Apr) wind speeds over 30km/hr can occur as frequently as 9% of the time. This means that winter wind conditions are much more likely to impact human thermal comfort around the new building, and most of these winds come from the prevailing north-western quadrant. In the summer months, wind speeds between 11-30 km/hr occur about 65% of the time from the south-western quadrant so in the summer the prevailing wind direction is from the south-west.

PEDESTRIAN COMFORT:

Pedestrian comfort and safety is an important consideration in the design of new developments in downtowns. Building height and massing can have considerable impacts on human thermal comfort at the street-level impacting the livability and walkability of neighbourhoods, snow loading on adjacent roofs and the general environmental conditions in neighbourhoods.

The Beaufort scale is an empirical measure that relates wind speed to observed conditions on land and sea. The attached Beaufort scale (Figure 4) is a general summary of how wind affects people and different activities, and distinguishes at what points wind speeds can become uncomfortable or dangerous. Wind speed is only one variable of human thermal comfort as described below.

Fig. 4. Beaufort Scale

	2-5 mph	3-8 km/hr	calm	Direction shown by smoke drift but not by wind vanes
	5-7 mph	8-11 km/hr	light breeze	Wind felt on face; leaves rustle; wind vane moved by wind
	7-10 mph	11-16 km/hr	gentle breeze	Leaves and small twigs in constant motion; light flags extended
	10-15 mph	16-24 km/hr	moderate breeze	Raises dust and loose paper; small branches moved.
	15-20 mph	24-32 km/hr	fresh breeze	Small trees in leaf begin to sway; crested wavelets form on inland waters.
	+20 mph	> 32 km/hr	strong breeze	Large branches in motion; whistling heard in telegraph wires; umbrellas used with difficulty.

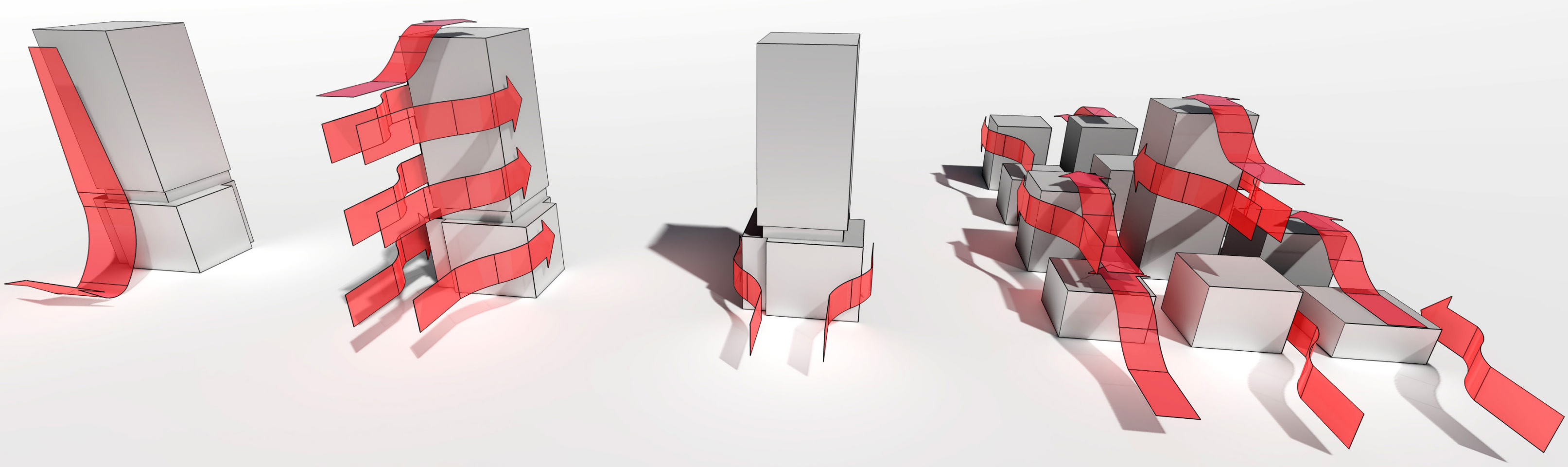
URBAN WINDBREAK IMPACTS

Wake zones for zero porosity structures can extend 8-30 times the height of a structure. A 12-storey building (36m) can generate increased wind speeds between 0.3 - 1km on the downwind side (see Fig. 3). Beyond the wake zone, there is typically more turbulence and eddies as a result of more turbulent air. This can be characterized as being slightly more gusty winds with quiet periods interspersed with gusts of wind. Directly behind the windbreak, the quiet zone can extend from 0 to 8 times the height on the downwind side. In this quiet zone, wind speeds can be somewhat reduced. Around the edges of the building, wind speeds can increase as wind flows around the structure.

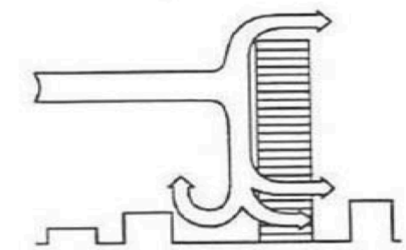
WIND IMPACTS FROM TALL BUILDINGS

There will be a number of aerodynamic impacts from a new tall building including:

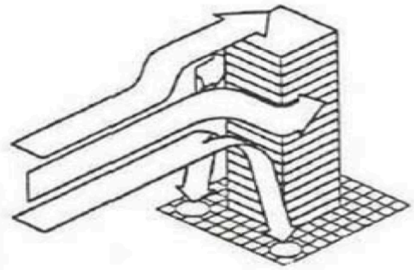
1. **Downwash**: Wind speed increases with the surface area of the building (i.e. height and width) so when a tower is exposed to wind, the pressure differential between the top and the bottom of tower forces the high pressure at the top down the windward face increasing pedestrian wind speeds. The taller the exposed face is, the higher the wind speed will be at the base. The stepback surrounding the proposed tower at the second and third storeys will receive the bulk of this downwash.
2. **The corner effect:** at the windward corners of buildings there can be unexpected increases in wind speeds as wind forces around the windward corners from high pressure on the windward face to low pressure on the lee side. Some of the ways to decrease this impact is to create pyramidal steps which increases the surface area of the edges.
3. **The Wake Effect:** Wake is generally caused by both the downwash and corner effect. The greatest impact area occurs within an area of direct proportion to the tower height and width on the lee side of the wind. Impacts are minimized by creating a stepback base on the building.
4. **Building Groups:** The effects that occur individually around buildings cannot be applied directly to groups of buildings. The cumulative effect of many clustered tall buildings, like in this situation, can create a wide range of different wind scenarios that must be modelled as a group to understand the cumulative impacts.



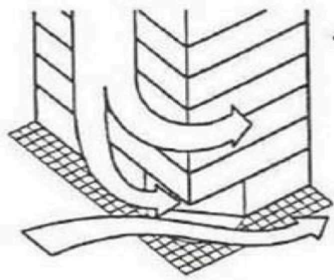
DOWNWASH THE CORNER EFFECT THE WAKE EFFECT BUILDING GROUPINGS



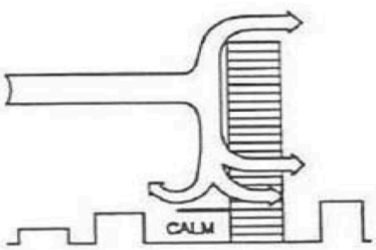
A building taller than its surroundings can concentrate pedestrian level winds at ground level.



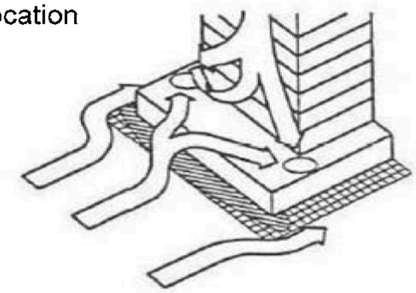
A tall building concentrates wind at its base, particularly at the corners where the downwash is accelerated into horizontal motion.



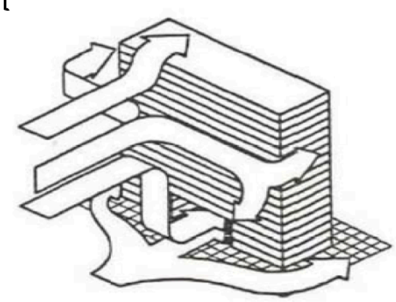
Undercut corners can aggravate the wind conditions at a building corner. Typically this is not a good location for an entrance.



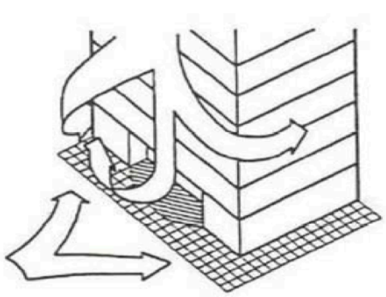
Downwash can be deflected by a large canopy at the base of a building, producing a pleasant entrance area.



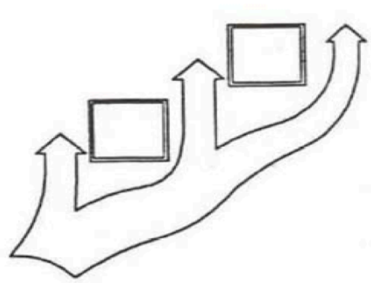
A podium/tower combination concentrates winds at the podium roof (▨) not at the base (▭).



Openings through a building at the base induce high velocities due to pressure differential from the front to the back.



Recessed entry provides low winds at door locations.



Adjacent building placement can cause a compression of the mean streamlines, resulting in horizontally accelerated flows at ground level.

WIND & SNOW IMPACTS FROM THE TOWER

To simulate the impacts of different wind conditions and directions resulting from the building, Fathom employed a CFD simulation (Computational Fluid Dynamics) to model the wind impacts at different times of the year. The CFD was constructed using Ansys Discovery 2021 which is a platform commonly used for steady state wind simulations. CFD simulations are now being widely used for the prediction and assessment of pedestrian wind comfort environments and high-rise building aerodynamics. There are various types of wind analysis that can be carried out using a CFD and they provide a high predictive qualitative assessment but more detailed quantitative assessments still employ wind tunnels to measure actual wind speeds. Wind tunnels require the construction of scaled physical models and are still time consuming and expensive. Results from CFD wind simulation are considered to be a reliable sources of quantitative and qualitative data and are frequently used to make important design decisions. For this wind assessment a CFD model was employed using the 3D model of the 2021 version of the building (simplified to reduce modelling complexity) and the 3D models of surrounding buildings. The simulation was set at a starting wind velocity of 15 m/s or 54 km/hr (yellow) to match the frequency analysis of the Shearwater wind data, and the model was allowed to run until steady state was achieved.

As noted previously, the western quadrant (0 degrees to minus 180 degrees) accounts for most of the high wind conditions that would create uncomfortable conditions for pedestrians. For this reason, our analysis focuses on this quadrant. Generally speaking, the area around the

proposed building is a mix of low rise, mid rise and high rise towers within a few blocks of the site. As part of the Dartmouth Common, there are many wide open areas including parks and parking lots but some of the area is also blessed with a mature urban forest which reduces wind-speeds at the ground level where large trees are present.

DESIGN CONSIDERATIONS

The proposed building has been purposely designed to reduce wind impacts with a 4-storey streetwall employing a 3m stepback around all sides of the Building. This step-back reduces wind sheer travelling down the building, instead, focusing it on the fifth storey terraces rather than the neighbouring sidewalks. The main entrance also includes a large canopy to provide additional wind protection from downdrafts and wake effects near the ground. Additional articulation of the streetwall creates additional building complexity designed to reduce wind effects at the street while providing architectural articulation of the ground floors from the street. The parapets added to the top floor and 4th floor stepbacks will also capture much of the down-draft wind reducing street level impacts. The proposed building has been purposely designed to reduce wind impacts with a curved edge tower to reduce turbulence with a streamlined edge. Some of the groundlevel doors have also been inset into the building to further reduce down-draft impacts at major entry points of the building. All of these features have a noticeable impact on wind conditions at the ground level of the surrounding site. The 5th storey roof-deck will have to be designed for some significant gusting on the west and southwest side of the roof-deck. The tower could create localized increased wind speeds around the new building depending on the wind direction, but it wall also create calmer wind shadows around the site as well that will be noticeable on the lee side of the building.

All of these architectural features have been purposely designed to reduce wind and provide architectural articulation and visual interest to the building. The 5th storey roof-deck will have to be designed for some significant gusting on the west and southwest side of the roof-deck. The wind impacts vary around the building depending on the prevailing direction of the wind, and the wind speeds as shown in this analysis. The cantilevered decks also further reduce wind speeds bu adding additional surface complexity and surface area on the building.

CFD MODEL

To keep the model simple (CFD's are notoriously computationally intensive simulations), we did not model trees which can further reduce wind speeds at the ground by creating additional surface roughness. The simulations were run approximately 6' (2m) off the ground. We modelled existing conditions and future conditions from all directions to contrast the differences that result from the new building. These contrasting conditions (pre and post are described further in the following sections. To be clear though, Moving from a 1 storey building to a 19 storey building in an area that is relatively open will create localized windy areas that could impact human thermal comfort. It is important to understand that these models are simulating the worst case conditions but the probability of these worst case conditions are relatively low throughout the year. The percent of time that maximum wind speeds are exceeded are also discussed in each directional simulation.

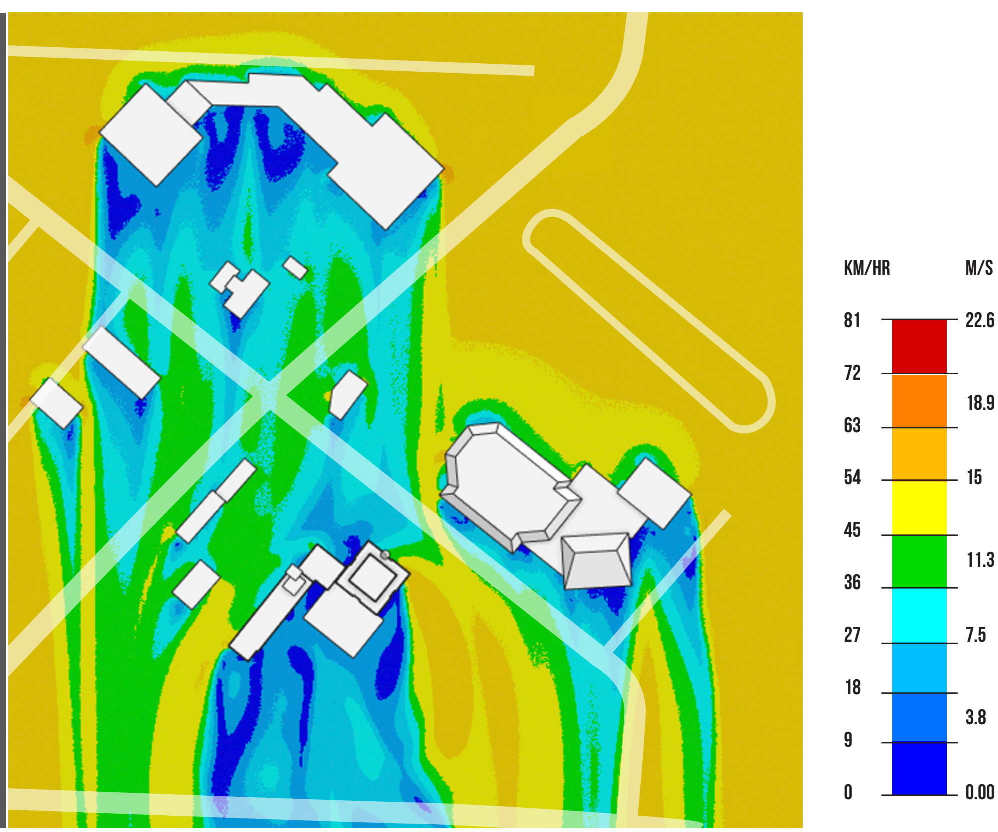
NORTH WIND IMPACTS (FIG 5 & 5B)

Though winds from the north are not overly frequent in either the summer, they are a little more frequent in the winter. For example, in the winter, wind speeds over 30 km/hr only happen about 4-5% of the time (looking at the 45 degree pie of the north-west quadrant). The CFD simulation was set to start in the windiest conditions starting at 15 m/sec (Yellow-orange) in order to model a worst case scenario for pedestrian comfort. Areas in dark orange and red are areas where wind speeds will be accelerated above 15 m/s starting condition as a result of building clustering. Similarly, areas in blue and green are part of the wind shadow produced by buildings that create calmer and more comfortable wind conditions.

Contrasting the existing and future conditions (Fig 5 vs 5b), there is a windier condition at the Nantucket-Wyse intersection but a slightly less windy condition to the east of 99-Wyse when winds come from the north. It is important to note that with a starting wind speed of 15 m/s, the wind shadow from the mall to the north is slightly reduced and wind speeds in the public right of ways match the starting wind speed (15 m/s). The western corner of the new building will be very windy but this is on the private property and is very localized. Some tree planting or windbreak landscape features at this corner will help reduce the impacts at Nantucket and Wyse.

FIG 5. NORTH WIND

EXISTING CONDITIONS



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NORTH-WEST WIND IMPACTS (FIG 6 & 6B)

Winds from the northwest are the most frequent prevailing wind direction in the winter and is also fairly frequent in the Summer. Even though this direction is prevailing, wind speeds over 30 km/hr only occur about 3% of the time from the northwest.

The CFD simulation was set to start in the windiest conditions starting at 15 m/s (Yellow) in order to model a worst case scenario for pedestrian comfort. Areas in dark orange and red are areas where wind speeds will be accelerated above 15 m/s starting condition as a result of building clustering. Similarly, areas in blue and green are part of the wind shadow produced by buildings that create calmer and more comfortable wind conditions.

Looking at the existing and future conditions, there is very a slight increase in wind speeds on the north and south side of the new building when winds come from the northwest adding about 2-3m/s in very small localized areas. The Sportsplex parking lot will get slightly windier north of the sportsplex but much less windy west of the sportsplex. Some of this extra wind speed is offset though by reducing the wind speeds north of 99 Wyse Road and along Nantucket. The resulting impact is that some small areas get slightly windier while some areas get less windy when winds come from the northwest.

The areas that get significantly less windy (dark blue) may be prone to more snow drifting than is present today.

FIG 5B. NORTH WIND

POST-CONSTRUCTION CONDITIONS

FIG 5. NORTHWEST WIND

EXISTING CONDITIONS

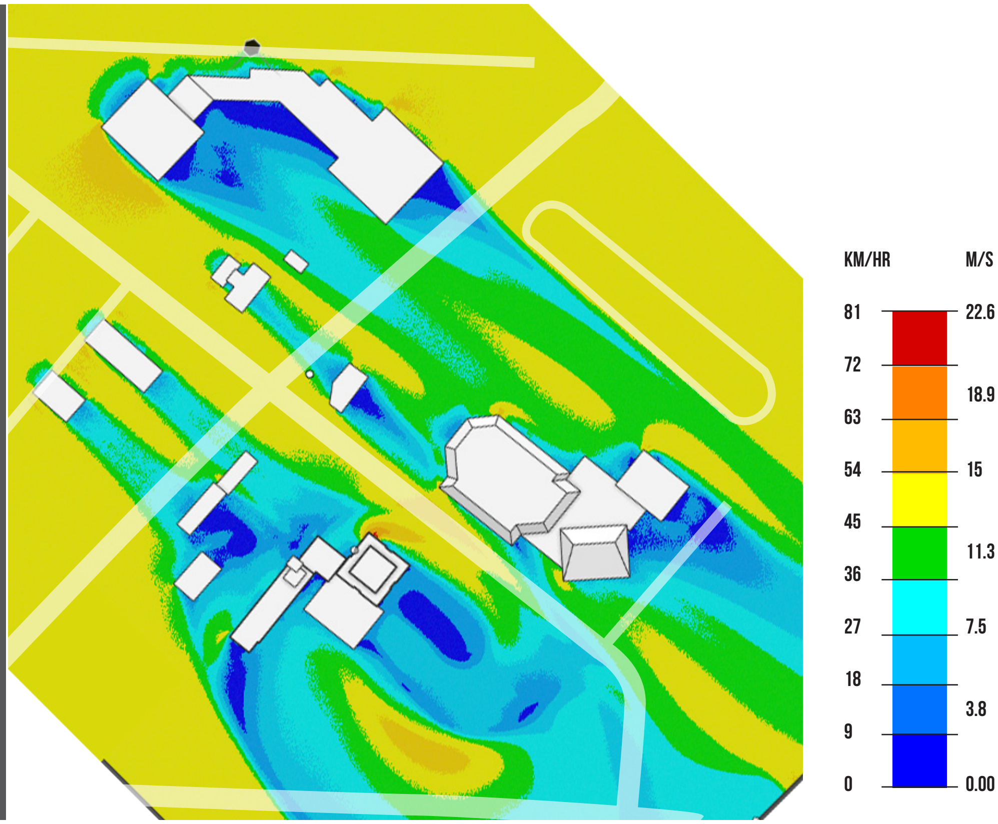

FIG 6. WEST WIND

EXISTING CONDITIONS

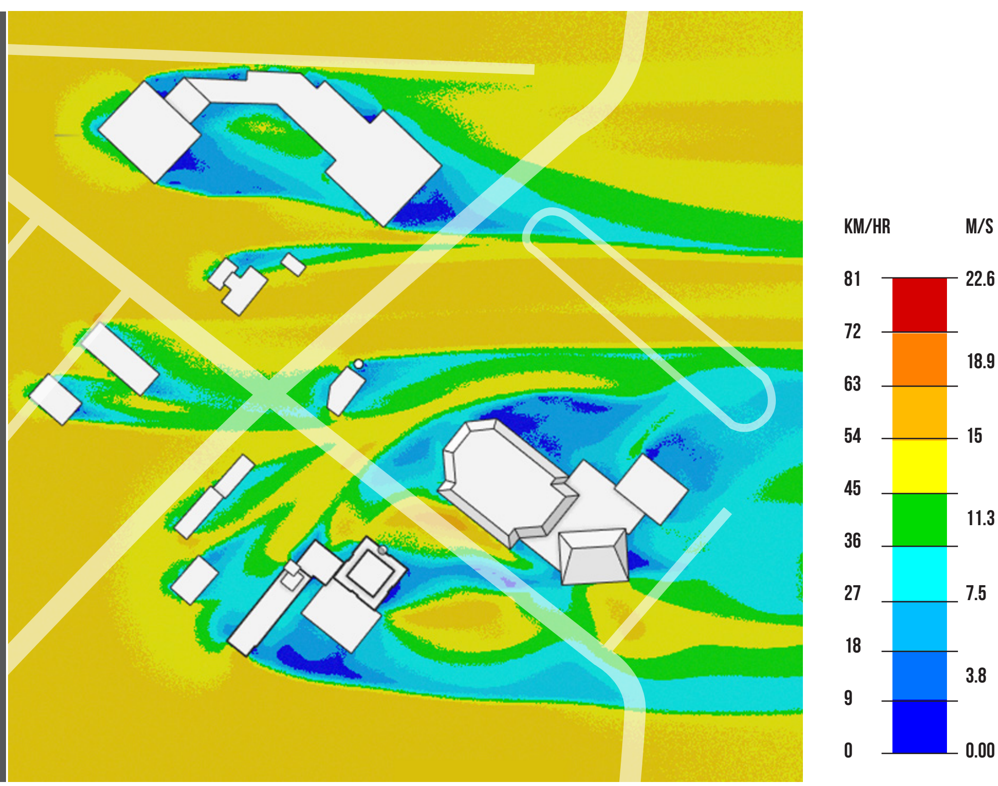

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FIG 5B. NORTHWEST WIND

POST-CONSTRUCTION CONDITIONS

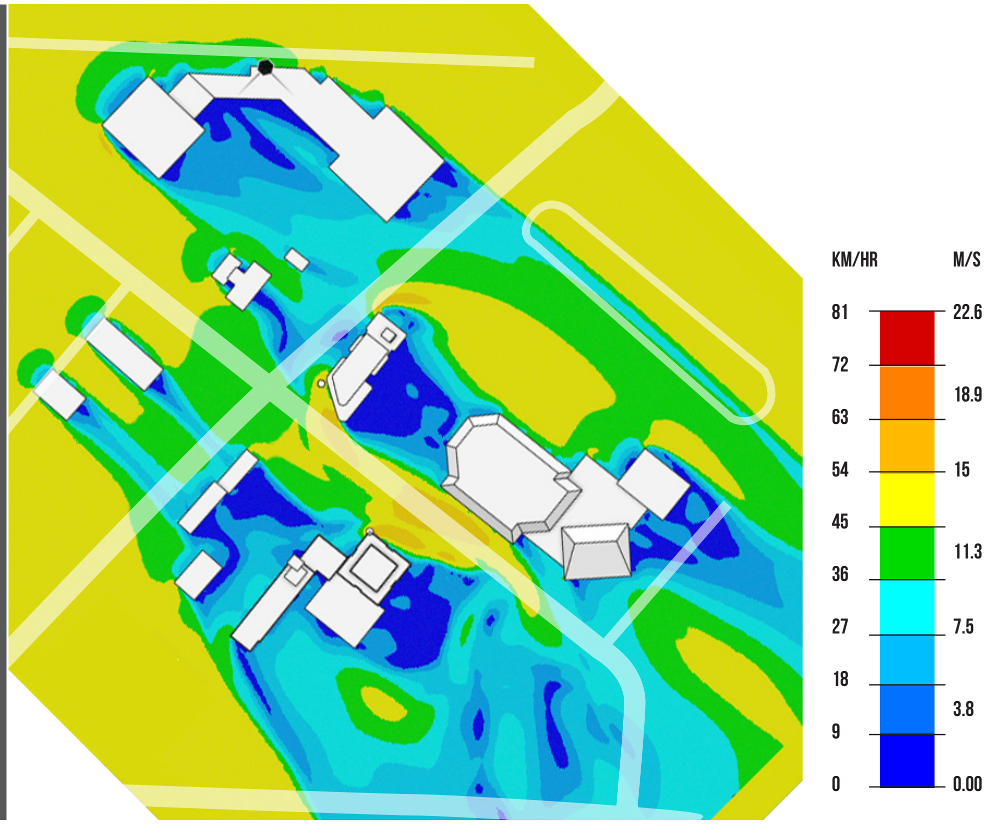
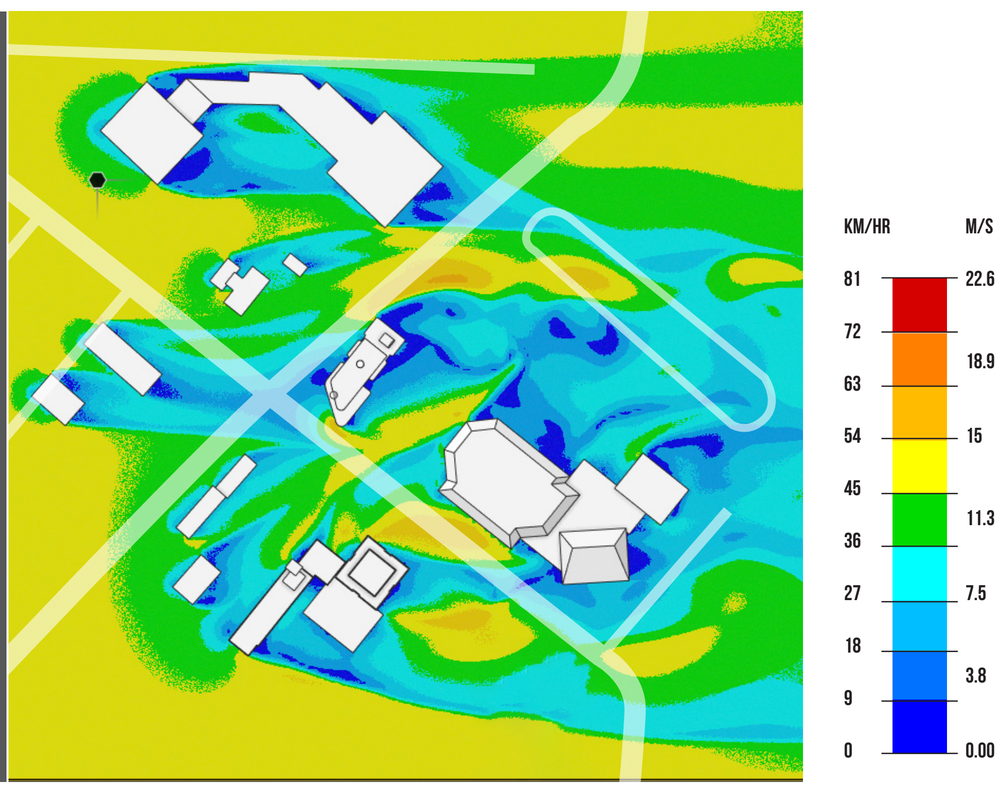


FIG 6B. WEST WIND

POST-CONSTRUCTION CONDITIONS



WEST WIND IMPACTS (FIG 6 & 6B)

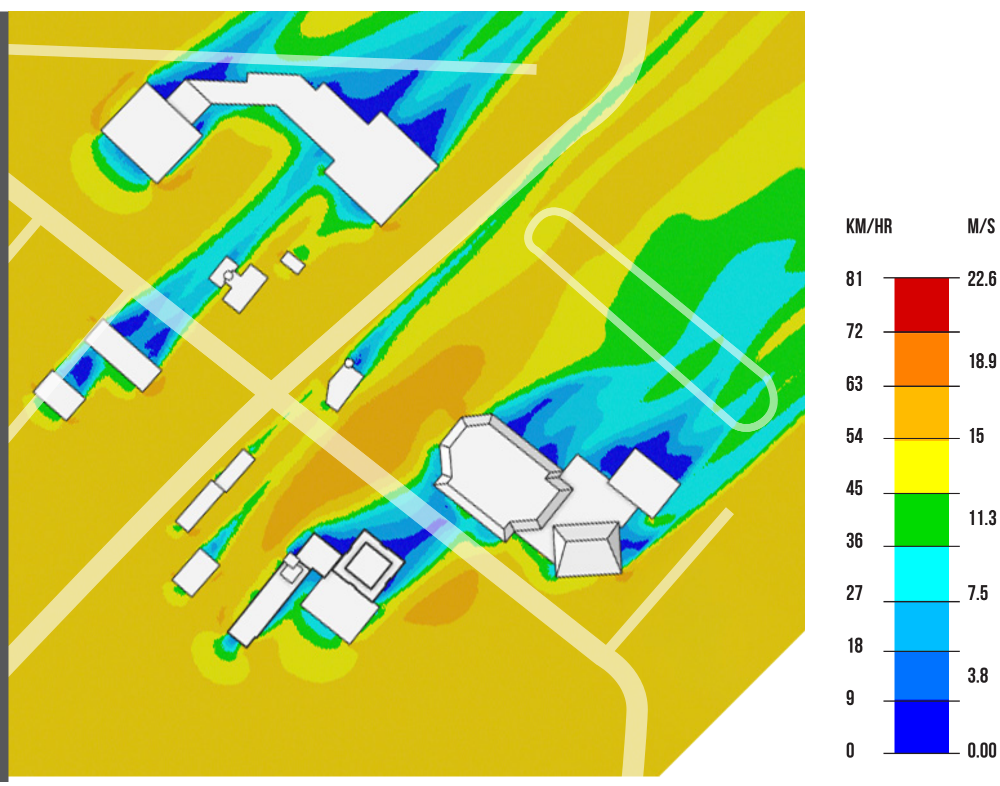
Winds from the west are the fairly frequent in the winter and relatively infrequent in the summer. Even though this direction is also prevailing in the winter, wind speeds over 30 km/hr only occur about 2% of the time from the north-west.

The CFD simulation was set to start in the windiest conditions starting at 15 m/s (Yellow) in order to model a worst case scenario for pedestrian comfort. Areas in dark orange and red are areas where wind speeds will be accelerated above 15 m/s starting condition as a result of building clustering. Similarly, areas in blue and green are part of the wind shadow produced by buildings that create calmer and more comfortable wind conditions.

Looking at the existing and future conditions (Fig 6 and 6b), winds from the west direction create a wind shadow surrounding much of the new building. When winds come from this direction, the new building creates a larger wind shadow reducing wind speeds for almost a block surrounding the new build. There is also less windy conditions around the sportsplex parking lot and at the Nantucket-Wyse intersection.

FIG 7. SOUTHWEST WIND

EXISTING CONDITIONS



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SOUTH-WEST WIND IMPACTS (FIG 7 & 7B)

South-west winds are frequent in the summer months but fairly infrequent in the winter months. Even though this direction is prevailing in the summer, wind speeds over 30 km/hr only occur less than 1% of the time from the south-west. In the winter, this direction occurs less than 2% of the time.

The CFD simulation was set to start in the windiest conditions starting at 15 m/s (Yellow) in order to model a worst case scenario for pedestrian comfort. Areas in dark orange and red are areas where wind speeds will be accelerated above 15 m/s starting condition as a result of building clustering. Similarly, areas in blue and green are part of the wind shadow produced by buildings that create calmer and more comfortable wind conditions.

Comparing the existing and future wind condition maps (Fig 7 and 7b), the new building actually improves the wind conditions on much of Nantucket and on Wyse Road. The wind shadow from the larger building extends much longer than the 1 storey building and the curved flatiron reduces downdraft from the building for winds coming from the southwest. Generally this wind alignment improves wind conditions around the project for upwards of a block or more.

FIG 7B. SOUTHWEST WIND

POST-CONSTRUCTION CONDITIONS

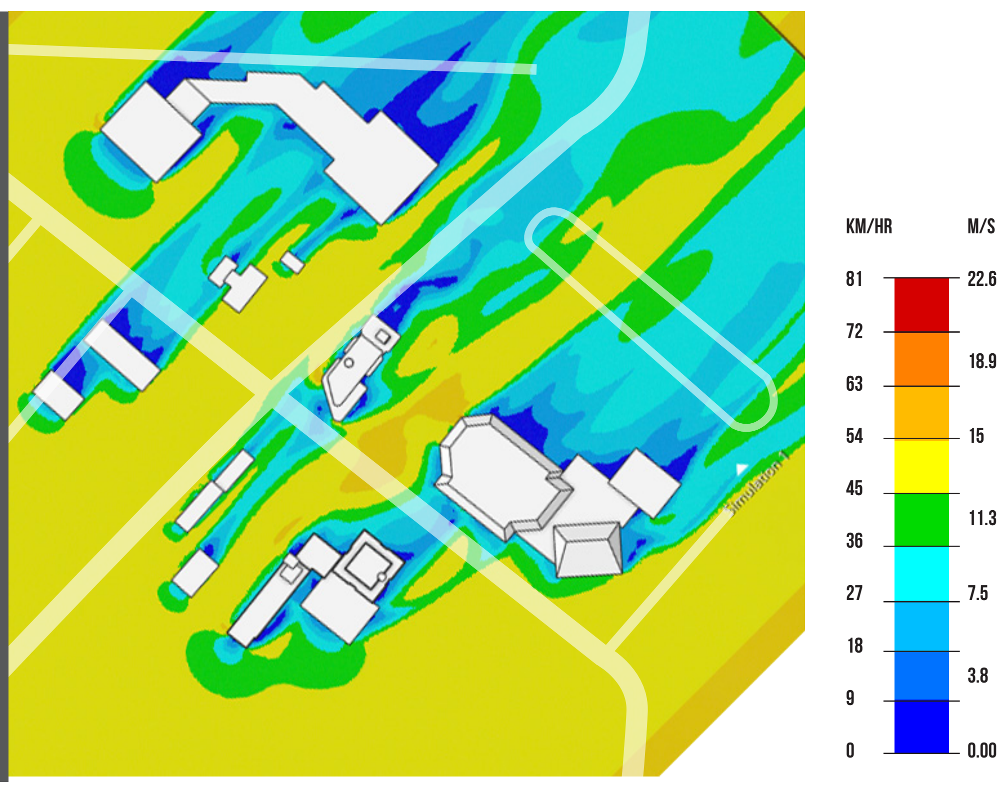
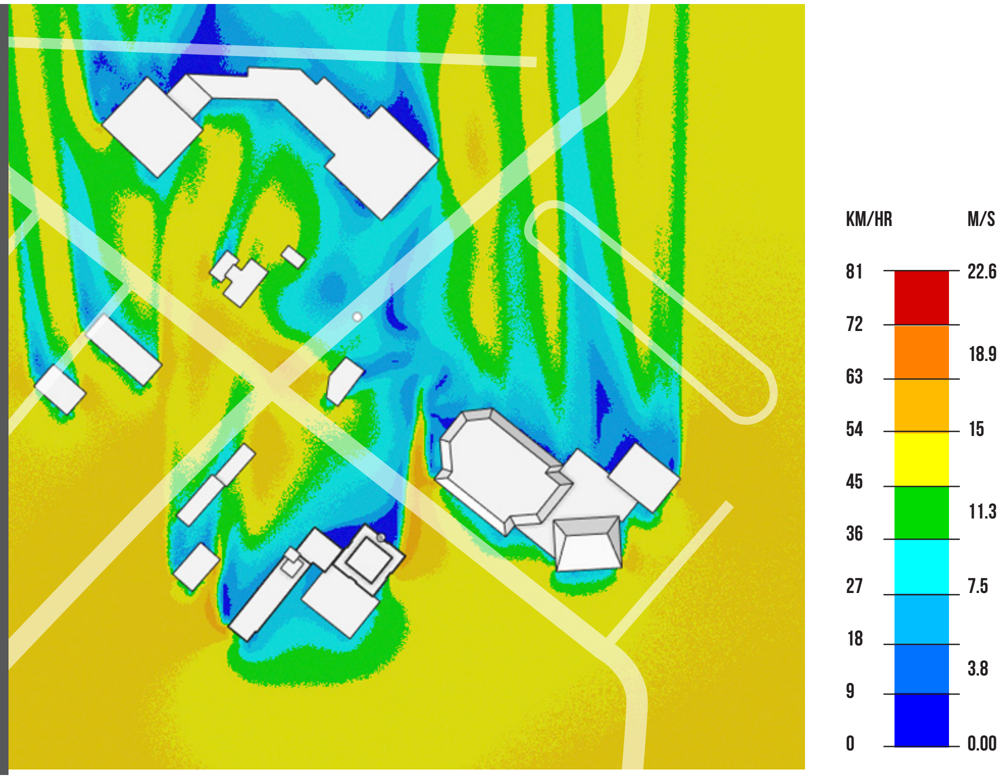


FIG 8. SOUTH WIND

EXISTING CONDITIONS



SOUTH WIND IMPACTS (FIG 8 & 8B)

South winds are one of the most frequent wind direction in the summer in Dartmouth, but are fairly rare in the winter. Winds rarely exceed 30 km/hr from the south in the summer or winter.

The CFD simulation was set to start in the windiest conditions starting at 15 m/s (Yellow) in order to model a worst case scenario for pedestrian comfort. Areas in dark orange and red are areas where wind speeds will be accelerated above 15 m/s starting condition as a result of building clustering. Similarly, areas in blue and green are part of the wind shadow produced by buildings that create calmer and more comfortable wind conditions.

Looking at the existing and future conditions (Fig 8 and 8b), winds from the south direction make the Nantucket-Wyse intersection slightly windier than today but have mostly very little other impacts except a larger wind shadow to the north of the new building.

WIND IMPACTS: OTHER DIRECTIONS

The other wind directions are infrequent enough that winds from other directions (10-170 degrees) will have very little impact as a result of the new building. For the purpose of wind studies in HRM, these directions have very little impact.

OTHER DESIGN CONSIDERATIONS

The new building has been purpose designed to reduce wind impacts at the ground level surrounding the building. The curved south face, the 4-storey streetwall, the cantilevered decks and the inset door locations will all reduce wind impacts on the building and from the building as much as could be expected for a building this size. There will be localized slightly windier conditions and less windy conditions as noted in the previous sections as well as the potential for greater snow drifting mostly in the Sportsplex parking lot west of the Sportsplex.

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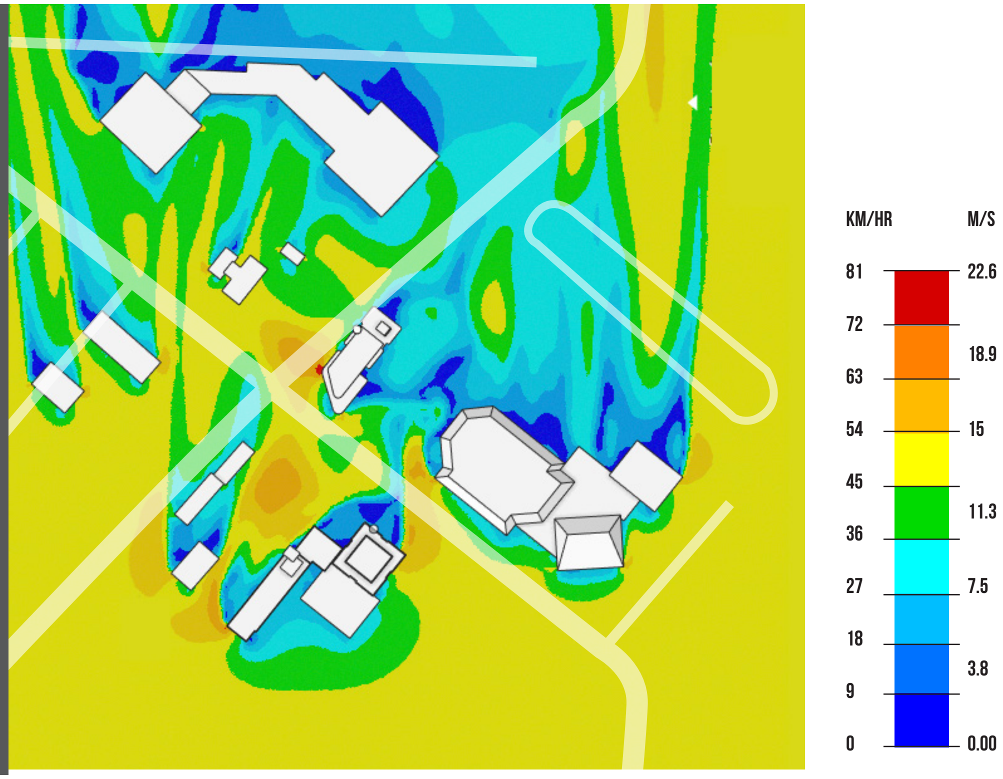
FIG 8B. SOUTH WIND

POST-CONSTRUCTION CONDITIONS



The windiest change due to the new building is the southwest corner of the new building but most of the increase occurs on the private property of the development at the corner of Nantucket and Wyse. This area should be landscaped to reduce wind speeds with wind breaks, trees and other wind mitigation measures. The preliminary concept for this corner is to create a pedestrian outdoor patio area depending on the commercial use which occupies the groundfloor. To ensure the comfort of this corner all year round, these wind mitigation measures will be necessary. The increases in wind speed are generally moderate and are offset by wind shadows that reduce wind speed surrounding the property.

A design consideration that could improve the wind conditions on the 5th storey terrace would be adding wind baffles at the 6th storey floor elevation to reduce the down-draft from the 19 storey tower on the 5th storey terrace. Without some way to reduce down-draft, it will be difficult to keep patio furniture or BBQ's on the terrace without significant gusting several times of year when the winds come from the north-west and west directions. These same problem have been observed at the Maple tower in halifax. The proposed variations in the building articulation below the street wall will also be successful in mitigating some of the wind impacts at ground level.

The new 19-storey building is not anticipated to have any significant changes in human thermal comfort for a person travelling through the area except in very localized areas at the corner of Nantucket and Wyse which occur very infrequently. This area of Wyse and Nantucket are already impacted by the windy conditions generated by the large, flat -glass floorplate of the 17-storey building which exists today.

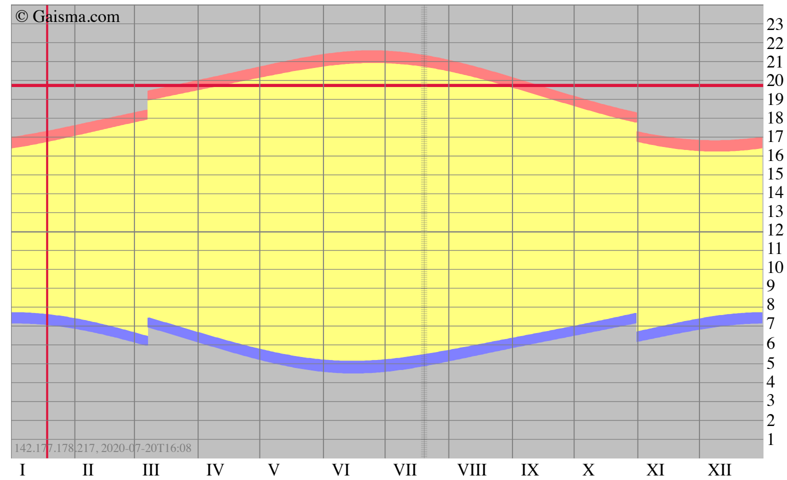
SHADE STUDY

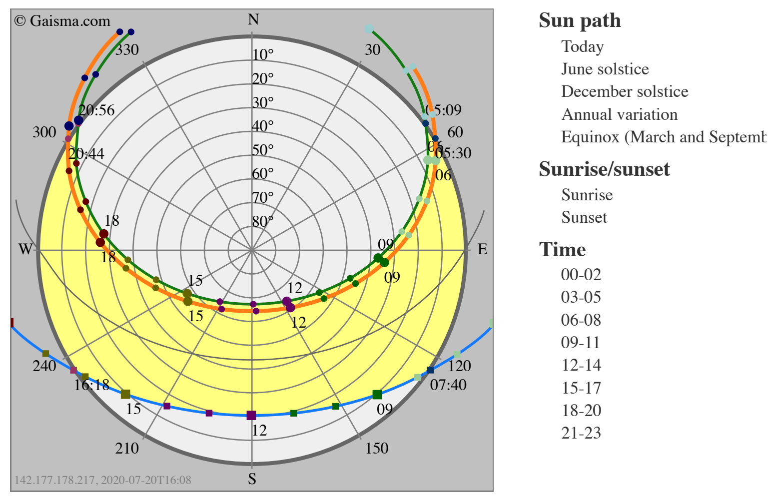
During the summer solstice (June 21) Dartmouth receives 15.46 hours of sunlight with sunrise at 5:29 am and sunset at 8:53 pm. At the equinox (Sept 21 and March 21), Dartmouth gets 12.12 hours of sunlight with sunrise at 6:46 am and sunset at 6:59 pm. On the shortest day of the year (winter solstice, Dec 21), Dartmouth gets 8.37 hours of sunlight with sunrise at 7:40 am and sunset at 4:17 pm.

To study the shade impacts of the new building, a 3D model of the site and surrounding context was constructed using a terrain model made from existing contours. The building was simulated at the 3 key periods (summer solstice, equinox and winter solstice) to assess the shade impacts throughout the year. The model does not include trees which create additional shade conditions except in winter for hardwood tree species.

A 3D computer model was placed in real-work space and assessed on an hourly basis for the Spring and Fall Equinox (March 21 and September 21), the Summer Solstice (June 21), and the Winter Solstice (December 21) periods. These simulations provide a good overview of the best case conditions (summer solstice where the sun is high and shadows are short) and worst case conditions (winder solstice when the days are short and sun angles are low and shadows are long).

Equinox (March 21 and September 21): In the Equinox, the sunrise is at 7:00am and sundown is at 7:22pm giving only about 12 hours of sunlight. At 8:00am and 7:00pm, the shadows are so long, or in other words the sun angles are so low, that even a tree can shade an area for very long distances up to 10x the height of the object. Because the streets are relatively wide and surrounding buildings are relatively low in the study area, sun will continue to reach most of the site. The south side of the building will remain unchanged with the north side of the building, along the proposed commercial terrace receiving 12 hours of shade. There will be new shadows cast on Nantucket Avenue from approximately 9:30am to approximately 1:30pm.





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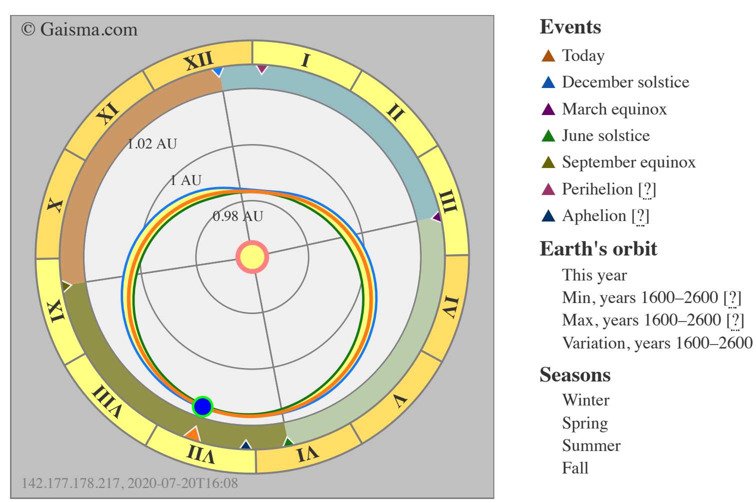

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FIG 8. SHADE STUDY

SUMMER SOLSTICE (JUNE 21)

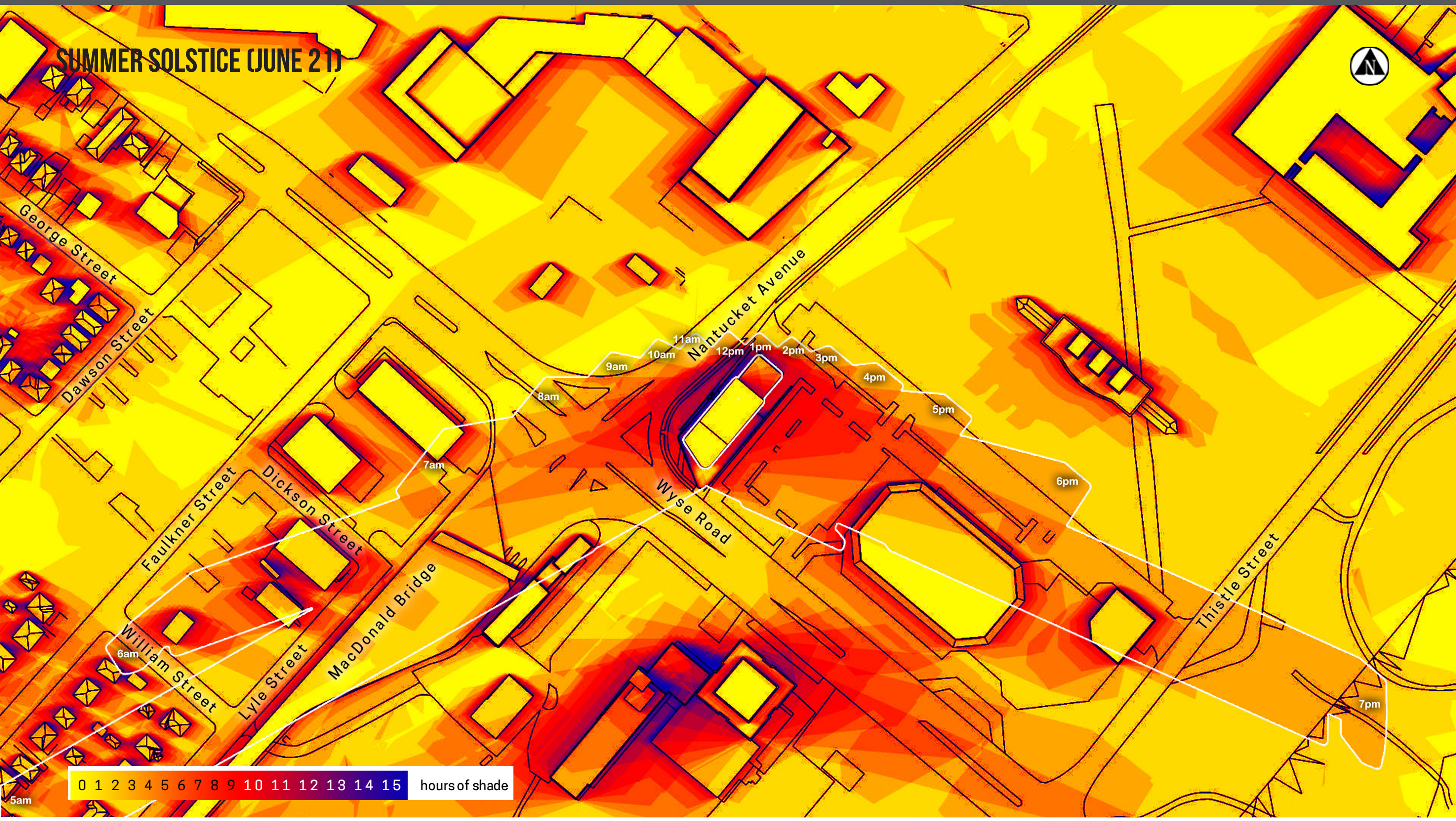
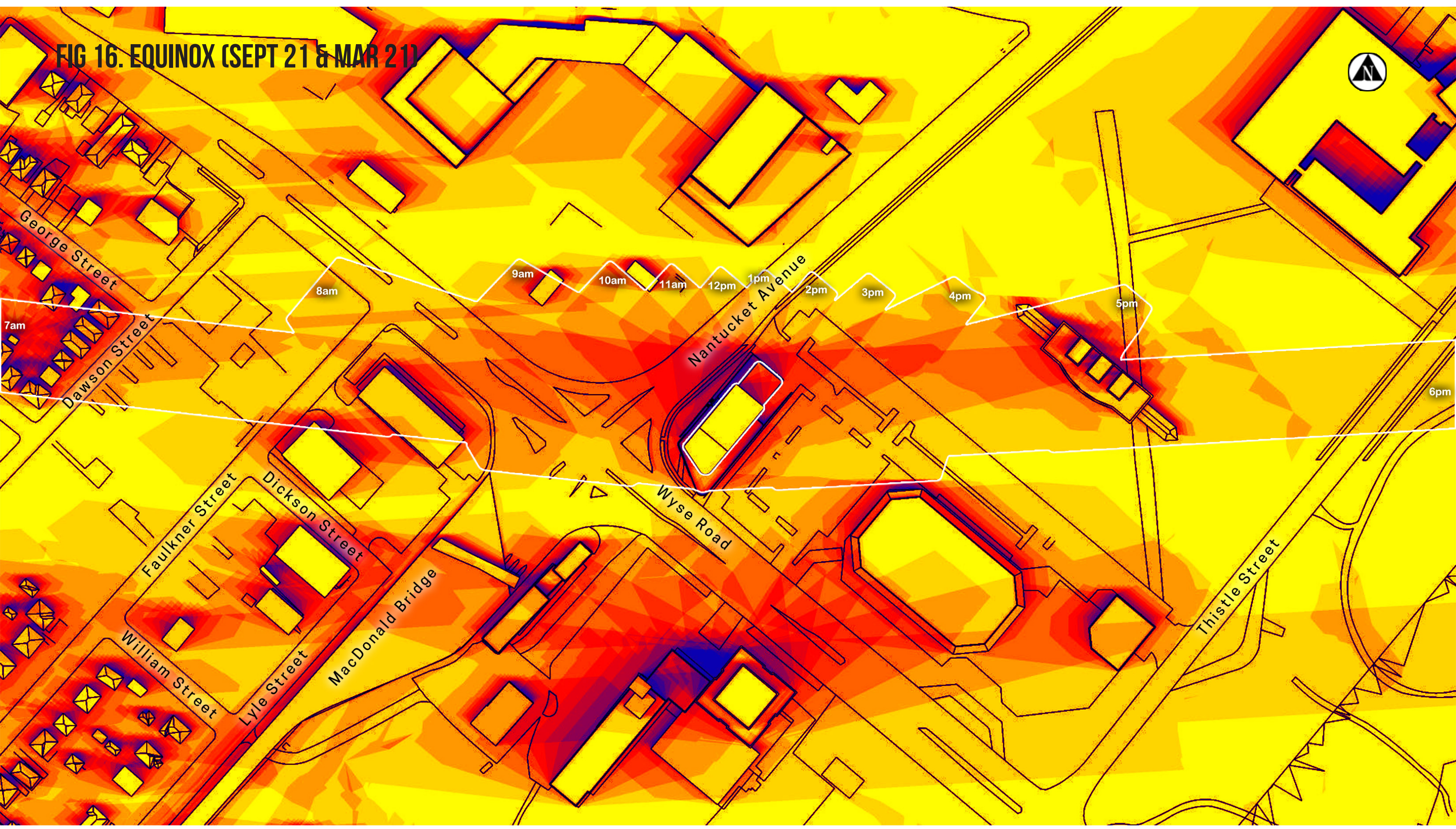
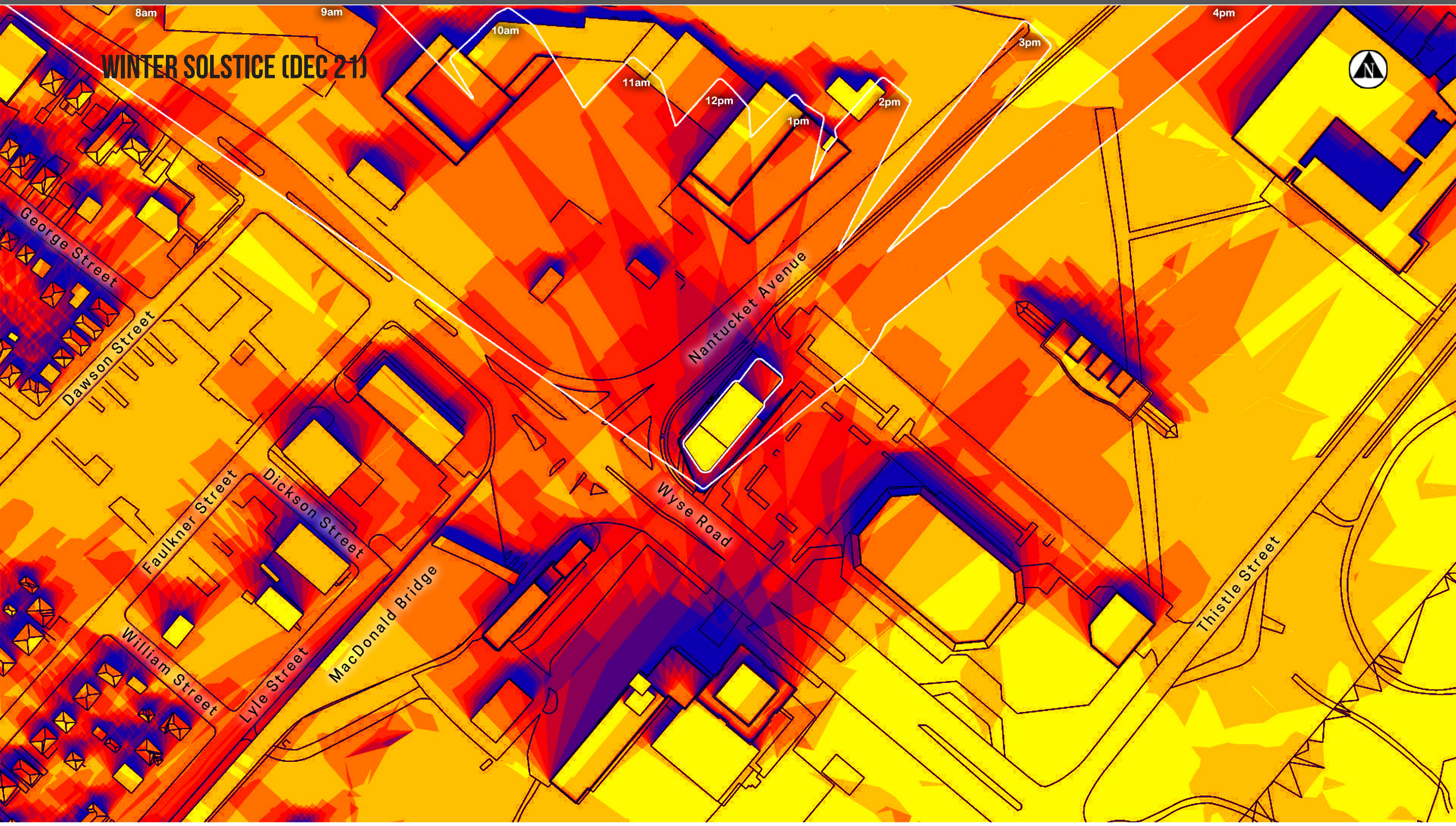


FIG 16. EQUINOX (SEPT 21 & MAR 21)



0 1 2 3 4 5 6 7 8 9 10 11 12 hours of shade



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Summer Solstice (June 21): In the summer, sunrise is at 5:29am and sundown is at 9:04pm giving about 15.5 hours of sunlight. At 6:00am and 9:00pm, the shadows are so long, or the sun angle is so low, that even a tree can shade an area for very long distances up to 10x the height of the object. The shade diagram shows that the proposed building will cast a shadow on the corner or Nantucket Avenue and Wyse Road from 7:00am to 9:00am in the summer. The north corner of the commercial terrace will experience shade for 12 hours of the day including mid-day hours. There will be some shade cast in the adjacent Zatzman Sportsplex parking lot from approximately 4:00pm to 8:00pm in the summer. There will be no additional shadows cast to Nantucket Avenue or Wyse Road directly north or south of the building.

Winter Solstice (December 21): In the winter, sunrise is at 7:48am and sundown is at 4:37pm giving only about 8-hours of sunlight per day. At 8:00am and 4:00pm the shadows are so long, or the sun angle is so low, that even a tree can shade an area for very long distances up to 10x the height of the object. The shade diagram confirms that the building will cast shade across Nantucket Avenue into the existing commercial retail parking lot between the hours of 10:00am and 2:00pm in the winter. The crosswalk at Nantucket will be in shade from 12pm to 2pm in the winter creating colder conditions. Existing buildings in the area already impact the crosswalk at Nantucket in the early afternoon so the change in shade at the sidewalk will be negligible from what occurs today. The Nantucket side of the commercial will be in shade for much of the day in the winter. Some shade may be expected on the south side of the building during the hours of 11:00am and 1:00pm from the 17-storey office building located to the south on Wyse Road.

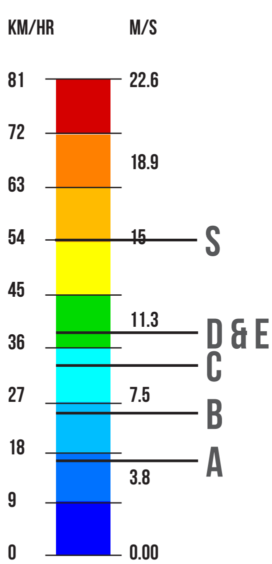
HUMAN THERMAL COMFORT

Human comfort in an outdoor space is dependant on a number of variables including wind speed, activity level (sitting, walking, running), long-wave radiation (sunlight emitted from the sun), temperature, shortwave radiation (heat emitted from surrounding buildings and site features), clothing level (partially to fully clothed), and relative humidity. The combination of variables can be very complex on any site leading to a wide range of human thermal comfort outcomes. But many cities have developed criteria of comfort based on wind alone to determine relative comfort levels in different wind conditions.

LAWSON WIND CRITERIA.

Lawson criteria, are a series of comfort criteria categories that quantify the worst wind conditions that most passers-by will consider acceptable. Levels of pedestrian comfort strongly depend on individual activity when they are sitting, standing, walking or running. Someone sitting is uncomfortable in lower wind speeds than someone running or jogging. The comfort level also depends on the amount of time that the person experiences the windy conditions. Generally, the Lawson model assumes that the wind speeds are exceeded less than 5% of the time (3 minutes per hour). The Lawson criteria can be divided into a range of activity criteria comfort levels depending on wind speed.

In our wind simulations, wind speeds which do not exceed 4 m/s (Purple our wind plots) are generally comfortable for sitting. Once the color changes to blue (6m/s) the areas are comfortable for standing but a little uncomfortable for sitting. Once the colour reaches light blue in our plots (8 m/s), the area is comfortable for strolling but a little uncomfortable for sitting or standing. Once wind speeds reach green in our plots (10 m/s), the areas are comfortable for brisk walking. If the 10 m/s wind speed is sustained for more than 3-5 minutes it could start to get uncomfortable even brisk walking. At wind speeds over 15 m/s for more than a minute (red in our plots), it is unsafe for elderly frail people. Once wind speeds exceed 20 m/s for more than a minute, it is unsafe for many people.



A	4 m/s	< 5%	Sitting
B	6 m/s	< 5%	Standing
C	8 m/s	< 5%	Strolling
D	10 m/s	< 5%	Business Walking
E	10 m/s	> 5%	Uncomfortable
S	15 m/s	> 0.023%	Unsafe frail
S	20 m/s	> 0.023%	Unsafe all

BUILDING AND SPACE CONSIDERATIONS

The following is a summary of key microclimatic issues that could be addressed by the design team relating to reducing impacts from the new building:

1. The southwest corner of the new building will be windier than it is today when winds come from the south and north. Though the change will only be 2-4m/s windier, this area is already fairly windy and if the intention is to use it for an outdoor patio, it will require some landscape wind buffering to make it comfortable.
2. The wind down-draft and shear from the tower will be most felt on the west side podium on the 5th floor of the building. A wind screen could alleviate some of these gusty down-drafts.
3. The Streetwall stepbacks proposed will reduce wind impacts significantly at the street level but the 5th storey rooftop will have to be designed for some significant gusts. Landscape material will have to be selected for reduced vegetation dessication.
4. Additional street trees on Nantucket and Wyse Road will improve the thermal comfort along both these streets. As part of the Dartmouth Common, it would be beneficial to everyone to maximize tree plantings on these streets surrounding the new development.
5. There may be some additional snow drifting in the parking lot between the new building and the Sportsplex as a result of reduced wind speeds from the tower.
6. All doors on the west side of the building will be windier than on other sides of the building and may need wind reinforcement.