"AUTO"-MOBILE BEIJING:
A Prototype Bicycle Center to Receive the Former 'Bicycle Kingdom'

MATERIAL, CONSTRUCTION & ENERGY STRATEGIES

"Auto" mobile / self-powered
The site of the project, "Auto", is the Beijing, a reference to a Chinese word for the bicycle, which loosely translates to "self mobile vehicle". This name adequately captures the sustainable power of the bicycle, a vehicle which needs no power source other than one's own pedaling to propel it forward. This term becomes a guiding force in the project, and informed not only by the greater concept of energy, but also the construction and material thinking of the project. The project is designed as a fully self-contained, self-propelled system, having the unique resource available in one particular location.

As a counter-culture to the car
As the site of the project is located in a counter-culture area in opposition to the busy car culture, the ways in which the bicycle center emphasizes sustainable construction and material strategies are deliberately informed and motivated by this context. From the wind turbines which spin in the wind from passing cars, to the water systems which capture the energy of the building's form and function, the bicycle center makes the notion of this counter-culture an interactive and highly visible feature to the surrounding context. As the mechanical systems of the bicycle is exposed and part of the aesthetic, the cycle center shows off the materials and energy systems in a way to celebrate the urban bicycle-oriented lifestyle of the city of Beijing.

Sun and Rain
The roof acts as a collector, both of solar energy as well as rainwater. The energy collected by the photovoltaic glass panels on the roof is fed directly into the bicycle center for its program usage. These also act to filter out harmful sunlight from the street-like park directly below it. Rainwater is collected via gutters on the roof and fed to the central pond and water storage tanks below. That water is then put through a filtration system and put to use for the locker/bath areas at the base of the bicycle center.

Wind Power, Air and Sound Filtration
The skin of the building bulges out to meet the highway, creating a pocket for intercepting to capture wind energy from the suction created by passing cars. The skin is made of metal panels from recycled car metal, wrapped around an interior layer of recycled tire rubber. This acts to reflect and absorb noise from the highway. Behind these systems are a set of plant trays in which pollutant-masking plants are grown. These act both as a buffer to the noise outside as well as further protect the bicycle center from noise.

Materials
The materials of the project deliberately reinforce the dichotomy between bicycle and car by using recycled car parts such as car windshields, car body metal, and old tires in the facade system. This reinforces the aesthetic expression of the bicycle center, a commentary of the large amount of material and embodied energy that goes into the production of automobiles.

Layers of the Building Skin

DETAIL A: PHOTOVOLTAIC PANELS AND RAINWATER COLLECTION

DETAIL B: WIND ENERGY, AIR PURIFICATION, SOUND ABSORPTION

DETAIL C: CUSTOM RECYCLED METAL AND RUBBER PANELS