

Challenge exercise

Present a full narrative of design proposals using Forma Site Design and Forma Board

In this challenge assignment, you'll isolate one simulation category (daylight studies, wind, microclimate, or solar analysis) from a new site location or with proposals that you have created previously. Create at least five different proposals, ideally from a variety of different locations, and build a Forma Board presentation to explain your findings across a series of proposals.

You will need to use the print screen function from Windows or Mac, or saved images from your various Forma Site Design canvases and their proposals to consolidate projects into one Forma Board.

Complete the required activities:

1. Create a site in Forma Site Design and create at least five different proposals (different masses, orientation, terrain additions, etc). You can also use any of the sites you have created previously.
2. Choose one simulation category (daylight studies, wind, microclimate, solar analysis) from your Forma Site Design proposals.
3. Build a presentation in Forma Board and highlight particular aspects of the proposals such as the following:

Daylight Studies Presentation: If you are going to do an in-depth study of sunlight (use both the sunlight hours and daylight potential) across a series of five or more proposals, create a presentation that focuses on resolving the following questions in a Forma Board presentation:

- What is the connection between density of the context and solar light access?
- What is the connection between latitude and longitude and sun light on the site layouts?

- Are there key strategies that become evident on arranging or aligning vertical surfaces, program elements, or shading devices that help balance solar access that apply across a range of project locations and typologies?

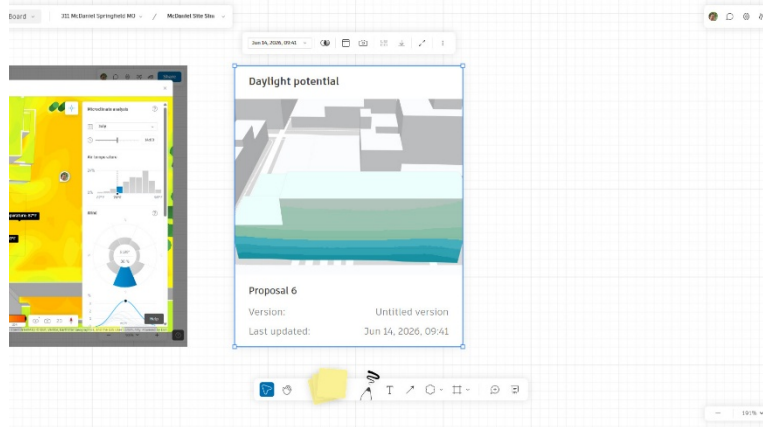


Figure 1. Daylight analysis in Forma Board

Wind: Using the wind analysis simulation tool, and available imagery and data, resolve the following questions across a series of five or more proposals or projects (ideally across a wide range of locations) in a Forma Board presentation:

- What are the elements that accelerate wind, and can they be identified consistently across sites?
- What are the elements that decrease wind speed without creating a wind “dead zone” on a site?
- What are the common strategies that can work to align wind with a building design for passive cooling that modify the site layout, and the building configuration?

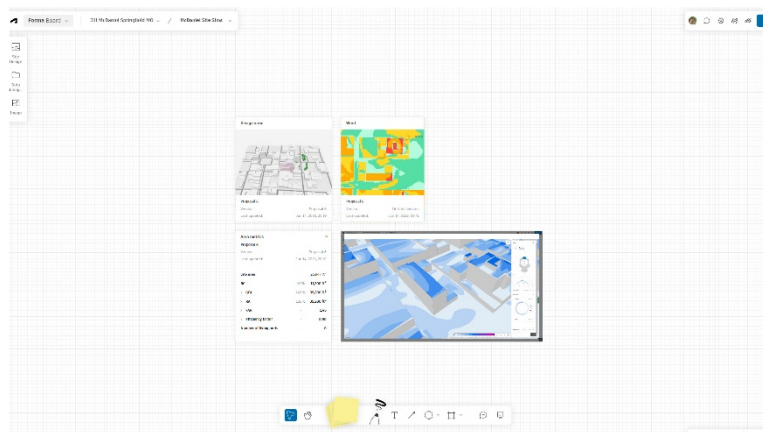


Figure 2. Wind Analysis in Forma Board

Microclimate: Using the microclimate analysis tool in Forma, explore the data across a series of at least five different projects and proposals and create a Forma Board presentation to address the following questions:

- What are the factors that create the largest temperature swings (other than weather) from morning to evening?
- Is there a logical balance between sun and wind to keep temperatures cool during warmer months? (In other words, how much wind, based off of the comfort scale, still works to help keep perceived temperatures low).
- What are the key strategies with site layout to raise the perceived temperatures, and lower perceived temperatures?

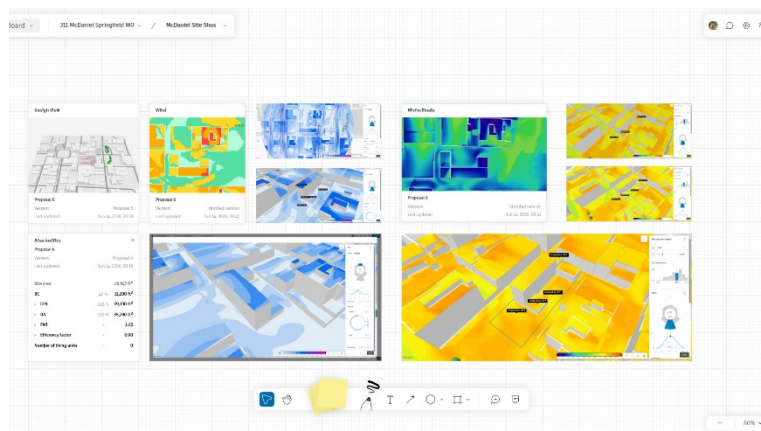


Figure 3. Microclimate Analysis in Forma Board

Solar Energy: Using the Solar Energy Analysis tool in Forma Design, create a Forma Board presentation that combines five different proposals (ideally from a range of locations) that communicates resolution to the following questions:

- Is there an optimal ratio of building volume to surface area of the roof for potential energy consumed and needed by a building?
- What is the relationship to geographical location and potential energy generated?
- Across each proposal communicated, what is the average payback on Solar Panel Investment?

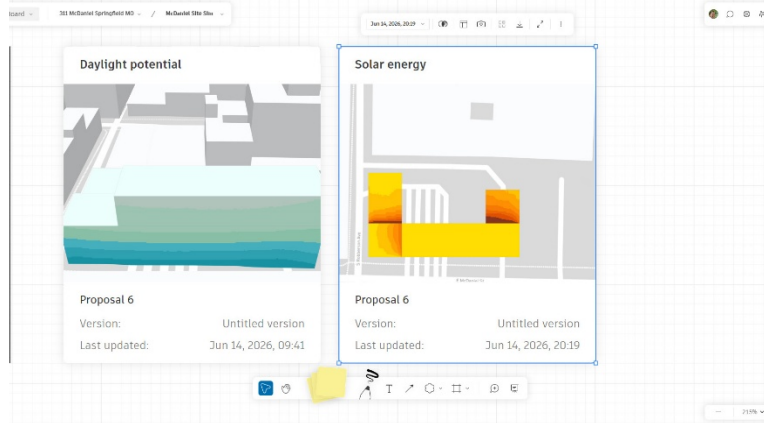


Figure 4. Solar Energy in Forma Board

Grading Rubric:

	Advanced	Proficient	Basic	Emerging
Questions resolved	Well thought out response connecting design intent with data	Correct answers not implicitly tied to the design ideas.	Answers completed, but little to no application to the design	Answers are incomplete and/or incorrect
Is the data presented accurately	Accurate, applied, and presented with understanding	Completed, correct	Minor errors or missed interpretations	The data is either not completed, presented, nor available
Explanations provided with clarity (graphic and/or written)	Design ideas and design data are presented clearly and creatively	Clear responses and graphics	The information and graphics are presented, but not connected or composed	Incomplete or not legible
Creativity in the presentation	The presentation is innovative and insightful with new ideas informed by the data created in Forma Site Design	There is quality to the presentation, but the connection to the simulation data is not clear	Quality presentation, but there does not appear to be connections to the data created by Forma	The presentation does not meet or resolve the questions proposed in the Challenge assignment.