A Tsunami Memorial

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HONORABLE MENTION IN
ARCHITECTURAL DESIGN
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A Project memorial was designed in response to the tsunami that devastated Southeast Asia on December 16th 2004. In the aftermath of the tsunami many thousands of people's lives were fractured and broken. In Banda Arceh, Indonesia there was a river of moving debris from the destruction caused by the tsunami. Within the debris were hundreds of victims the tsunami had claimed.

The tsunami memorial with fractured forms and spaces ("Fractures" became the concept for my project), attempts to capture the feeling of the destruction and loss the tsunami caused. The multi use program called for reading rooms, a café, administration offices, a conference room, and restrooms, along with a grand memorial space. The play of light through the translucent laminated glass elements and different reflectances on interior surfaces creates a unique experience for the visitor. The structure of the memorial is constructed with compression members and tension cables in a seemingly random configuration. The grand space is composed of a series of passageways and a large staircase with large sculptural elements created from the debris created by the tsunami.

During the design development process for my project's architectural vocabulary I used both digital and analog media. Switching back and forth between these two media helped me to develop the project. Each media has its strengths and weaknesses. Working with analog models and drawings allowed me to develop irregular forms and spaces quickly and then develop and refine the models digitally. **form·Z** was great for developing the immersive views of spaces and for quick generation of section cuts and plans.

form·Z Experience

I had very little experience with **form·Z** (except for an introductory class I took in Fall '03) before taking Professor Fowler's Third Year Architecture Design Studio. I learned a great deal about how to use **form·Z** during the process of design for my project. In the beginning of the quarter, Professor Fowler had students work in groups for a week to develop a project using diagrams and generating relief models. After this group project, I had a good foundation for using **form·Z** to approach the design of my project. I only used three commands in **form·Z** (move, difference, and rotate) for a great deal of my project. Also, while in groups we studied and analyzed a detail of a double skin building. We created a large-scale model of the detail, which we also modeled digitally, and this further increased my understanding of skin and structure.

Design Process Start

To start the design process for my project, as a way to sort out my reaction to the Tsunami disaster, I developed many diagrams (e.g., schema, grid, tension, and collage) from layered images in both digital and analog media. From these diagrams I developed a 2D image, which was used to create relief models that were an exploration of the positive, negative and hybrid spaces within these models. I made multiple layers for the different objects within the digital models, which allowed me to turn on and off the layers and develop a high level of complexity of spaces. I learned a great deal about the spatial qualities in these models working with **form•Z**, and therefore this provided an important design foundation for further developing my project.

From these digital reliefs I then looked at the possible spaces within the reliefs by taking section cuts with the clip hither/yon view. Working between positive, negative, and hybrid spatial interpretations from the digital section cuts, I used collage and line drawing techniques to develop over-lays showing spaces, structure and skin. From the sections I went back between the digital and analog reliefs and refined and worked into the models to create 3D inhabitable volumetric vocabulary models.
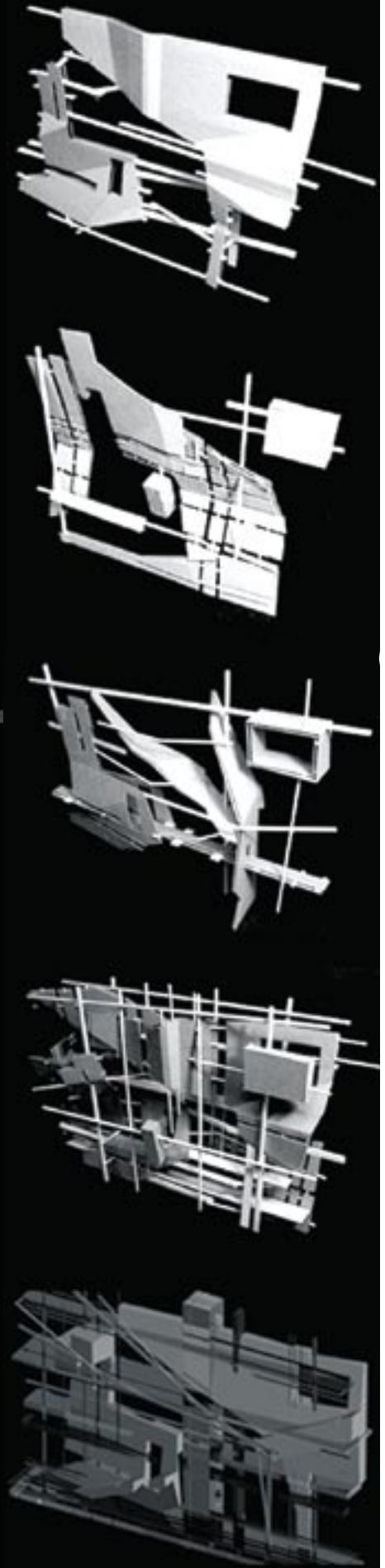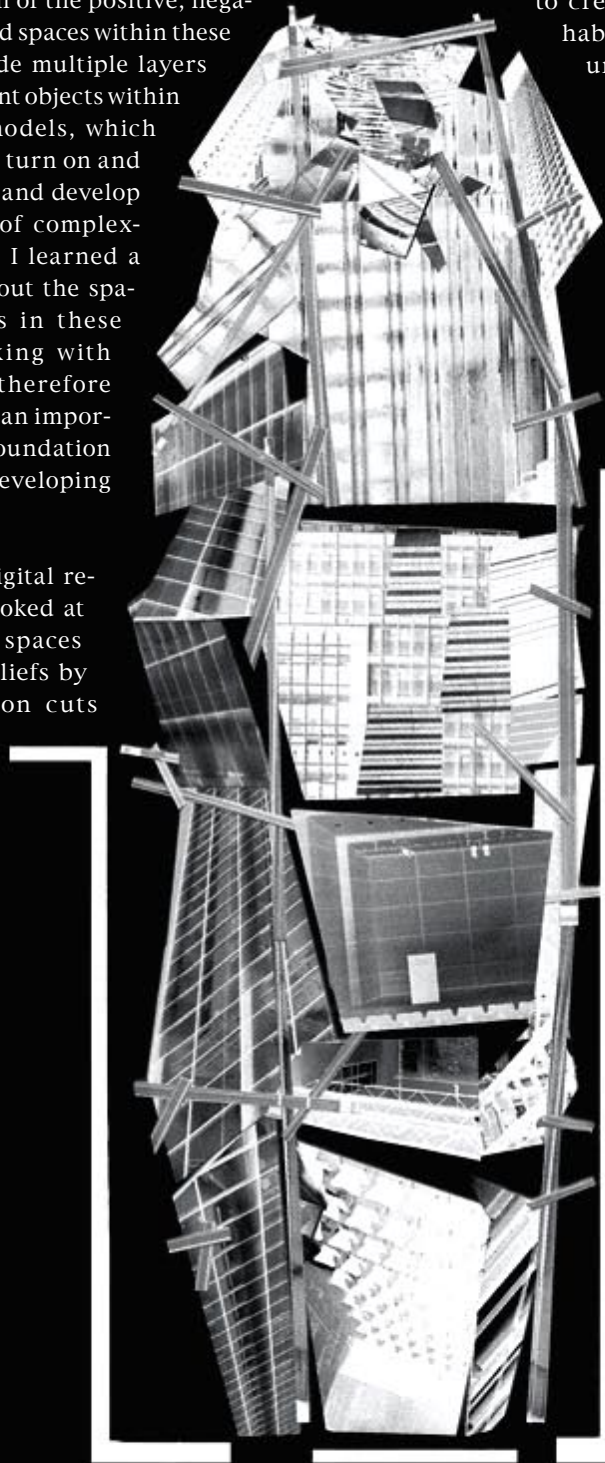
Program Development

Programmed spaces were explored as 3D volumes and developed as 3D inhabitable volumetric models. Spatial adjacency relationships were then explored and analyzed. With **form•Z**, I developed volumetric program models very quickly. With the transparency of the shapes turned on, I was also able to create over lapping spaces. With analog models it was harder for me to develop intersections and connections in the program in an efficient timeline.

With the programmatic volumes defined, I went on to develop and refine the 3D inhabitable volumetric vocabulary models to work with the program. I first worked with an analog model to develop the overall quality of the spaces. Then with the development of my analog model I was able to work into my digital 3D inhabitable volumetric vocabulary model to refine and open up the spaces to fit my program. By continuing to work into my digital models, I was able to refine and keep the richness and complexity of my early vocabulary studies. I also continued to look at the spaces through both cross and longitudinal sections as well as immersive views taken from within the **form•Z** model. Throughout the design process I also looked at the project through a sequence of events, with the help of the animation tool and key frames of **form•Z**, I was able to create multiple short movies, rendered in renderzone at 100 x 150dpi. The low resolution of the movie allowed me to see what was working and what was not without wasting time rendering.

Project Refinements

In the final development of the project I focused on the quality of the interior spaces by studying immersive views of my digital model using **form•Z**. I also developed and refined my circulation so it could be integrated into the double skin of the project. Looking at different layers of the skin in **form•Z** allowed me to see if the circulation was working within the spaces. I explored the use of color, transparency, and textures using **form•Z**'s **RenderZone**. A large-scale cross-section drawing allowed me to further develop and articulate the skin and structure of the building. While developing the skin of my project, it was important to look at all the elevations including the roof in a developmental folded out manner. With each side of the structure facing a different orientation, it provided a great opportunity to create unique solutions to each of the different orientations. These folded out elevations helped me to outfit the envelope to react to the site orientation along with capturing appropriate levels of day lighting.
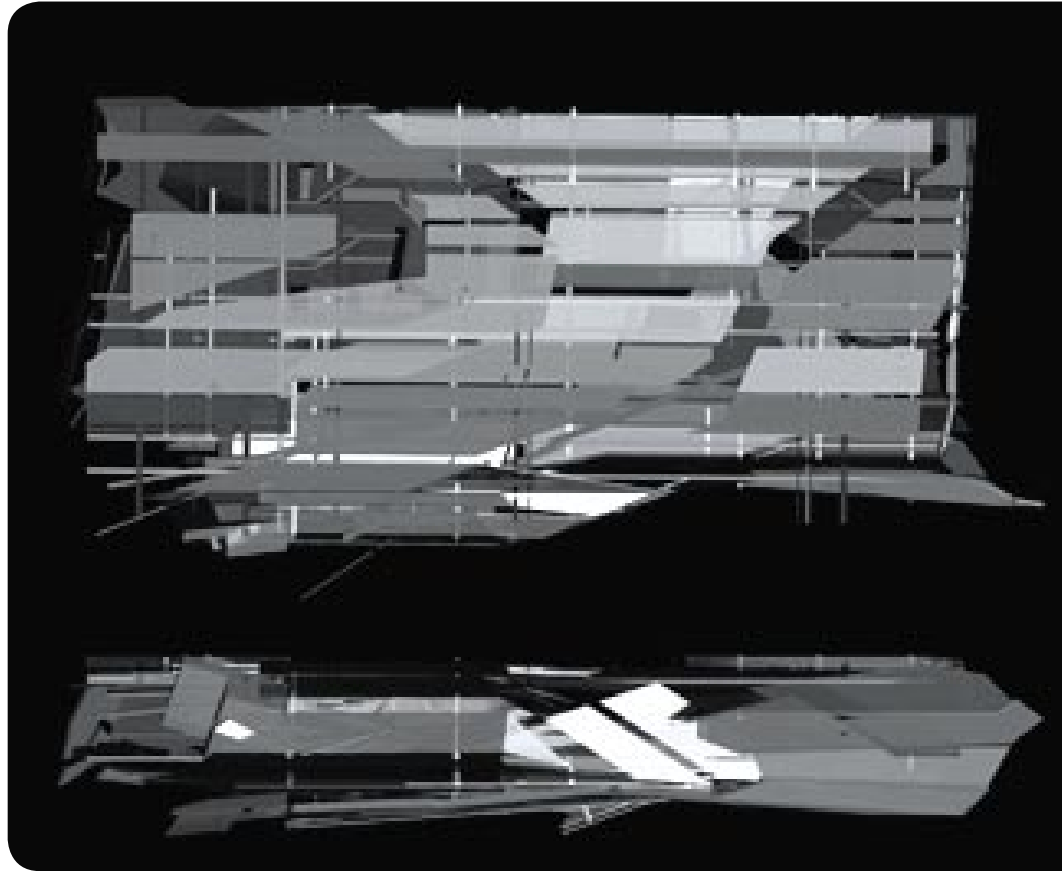
Project Design Reflections

In Professor Fowler's design studio I learned the process of using **form•Z** as a design tool for "thinking through my hands" (a Malcom McCulllough phrase). By building and creating so many digital and analog models, I developed an architectural vocabulary for my project that was able to evolve over the duration of the quarter. While developing my project the analog models seemed to be what initially drove the design of my project. The digital and analog relief models helped in the development of project's vocabulary model and helped to better simulate the project montaged into the project site. **form•Z** provided me the opportunity to refine and develop my project, even though my **form•Z** skills were not very strong. It seems that in reflecting about my design project, that if I had worked only in a digital media, I would have limited my design to what I could do in **form•Z**. By going back and forth between digital and analog media throughout my design process it forced me to learn new strategies for design as I was working with **form•Z**. All aspects of the process were a development from the original diagrams and relief models that were in response to the Tsunami Disaster.