

Reflecting on my graduation project

At the start of the graduation year I applied for the Explore LAB studio because I wanted to create architecture that connects people with nature as opposed to separate them. Over the past couple of years, both my studies as well as my personal experiences have given me different views on what this connection could be. Taking it from a purely technical perspective that focusses on sustainability, or looking back to vernacular architecture where architecture has to coexist with nature in order to function. Or basing it on experiences, where architecture creates emotion and evokes feeling just like a forest or a mountain can. I took this wide range approaches with me in order to find a more clear and directed position on which I can base my design. I found this with in the movement of Biophilic Design, Biophilic Design fulfills a wide range of topics within the build environment, as it aims to improve both humans and natures well-being, creating a building that is integrated within its surroundings and improves peoples health and happiness. This also means that it ideally suited to create a fully fletched design, that in integrated within the site, that is sustainable, using minimal energy sources and healthy materials, while also fulfilling the needs of people, creating spaces that feel good.

As biophilic design is a relatively new design approach, I found that currently, explicit design strategies are lacking. Therefore my research aims to bridge the gap between theory and practice. Basing my research on of the currently formed interpretations of biophilic design, this to both ground my research within the current academic field, as well as give me a guide to follow. I am really glad that I made this decision as it helped me make my research more actual, moving towards a result that I, and others could directly implement. However I do believe that the desired result of the research might have been a little ambitious. Ideally I wanted to create an all-encompassing, ready to use toolkit, which I believe I did not fully achieve. This mainly due to the limited time and recourse. I believe that summarizing and researching the various patterns was very helpful. Also finding the application of these patterns within the chosen case studies added to my understanding of how these could be applied. Yet more case studies, and visiting all the case studies would increase the date. Also allowing for an interpretation of how the space feels, and what works and what doesn't work. Still, most ground is to be gained within the tool cards. While I do believe it is useful to see these various elements that can be used in a project, there is a limited number of tools per pattern. In order to expand on this a wider range of case studies has to be examined, hopefully finding less overlap of tools within the case studies. In addition I believe it is not only about simply applying these various architectural expressions that makes a project biophilic. It is bigger, as it is about the intent, and understanding what it means to create a building that is in harmony with both humans and nature.

I feel that my research helped me in two ways during the design of my project. On the one hand in a very direct application of the toolkit, implementing various tool cards into the design. But on the other hand the understanding that I have gained of what biophilic design means helped me get a grip of the project from an early stage. Where I normally struggle to see the full picture in the concept phases of the design the use of the pattern helped guide this process. It allowed me do design through the various scales, always having this guiding principle in the back of my head. For example, taking the pattern of Dynamic and Diffuse Light and evaluate the benefits and limitations of the site, while also exploring what various ways of how light could enter the building, and understanding what this could mean for someone's experience as well as onto the energy perspective was really helpful.

In the end I think I took the knowledge I gained over biophilic design and added it the knowledge base I already had. Seeing it more as a guiding principle to come back to, as opposed to a singular way of this is the answer to how to design a good building.

Not only focusing on the architectural expression, I took the full scope of what it means to design biophilic into my project, ranging from the effects the project has on the site, to the impact on the community, the material and the energy and water consumption.

As mentioned before the scope and meaning of Biophilic design is greater than the specific part that my research focusses on. However while doing my research I read a lot about biophilic design, giving me a better understand about the full scope. Which I was then able to use and translate over the various scales of the design. This started with the choose of location and program. The site is located in the metropole of Los Angelas along the LA river a place where a natural recourse has been taken over by humans and industrialization. By choosing this location I do not only want to show what is possible within a large city but also show how industrialized locations can be revitalized. The project also responds to the currently planned greenway development, that restores the nature of the location.

The program further responds both to the needs of the location as well as biophilic design. The goal is for as many people as possible to have the ability to foster this relation with nature, therefor I found it important that the site and building remained public, makes a positive impact on the community, and adds a resource for all. This desire fits perfectly within the framework of the civic commons. This led to choosing the main function of library, focusing not only on books, but also on the educational and vocational development of the community. This in turn responds back to the desire of the location to improve arts and culture, and serve as a educational place.

The initial lay-out and shape of the building directly respond the surroundings of the site. Using the patterns in the category Nature in Space, I drew inspiration of the ripples of water, the surrounding hills and trees. Placing it on the site in such a way that responds to the proposed plans but also allows for greater contact with the water. The form of the building falls within the pattern of Biomorphic Forms & Patterns. But the location and arrangement of the buildings are also influenced by the patterns of Dynamic & Diffuse Light and Thermal & Airflow Variability. Taking natural airflow into account for the use of ventilation, and making use of atria to increase the intake of natural light deep into the building, while using overhangs to prevent overheating. For the construction and material selection I looked at the pattern Material Connection with Nature. I choose wood as the main material due to its availability in close proximity. But also rammed earth, which refers to the surrounding hills. Where wood is used for the library, that is meant to be open and inviting the rammed earth houses the theater, a function that is much more closed off. Using materials not only Other materials are, as much as possible, either bio-based or made from recycled materials.

The interior of the building plays more to the patterns in the category Nature of Space. These define much more of how the space is experienced. Making sure there is a lot of variability, allowing people to choose what they desire at that specific moment in time.

I believe that I have fully embraced the idea of Biophilic Design throughout my process and that I have been able to use my research in a useful way. Yet I do think there is room for further expansion. I wish I could have experimented more with the pattern. Bringing them back to the core and exploring what would be possible, so for example; take light, and experiment with various ways of light intake, from above, from the side, high intensity, low intensity to then see what the effects are on the space. When does it become more mysterious, or what is best for prospect. I feel that due to time constrains I wasn't always able to

push this further, and I relied on knowledge that I already possessed. This could have potentially helped me create new tools as well, further adding to the knowledge base. On the other hand I do think that it was a good decision to research all the patterns as opposed to making a selection early on. I feel that biophilic design is about the collaboration between all the patterns, or at least of various patterns between the categories. I feel that I would have missed opportunities if I hadn't looked at all the patterns in the first place. Now the design host a lot of elements from the different categories over different scales of the design. And while not every experiment done with the patterns have made it into the design, they have help develop the project as a whole.

I consciously placed my research in a gap of knowledge, and do believe that my findings are useful for architects to better understand the meaning and scope if biophilic design, however I also believe that further research is needed in order to get the full picture. The identification and development of more tools is necessary to really use this toolkit as a design tool, yet but I see potential. The toolkit focusses on the architectural expression of biophilic design, which doesn't necessarily incorporate all the energy aspects, or the material evaluation. In addition, the choice of location and program and its effect in the project are not mentioned. I therefore think that the toolkit should be used as a design tool, something to experiment with, or use when new inspiration is needed in addition to the more standard methods of location research, programmatic planning, and sustainability studies.

I believe that there is a great future in using biophilic design within the build environment, as I think that the desire to bring nature back into urban areas is great. In addition the health benefits of creating such an environment are numerous. I do also feel that it's application and understanding stand in the early stages, therefore I expect that more research will be done in the coming years, testing the effects of various aspects of biophilic design. I feel my research mainly lies on the side of practice, making it a tool for both students and architects to use. While I believe the toolkit can be used today, I do feel it should be expanded further to be truly relevant. So a set of tools that doesn't just come from case studies, but tools that also come from academic research (some of the tools I used, are already backed with academic research) or that have originated from experimental studies with the patterns.

In the end biophilic design is there to evoke a deep connection between people place, climate and culture. Do I believe that I have fully achieved this in all scales and aspects of my project. No I do not, I feel that with the scope of the project, and the time that I had, I was unable to explore every possibility into great detail. What I do feel is that this project and research have given me a new perspective on what architecture could be, and that is something I want to continue exploring withing the realm of my profession. I found that using the patterns, and biophilic design as a whole have sparked my imagination, and have made me excited about architecture again, something that I felt had lost for a while.

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