

Graduate Technology Seminar: Energy Modelling as Critique

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Herzog and de Meuron's original design for the Museum of the 20th Century in Berlin was labelled the Climate Killer (der Klimakiller) by building scientist Stefan Simon, whose independent study found the inefficient design unnecessarily wasted the equivalent of 1,917 German homes worth of energy per year, and led to a revised design.

Course Abstract

In 2022 the [Guardian](#) reported that Herzog and de Meuron's new design for the Museum of the 20th Century in Berlin had earned itself an infamous title within the German media—the 'Climate Killer.' Conservation scientist Dr Stefan Simon conducted an independent energy analysis of the already controversial design, and found that the building's audacious open-concept was profoundly inefficient for heating and cooling. Herzog and de Meuron's design would consume over *four times* as much operational energy as the neighbouring Altes Museum originally built in 1830—enough excessive energy to power 1,917 German homes per year.¹ This led to widespread public outcry and forced the eventual revision of the design. Dr. Simon's detailed energy analysis served as a powerful critique of Herzog and de Meuron's design which can be understood as a kind of 'guerrilla modelling.'

Inspired by the [climate activism of Dr. Simon](#) and the [This Should be Housing](#) poster campaign lead by [AAHA!](#), students will use energy modelling to propose a provocative formal intervention on an existing building. After first analyzing the building's energy performance, students will choose a passive strategy and test its application to the building, using the change in energy performance to make a critical statement—whether the modification is for better or worse. By using architectural form as an expressive medium, students will leverage their technical and graphic skills to illustrate a position on sustainability in a final poster of their audacious intervention.

In ARCH 6212 students will develop advanced skills in energy modelling using Rhino, Grasshopper, and [Honeybee](#) while participating in seminar discussions on technological and environmental ethics. This seminar is best suited to students who wish to improve 3D modelling and parametric skills and/or develop specialized knowledge in sustainability—no previous experience in Rhino or Grasshopper is necessary as long as you are willing to learn!

¹ Once the museum came under public scrutiny it's design was revised to reduce it's energy usage from 450 to [260kWh/sqm](#) per year. Considering the museum has a [gross area of 31,400sqm](#), 5,966,000kWh per year will be saved as a result of Dr Simon's advocacy, enough energy for 1,917 German households per year at [3,113kWh](#).