Energy Simulation

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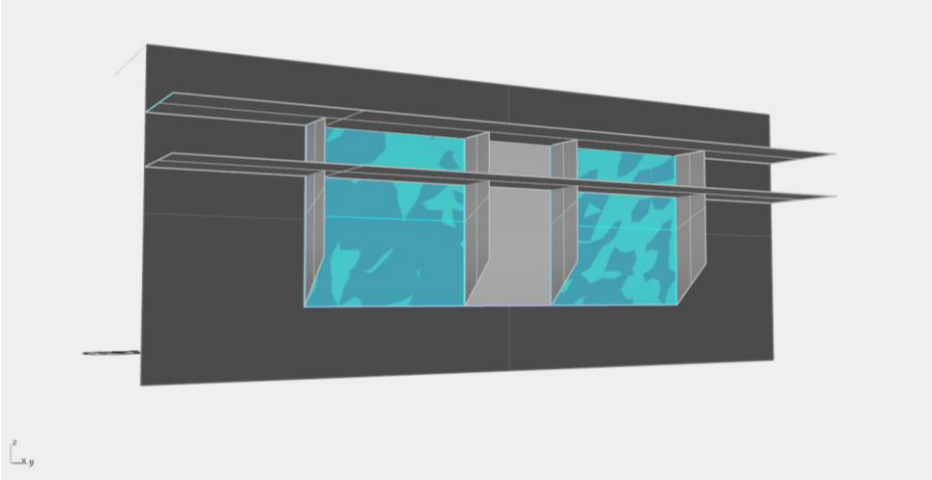
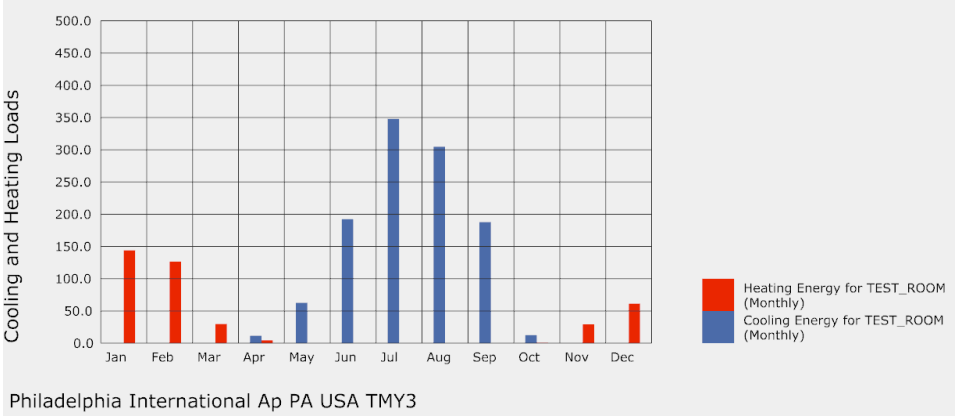
The shading elements and facade openings were designed to minimize the solar heat gain coming from the southeast direction. Through minimizing solar infiltration to indoor spaces, the amount of energy consumption is directly affected.

Due to the orientation of the façade, horizontal shading elements focus on minimizing solar infiltration from the south, while the vertical element focus on the exposure from the east.



The Design significantly reduces the cooling energy required during summer months. From a control situation of 2579 kWh to 1119 kWh. The heating demand however is increased, most likely due to the reduction of solar heat gain into the space. That heating energy demand went from 180 kWh to 397 kWh.



The graph shows the monthly energy demand prior to installing the shading elements and façade redesign.