Pins N' Needles

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The focus of the Berlin studio was solar radiation and building envelope design in response to radiation. Solar radiation and building design relationships were studied in the German cities of Berlin, Hamburg, and Dessau as precedents for a building envelope design. Our objective in this studio was to design a building envelope with an energy efficient, carbon-neutral footprint.

Models of solar radiation were also studied in programs such as Vasari, EcoTect, and Radiance. These were used in order to study the effects of solar radiation on building envelopes and interior spaces.

With the gathered information, experiments were conducted through the use of simulated computer programs to determine the best way to use and protect the building from solar radiation. We designed a facade that would protect the interior from excessive heat gain as well as excess light, continuing to test variations of the facade through computer simulations until we found a variation with the most benefits for the building.

These results were also tested in a physical model with a light meter. This alternate assessment was undertaken to confirm whether or not the computer simulations could accurately predict the interior conditions. The physical model was also used to test different materials’ effects on the interior condition of the building.