design in context

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MASTER OF ARCHITECTURE

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I came to graduate school because I wanted to continue learning and I required a professional degree in architecture. In retrospect, these vague deciding factors were probably not sufficient on which to base a program selection. I was fortunate enough to stumble into a place that has given me everything I did not know I wanted, until it was over. I have always had a strong desire for making and creating. Until I started at Virginia Tech’s Washington Alexandria Architecture Consortium this desire was fulfilled through typical architectural outlets such as modeling and drawing. While these things are vital to architecture, I always felt disappointed that the drawing was the extent to which an architect’s hands reached. I was disappointed that the final translation of a vision was fulfilled by the hands of someone else and that the knowledge of how to make a line on paper into a wood stud wall or a concrete wall or a masonry wall was not integral in my training. Through design-build and furniture design, the door to construction was finally opened to me and I was able to fulfill the making of something from conception to completion and realize that design and construction should inform each other and not operate as isolated events.

I’d like to thank the people that got me here. Jaan: For the creation and sustaining of the Center and for all it has taught me. Joe: For the introduction to design-build and furniture. Marco: For the question, “What is your building made out of?” My family: I can’t think of a time when they have not supported me. My friends: Who made the experience the most memorable of my life; Matt, John, Evan, Charlie, Jamie, Jimmie, Tyler, Jon, and Anita to name a few. And Emily: For hanging in there to see the goofy side of a quiet dude.
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introduction:

If it were just another studio project it would be easy. When you throw the word thesis in front of it, a sense of weight is added to the endeavor. The weight comes from the sense that you are trying to delve deeper into a subject and the importance lies not only in the finished product but how that product informs a larger question or idea about architecture.

I am interested in creation, the root of what architects do whether they are designing a master plan or a detail. The interesting thing about architecture is that an architect’s creation does not exist in a vacuum. Numerous forces operate on the vision of an architect before it can become a reality; the most important being the building’s context.

Architecture without a site is conjecture and speculation and though it may have its place in some realm of study, it can never be real. For an idea to be manifested, it must be built someplace on this Earth and therefore I believe that architecture is a response to the context of the site. The site informs the architect on the material of the building’s construction, how the building is oriented with respect to the sun, how and when the sun is allowed to enter the building, and how the building is approached and therefore entered. The context pushes and pulls on the building, informing the design process and demanding responses.

The city offers a context dense in built structures and rich in history and architectural precedence. These parameters should be ever present in the mind of the architect during the design. A good design should respect and enhance the urban situation in which it resides as well as provide a useful scaffold for the architect to build from. By limiting the architect and forcing the integration of the new building with the existing context, the urban condition spurs ingenuity and can actually simplify the endless possibilities of architectural space.

A rural site offers a different set of parameters under which the architect must operate. The shape of the land commands the largest influence on a rural design, should the architect look for contextual clues. The rural site can also set the architect free and allow a building to be a pure manifestation of the architect’s mind, leaving the building program as the only constraint.

The intent of the thesis is to investigate how architects design. How does a building come into existence? By designing two buildings at opposite ends of a contextual spectrum I hope to raise questions in my own mind about how context influences the decisions that are made in the design process. Recognizing these different sets of parameters can lead to a better understanding of context as a guiding force that shapes architecture.
precedents:

I have always been interested in science and the pursuit of humans to understand the world in which we live. In re-searching this project I looked to people and places that saw beyond the world as we know it or how the science of the time explained it and sought new explanations for age old phenomena. I was also interested in places that transcend time and whose mark on the earth evokes as much meaning today as they did when they were built.
Early man was integrated with the environment, occupying his niche in a completely natural and unconscious manner. His life was controlled by the passage of the seasons, his nomadic wanderings on the face of the globe directed by necessity. The faculty now known as intuition was his guiding principle. The discovery of fire and the use of tools automatically altered his place in the natural order. He was now able to modify what nature provided and to an ever-increasing extent, his own immediate environment.

Nigel Pennick
The known is finite, the unknown infinite; intellectually we stand on an islet in the midst of an illimitable ocean of inexplicability. Our business in every generation is to reclaim a little more land.

T.H. Huxley
We do not ask for what useful purpose the birds do sing, for song is their pleasure since they were created for singing. Similarly, we ought not to ask why the human mind troubles to fathom the secrets of the heavens... The diversity of the phenomena of nature is so great, and the treasures hidden in the heavens so rich, precisely in order that the human mind shall never be lacking in fresh nourishment.

Johannes Kepler
Diagram of Stonehenge
The language of man is art. It stems from something which grows out of the needing, of the desire to be, to express, and the evidence of the promise of the material to do it. The means somehow are there. The Sanctuary of art - sort of the ambience of a man's expressiveness - has an outlet, you might say. It is my belief that we live to express. The whole motivation of presence is to express. And what nature gives us is the Instrument of expression which we all know as ourselves, which is like giving the Instrument upon which the song of the soul can be played.

Louis Kahn
Conceptual sketches and model exploring context, depth, and cutting.
The project collects and disseminates. The collection occurs at an Observatory located in the Monongahela National Forest. Spruce Knob is the highest point in West Virginia and lies in some of the darkest night skies in the Eastern United States. An existing road provides access to the site, which is defined by a rocky outcropping and spruce trees, which thrive at the higher elevation.

The dissemination occurs at an Institute for Astronomy in Washington DC. A narrow infill site on 7th Street was selected for its proximity to the National Mall and the MCI Center. Restaurants, shops, businesses, and residential units define the area immediately around the site.

The Institute provides an outlet in an urban environment for the latest discoveries from the Monongahela Telescope, the National Radio Telescope, also located in West Virginia, and any other Observatory from around the world where an exciting breakthrough may occur.
Architecture, whether as a town or a building, is the reconciliation of ourselves with the natural land. At the necessary juncture of culture and place, architecture seeks not only the minimal ruin of landscape but something more difficult: a replacement of what was lost with something that atones for the loss. In the best architecture this replacement is through the intensification of the place, where it emerges no worse for human intervention, where culture's shaping of the land to specific use results in a heightening of beauty and presence. In these places we seem worthy of existence.

It is not only buildings that interest us: there is something of greater importance, which, through them, we are trying to reach. It has to do with the joining of structure and land, and how this can and should result in a sureness of place that is stronger for the union.

WG Clark

Through the concept of the site and the principle of settlement, the environment becomes the essence of architectural production. From this vantage point, new principles and methods can be seen for design. Principles and methods that give precedence to the siting in a specific area. This is an act of knowledge of the context that comes out of its architectural modification. The origin of architecture is not the primitive hut, or the cave or the mythical "Adam's House in Paradise."

Before transforming a support into a column, a roof into a tympanum before placing stone on stone, man placed the stone on the ground to recognize a site in the midst of an unknown universe: in order to take account of it and modify it. As with every act of assessment, this one requires moves and apparent simplicity. From this point of view, there are only two important attitudes to the context. The tools of the first are mimesis, organic imitation and the display of complexity. The tools of the second are the assessment of physical relations, formal definition and interiorization of complexity.

Vittorio Gregotti
Map of Washington DC, Virginia, West Virginia, and Maryland highlighting locations of the Institute for Astronomy, Monongahela Observatory, and National Radio Telescope.
Spruce Knob, WV
process:

The intent was to design the two buildings in tandem so that they could inform each other in the process. The reality was that each had such specific demands that my attention was focused on one or the other. Any communication between the two had to happen between the times that I brought one up to a certain amount of resolution, stopped working on it, and began developing the other. In my mind, this was not a failure to accomplish what I wanted to do, because ultimately I was seeking to understand how architects design. I found that to really understand a building and to carry your intent throughout every part of a building, you must focus all of your energy. Every move has a ripple that must be tracked throughout a design to ensure that what is manipulated with intent at one detail does not destroy the intent at another detail.
An Architect must be a craftsman. Of course, any tools will do. These days, the tools may include a computer, an experimental model, and mathematics. However, it is still craftsmanship – the work of someone who does not separate the work of the mind from the work of the hand. It involves a circular process that draws you from an idea to a drawing, from a drawing to an experiment, from an experiment to construction, and from construction back to an idea again. For me, this cycle is fundamental to creative work. Unfortunately, many have come to accept each of those steps as independent. An architect too easily passes the results of his experiments on to the builders. Truly creative work is a circular process, and if an architect makes himself part of this process he can gain the technical ability to grasp in essence what he is working on.

Renzo Piano

Construction is the art of making a meaningful whole out of many parts. Buildings are witnesses to the human ability to construct concrete things. I believe that the real core of all architectural work lies in the act of construction. At the point in time when concrete materials are assembled and erected, the architecture we have been looking for becomes part of the real world.

Peter Zumthor
The Observatory was conceived with three programmatic considerations: A telescope, housing for astronomers, and an observation area for amateur astronomers. The organization and siting of these elements became the principle investigation of this portion of the project, as well as the reconciliation of the ground orientation verses the sky orientation. The landscape became important in terms of how the site was approached and inhabited by its users. I sought to maintain and enhance our presence on the Earth while recognizing that the purpose of the project was to make a place for people to view the stars. The principle means of accomplishing this was to carve a 2000 ft slit into the mountain that maintains a near constant elevation through its length. As grade rises, the slit descends 50 ft at its deepest point. The slit is orientated towards the setting sun on the longest night of the year, signifying the greatest amount of time to view the heavens. Programmatically, it serves as a link from the astronomer’s housing to the telescope.

In the same way that the slit maintains a constant level through the mountain, the fill from the excavation of the slit accomplishes the same on top of the mountain. At the elevation of the telescope, a gravel mound radiates out from the telescope, and terminates in a platform where amateur astronomers can set up their own telescopes. A descent into the mound from the telescope approximates the original grade, which then leads to a stair, rising back to the mound surface.
The reconciliation of the programmatic elements within a narrow infill site in the city became the challenge of designing the Institute for Astronomy.

A canopy overhead and a change in the surface of the sidewalk from concrete to granite defines the entrance to the Institute for Astronomy. A narrow, sloped, tree-lined walk then directs you to the rear of the site where the steel and glass circulation spine serves as a threshold to the building proper. You then encounter a narrow, 12 x 100ft space that exists between the glass circulation spine and the masonry building and opens to the sky. From here, you return to the front of the building for information and check-in.

The building can be characterized by dark and light, massive and airy. The requirements of the programmatic spaces such as the lecture hall, exhibition, and IMAX require control of light so they are placed in heavier, contained elements. Light moves you between these dark elements. The steel and glass circulation spine rises independently and allows you to experience the city in a new dimension as you slowly make your way to the top of the building.

Massive concrete piers give rise to the summit of the building, which consists of the IMAX Theater and the Observation deck. In between the masonry and lighter steel truss structure overhead, lies the open air Café that also allows you to experience the city on another level. The IMAX lobby positions itself behind a 48 ft wall of glass, which beckons the street below as a destination.

An 18 ft wall of frosted glass contains the observation deck and blocks the view of the city while creating a view to the sky. Upon walking closer to the wall you find a narrow strip of clear glass which provides a view to the city. A reflecting pool brings the sky to your feet and is lined with benches and shade trees.
bibliography:


vita:

Greg Harrell

Experience

2/03- Kerns Group Architects
6/02-2/03 M.T. Puskar Construction Company
8/01-6/02 Graduate Teaching Assistant, Virginia Tech
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Georgia Institute of Technology
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Honors/
Publications

Inform Magazine 2002, Student Design Award
Inform Magazine 2001, Student Design Award
The Classicist #6
WAAC/DC Schools Design Competition 2002
Honorable Mention, WAF Interschool Competition 2001
WAAC Concrete Competition 2001
Studio Book Award, Spring 2001
WAAC Row House Design Competition 2000
THRESHOLDS and CONTEXTS

20 SEPTEMBER 02

Proseating Mrs. King at 5 o’clock pm
open to all besides

Proseating Mr. Harvell at 6 o’clock pm
in the main justice room

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