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Controlled Nature Homes

Henry Creamer
henry.creamer@siu.edu

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CONTROLLED NATURE HOMES
Henry Creamer

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Approved by

Peter Smith

Associate Professor

Department of Architecture

Southern Illinois University, Carbondale

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Objective

The goal of the project is to better understand how color, shape, and material theory work together to create a better living environment for an occupant as well as actively promote the health of the occupant through design. The outcome of such work is a housing solution that is environmentally friendly, easily affordable, quick to construct, and uses color, material, and shape theory to create the ideal environments for living and working in the built environment.

Inspiration

The inspiration for this project came from learning about Buckminster Fuller and his ideas on future living and environmental design. Then I pulled from standard understandings of color, shape, and material theory basics, as well as studies done on how they interact and are associated with each other. I attempted to buck more traditionally held notions with the goal of furthering the designed space by pushing the understanding of how the built environment can influence those who occupy it. To take the design of the built environment and turn it to better reflect the needs of the modern human, to live a more healthy and effective life.

Approach

As part of previous studies in the field of architecture, I began looking into different aspects of color, shape, and material theory. Then I used Revit, Rhino, and Unreal Engine 4 to create, render, and place rooms into a virtual environment. Using those models and the advent of virtual reality to be better able to test and gauge my theories with effective data, allowing me to build a more effective building as well as how to properly involve nature and more natural elements to the design. The beginning

step was to create the rooms based on what theory says should work, then gather data, on specific aspects of human interaction with the built environment, as well as gather data on what areas of the built environment could be turned into aspects of a design that could assist in the health of the occupant. After initial data gathering, came refinement, and an increase in the scale of the areas tested to measure effectiveness of said changes. One primary aspect identified in this process was sleep.

The built environment has a large role to play in many aspects of life, however, it can only be manipulated to greatest effect to better the lives of those living within it in very specific areas. Many of these areas are well known, from optimal solar gain to proper site orientation. However, many of these things are done as a blanket good, with little consideration given to what could be done to the built environment even further to better the lives of the occupants. For example, one of the areas that was heavily focused on, was sleep.

This was chosen as it is an area in which the modern human suffers greatly. Lack of quality sleep leads to mirad problems, from short term focus issues, to long term mental problems. A properly designed bedroom can solve this.

The Bedroom Solution

This location is, clearly, the location for sleeping in a building. However, in many cases, it is not actually *designed* for sleeping, it is designed as a selling point. This is detrimental to its occupants. Thus, the redesign of the bedroom became a priority for the work of increasing the quality of life of those interacting with the built environment.

This project was less about the development of something as lofty as a new style of design, but rather, a deep look at the foundational concept of what a room really was, both right now in standard buildings, and what it should, or could, be in the future to best assist those who live and work in them. It is a reexamination of basic tenets to attempt to gain insights into the way a building can work to help its occupants live better lives through the design of rooms, building layout, and building orientation. It also attempts to look at the conceptual future of buildings, where they are smart, and can work even further within the design to improve the life of its occupants.

As a part of this process, I developed a set up of antichanbers next to the bedroom that people will progress through while going to bed or getting up. The first is a reading/study room, for those who like to relax and read before bed. The second is the dressing room, where one changes and leaves all technoledgey that they might have, as well as anything else they may have with them. Then the final room is the bedroom, which consists of sparse areas with just one thing, a bed. The goal is to link all of these actions together, as well as make sure that the bedroom is associated with nothing but sleep, no other distractions. In the same way, the dressing room and reading room do the opposite in the morning, the routine and the association of waking up helps to wake the occupant up swiftly. By using these antichambers, I can create patterns of actions, colors, shapes and textures to create associations with specific actions at specific times of day. This will help lead to more restful sleep, as well as help with waking up in the morning. Along these same lines, orientation is important for the rooms. The reading and study room should face south, while the bedroom should face

east for the morning light. The other aspect of sleep is blue light. The goal should be to reduce as much blue light exposure as possible at night, while increasing it in the morning to help wake the occupant up.

The Food Solution

In the same vein as the bedroom, the goal is to promote a healthy lifestyle through the design of my building. The goal of helping people with proper eating habits requires a different approach to that of sleep. You still need to create associations, but in a more open and less controlled environment, it is more difficult to create such associations, so other cues are needed. Specifically, more visual cues for spaces. By this, I mean that spaces must be made for eating that are specifically attractive at the proper times. Line up natural lighting in a manner to make the area more appealing with stained glass, or wind and water systems to introduce noise that can be enjoyable during times to eat.

Significance

The significance of this project is threefold. Future understanding of the built environment and how people interact with it, how the proper use of unconventional colors, shapes, and materials in the built environment can benefit the user, and the development of virtual reality as a design tool, both in the discipline and here at school. In understanding the built environment, I merge natural forms and feelings into a design, control nature, to an extent and use it to better the effectiveness of the design. Color, shape, and material can be combined in many ways conventional and unconventional, this project seeks new and more effective combinations of these aspects by utilizing new technology and methods. The final goal is to propel new technologies and

methods to the forefront, and blaze a new trail for use of these new and emerging ideas

as more than a gimmick to sell a design, but a way to design from the start, to be able to

live and interact in a building long before it is built, to gather information on new and

radical ideas without the risks that might be encountered in any other ways.

Improvements for Next time

One of the things I would like to have done differently would have been to be

able to fully implement virtual reality. It would have been best to be able to gather data

on room associations with more variables and with people immersed in Virtual reality.

However, due to virus concerns, I was unable to do that.

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Acknowledgments

Biographical Note

Henry Creamer is an Architecture Major from St. Louis, Missouri. He is also learning in the fields of History and Construction Management. He has a passion for design philosophy and conceptual work for the basic building blocks of the built environment. He hopes that the information provided here could help advance the design of buildings in favor of the occupants.