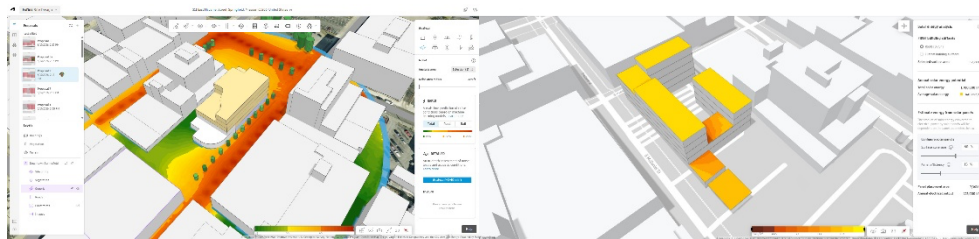


Practice exercise**Expand Forma Site Design simulations to incorporate sound and solar**

Using the 311 McDaniel site, modify the configuration and then include sound and solar in the analysis.

Learning objectives:

- Apply sound and solar panel simulation tools.
- Describe how sound can be modified and mitigated by site layouts.
- Design additional area for solar panels to be integrated into the site layout design.



Completed exercise

1. On the proposal you are developing (Proposal 3 and 5 were used in the course video), increase the traffic count on the roads surrounding the project site to a traffic count (ADT) of 5000, while keeping the speed at 30 mph. Create modifications to keep the sound at the cafe under 55 decibels. Explain the options and alternatives, and the final design solution.

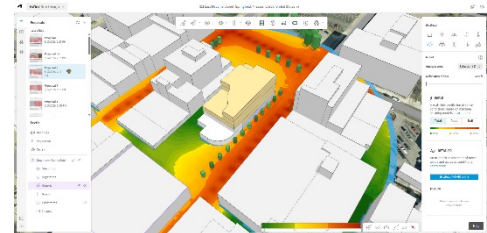


Figure 1. Sound.

2. Using the solar energy analysis you created by following the course videos (Proposal 4 was used in the course video), create a site layout solution where your solar panels provide a minimum of 30% of your overall building energy, this would amount to approximately 16,000 square feet (1,486 m²) of surface area or 10,000 square feet (929 m²) of solar panels.

You may have a proposal with enough roof area to accommodate this, or you may need to design a stand-alone array, or canopy with solar panels in your site layout to accommodate 30% of the building energy. Explain your solution and note any positive or negative impacts that this solution has on the overall layout of the design.

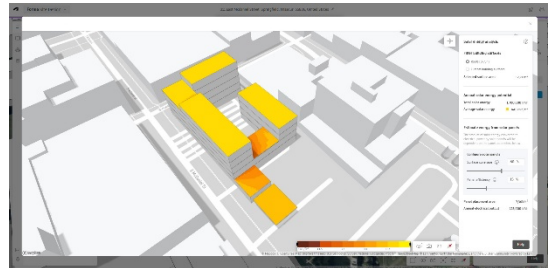


Figure 2. Solar Panels.

Note: You'll find the following formulas you will find helpful in developing the data for the project and practice assignment:

Total annual building energy = kWh x
square feet (square meter) of design

Solar energy panel power per square foot
 = Annual Electrical Output / Panel
 Placement Area

Area of panels needed = total annual
 building energy / kWh per square foot
 (square meter) of panel

Grading Rubric:

	Advanced	Proficient	Basic	Emerging
Solar panel design calculations	The calculations are correct, and there are supporting design ideas	The calculations are generally correct, but not as connected to the potential design ideas	Incomplete on incorrect calculations but moving in a thoughtful direction	The calculations are lacking and not connected to the potential design ideas for the site
Solar panel design quality	The design of solar panel additions is additive to the site layout	The design of the solar panel additions does not	Completed but not working well within the overall site layout	The design is not working well within the site layout
Noise simulation accuracy	The simulation is accurately reported and the written portion is accurately reporting the data with design direction	The noise simulation is completed correctly, but not connected to the site design layout	There are inaccuracies in the simulation data or reporting, but the ideas are moving in a good direction	Incomplete or incorrect data analysis
Noise reduction proposal quality	The design of the noise reduction concept is overall additive to the site layout	Noise reduction design is working, but it is not as well integrated into the overall site layout	The noise reduction is somewhat effective	The noise reduction design is not as impactful as it should be