

Semester Project

Web : <http://cours-enac.epfl.ch>



Towards climate-resilient urban neighborhoods: assessment of urban densification scenarios under the impacts of climate change in Switzerland

Project N

Project category: ENAC project

Project type: STI

Semestre(s):

Domain

Architecture, Environment, Urban planning

Description

This semester project aims at assessing different urban densification scenarios under the impact of climate change. A great deal of the work is done through identifying different urban development strategies in Switzerland and conducting energy performance simulations using dynamic models. The question to be addressed is how we can design climate-resilient urban neighborhoods considering i) their energy performance in current and probable future weather conditions, ii) their social acceptance, iii) their indoor thermal comfort. The student will understand how existing urban densification scenarios can affect the social and environmental sustainability of our future cities.

The project benefits from an interdisciplinary supervision team from **EPFL**, and **Chalmers University of**

Technology.

Objective

To quantify the impact of urban densification on the energy performance, and thermal comfort under current and probable future weather conditions we will use dynamic models (Rhinoceros, Grasshopper). An urban analysis will be also carried out to identify and categorize current urban development strategies in Switzerland. The models and simulations will be carried out using different plugins in Grasshopper using EnergyPlus engine. Therefore, being familiar with Grasshopper is a merit for potential applicants. The project will also provide an opportunity for students to deepen their knowledge about building physics and learn to develop and run advanced dynamic energy simulation models.

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