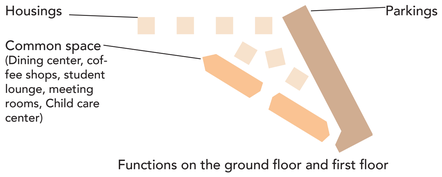
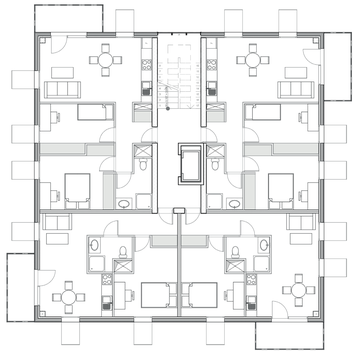
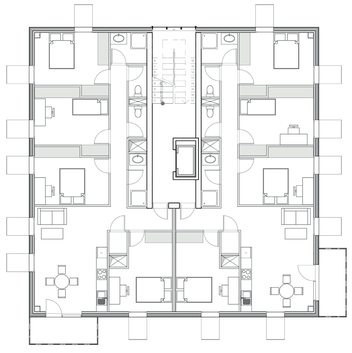
The project is inspired by the eucalyptus canopy already on the site and aims to create a park of trees and buildings on the campus.
This project aims to achieve more than zero net energy consumption, it aims to produce more energy than it consumes. The buildings will mainly produce electricity through their photovoltaic canopy. The extra electricity produce each day, mainly on peak hours (near noon) but with low electricity demands will be used to charge electric car batteries to provide green transportation to the university. The electric car batteries will also work as energy buffers, to store each day energy that can also be used during the night in the buildings.
So theoretically, thanks to the sun and bio mass, the project could be self-energy sufficient and don't need any energy supplier.
To achieve a high comfort standard, the building will catch as much sun as they can in the winter and as less as they can in summer. This will be achieved by big openings in south, west and east facade with different kinds of solar protections.
The buildings are based on a concrete structure (as Le Corbusier's domino house). This structure will provide a good inertia to the housings. The facade walls will be made of prefabricated wall elements with a high insolation coefficient based on the Panobloc technology from Techniwood®.
The conjunction of both those elements will provide a good thermal comfort to inhabitants all year. Heating will be provided by thermal pumps and mechanical ventilation which will be fed at 100% by the photovoltaics panels.

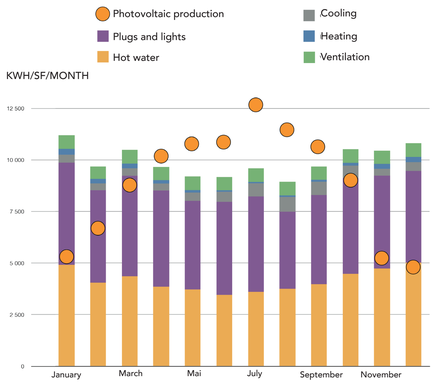


Functions on the ground floor and first floor


Apartments floor plan (1 and 2 bedrooms)

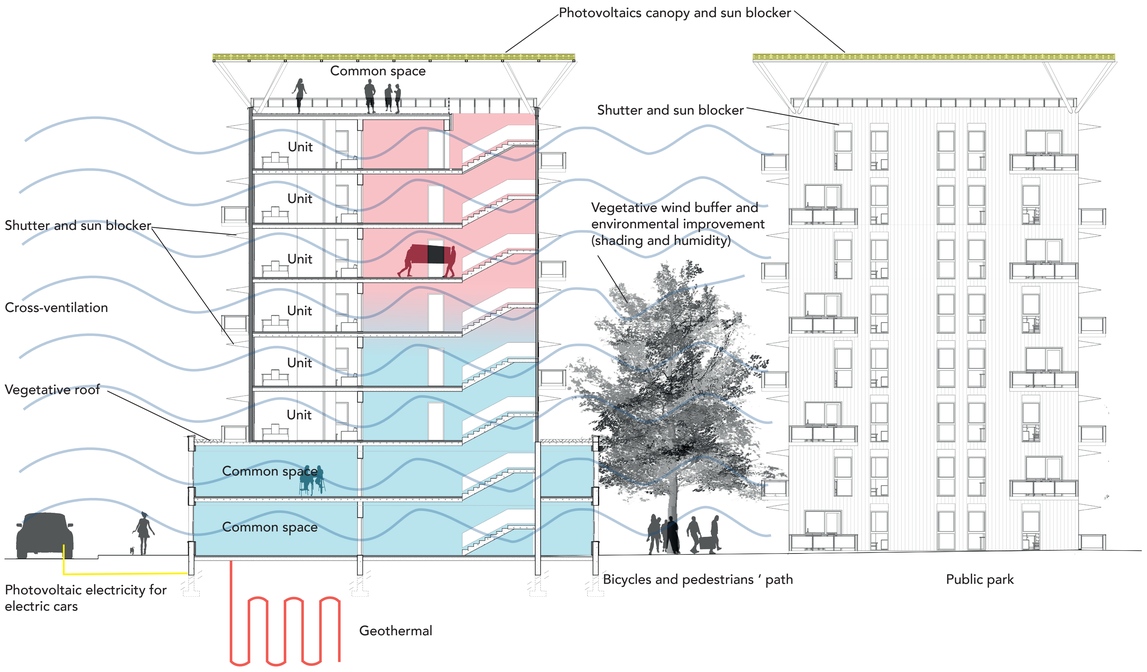

Shared suites floor plan

	Calculated Energy Use (kWh/sf/year)	Calculated Energy Use (kWh/year) for one tour
HVAC	0.8	14 226
Lighting	1.4	24 443
Appliances and Plug Loads	43402	25 491
Domestic Hot Water	3.0	54 055
Total Consumption	6.6	118 215
Renewable Production	5.9	106 550
Net EUI	-0.7	-11 665



Monthly enduse energy consumption and production

R wall = 6,47m^2.K.W^{-1}
U wall = 0,1546 W.m^{-2}.K^{-1}



ENERGIZED CANOPY

ARCHITECTURE AT ZERO 2016