Reflection
Regenerating Cycles
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Studio
INTECTURE (Architectural Engineering)
1st Teacher (Architecture): Annebergje Snijders
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3rd Teacher (Technical Research): Siebe Broesma

Sustainable design became of great importance since I started the Master track in Architecture. However, I couldn’t help in noticing that it was more of a question of post-design optimization which demanded extra effort and time to “fit” and accommodate any solutions to arrive and help low down the environmental footprint of a building. On the other hand, the openness that the Architectural Engineering studio offers to propose a topic and working system was advantageous for looking into developing a design method to incorporate Sustainability from early stages of the design.

Architectural Engineering is about technology at the service of architecture, or the other way around, where one modulates the other, while finding a correct balance. Biomimicry as a design method looks to incorporate solutions found in nature and includes them as part of the technological solutions for any purpose that we may have. And so, by looking into an organism and researching about animals and plants that would dwell in the proposed location, the architecture would be shaped in accordance to the ideas and strategies found in biology. By shaping architecture we mean sizing, moving, adjusting and configuring to answer the solutions needs. Organisms do not work against nature, in the same way spatial configuration and an optimal constructive solutions can work to capture and then convert free energy from the environment, and use it for the building, in other words to operate with natural forces around the building, rather than against them.

This not only opens a new door and provides new perspectives for innovation, but also challenges the designer to deliver better solutions than the existing ones. Next to that, one must make sure that these natural solutions would have to serve the architectural purpose of the building. However, what proved to be challenging was to abstract these natural notions into feasible, proved, answers. Once one starts analyzing any organism and it function, ideas and possible solutions emerge. Since the
method was intended to solve the positioning of the building in the Amazonian rainforest realm, plus, the climate control within the building, any hypothesis of application of the principles would have to be accompanied by the proper justifications to demonstrate its feasibility. It is at this point where research and design meet and question each other.

On the other hand, another possibility that the studio offers is to choose the location of the project. The Amazonian rainforest can be taken as an extreme environment to work in. It presents high levels of humidity, high temperatures, but most of all, an extremely sensitive area, ecologically speaking. In this sense, biomimicry as a method to include environmentally sound solutions in the design process is an excellent option, but also a challenging one. To solve this, besides the support of all tutors assigned, biomimicry requires the designer to sit down at the design table with biologists and experts to assess the solutions and provide guidance. In that sense, the contribution of Dr. Hans Vester, a biology professor at Carmel College Gouda, and the one of Ir. E.R. van den Ham, Prof. at the TU Delft, where extremely helpful, and their guidance very welcomed, especially when it comes down to say if a solution works or not.
In re-examining everything done, I had to take the long road to immerse myself into the design with biomimicry as a method. It meant spending time in a trial and error procedure and tuning solutions. But this also meant reopening in awakening a true appreciation for the challenges that represents using nature as an example. Solutions were no longer a hypothesis; it was something that needed to be proved. More than simply allowing me to add into my knowledge in sustainable design repertoire, it allowed me to look into what I am proposing and confirm its validity, in contrast with any other preconceptions I carried.