

JOURNALS OF A DIGITAL DESIGN STUDIO

by Sarah Jester and Thomas Fowler IV

Student's Weekly Journal Entries^[2]

Instructor's Assignments^[3]

Instructor's and Student's Post Studio Reflections^[4]

Week 1

Journal: Friday, 09.26.08

1. This week I remembered what it feels like to stop thinking and just produce. When you're forced in that way, you sort of swallow your fear and hesitation, and move forward into a place you didn't think you'd be able to go. I was resenting turning the analog diagrams into digital ones, but it had to get done. I found myself looking at the source image (a Richard Diebenkorn painting) in a whole new way and I ended up having fun using Illustrator to do what pens can't. I think the major reason I have so much bitterness toward the computer is that it does such a poor job imitating the quality of hand made work. However, what I am coming to terms with is the fact that it can actually help to create okay stuff, it's just entirely different. So analog/digital can go hand-in-hand, but like you were saying, you can't just let one be the clean-cut copy of the other.

2. Next week I am hoping our group can work together more, or maybe I should say, have a better attitude about functioning as a team. We had group discussions, and agreed on directions, and bounced ideas off of each other, but there was a subtle "I don't really like/respect your vice"

1. Group Warm-Up... Diagramming Exercise

The quarter started with students working in groups for a week long intensive diagramming and modeling exercise that provided a structured framework for students to focus on using digital modeling software and traditional media as an integral part of the design process.

This Analog Digital Language of Vision (ADLV) assignment (Figure 1) provided students an opportunity for those not as familiar with the 2D & 3D technology tools, to do quite a bit of the 'driving' in the creation of the assigned projects. The learning objectives were:

- Outcomes from exercise provided students in the studio with a starting architectural language to build on for a future design project
- Exercise provided an introduction of the tools and strategies that were used for studio project analysis and synthesis for developing eventual studio project
- Exercise provided an opportunity for students to work on a collaborative design project.

Instructor's Reflections

The initial group warm-up exercise provided the first steps in building a classroom environment for the collaborative sharing of using digital technology in the context of the design process. This exercise established the tool kit for developing analog and digital strategies for the eventual quarter-long building design project. The group analysis of selected case study projects that happens later in the quarter continued this collaborative spirit of the studio. Students often mention by the end of the quarter that there was a strong collaborative atmosphere in the studio, which assisted with the integration digital media in the design process. Even though students are exposed to digital media much sooner in our curriculum, I have not seen much change in a 12-year period of integrating digital media into the design studio in how students view the need to use in the context of other media or as a useful tool for design. This warm-up session is therefore very important for getting students on the same page and skill levels before moving forward in the studio on design work.



Figure 1: Digital relief model from Group Assignment #1.

sometimes. I'm not totally sure how to fix this, I tried this week to be proactive...but I guess I'll just try harder? You can't really force a person to change their attitude, but hopefully next week will be more unified. Also, I need to do some 3D modeling stuff on our project, but concerned since it scares the crap out of me to use digital modeling software, because my work always looks so terrible when I have used it in the past...

3. This weekend I think I'm going to go up the coast for a nice long morning run and for some time to myself.

The team of students that Jester participated on analyzed a painting by Richard Diebenkorn (four teams total in the studio each had a different painting) through a series of analog and digital diagrams and models. The team developed the following analysis narrative, "Through diagrammatic analysis we chose to emphasize the strong 'L' force moving through the image like complex layers of light and shadow cast through a window. The reliefs also allowed us to explore the blank space and interpolate the possibilities in the void of the source image"^[5]

Student's Reflections

At the time, no one understood the significance of the group warm-up diagramming exercise, but this assignment gave us a base so that we could launch into the vocabulary development of our next project without hesitation. We didn't have to overthink or make arbitrary decisions. This has taught me to DO and learn from what I have done, instead of waiting to commit until I find the perfect idea.

In my current design studio, I did initially feel lost beginning a new process without establishing some kind of beginning point (like the diagramming exercise), but I have figured out how to get pieces of my project to have them take their place, and I have figured out how to maintain a connection in the steps of the new process and hopefully I will end up with a cohesive project.



Figure 2: Selected diagramming assignment outcomes: Left: Original Dibenkorn painting. Center: Painting diagram. Right: Digital relief model.

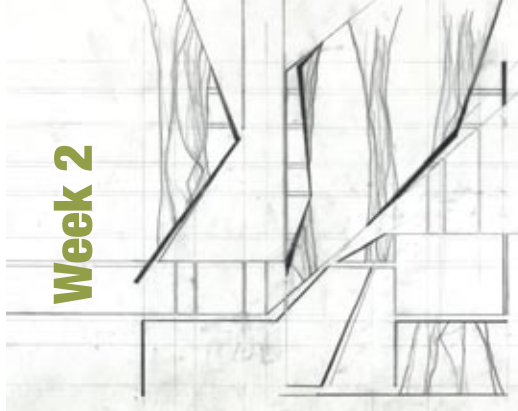


Figure 3: Diagrammatic analysis of Ito's Sendai Mediatheque building.

Journal: Friday, 10.03.08

1. I 3D modeled in Revit(!!), the reading spaces for both the Abbey Library. I decided it is a lot like using the editing software that comes with your Kodak Easy Share Camera, instead of Photoshop, so it was annoying. I really didn't want to deal with it, but it actually wasn't that bad at all. The collaging exercises were really fun—it definitely makes it easy to visualize volumes, but I think I spent too long on them—it could have happened quicker. Shaping the ADLV's to architectural context was a good challenge—because now the composition is affected by program and concept.

2. Inhabitable book—pretty cool. I hope I can keep myself from subconsciously defining it as architecture. I'm excited for where it will go, since I'm revved up from those diagrams. Those Mediatheque structure lines are burned in my brain right now—I close my eyes and they are glowing there. Group stuff was better this week, but we still need to have a little more respect for one another. I can't really think of anything else right now, except #3

3.sleep.

Figure 4: Selected Re-Represented Drawings: Left: Plan Collage; Right: Vertical Cross-Section Collage.



**2 (a) Individual Re-Representations of Selected Case Study Projects.
(b) Group Library Case Study Project Analysis.**

Students were randomly assigned a precedent project to re-represent it in a series of analog drawings. The assignment was to redraw plan and vertical cross-section as a series of line and negative space collage drawings for analyzing the structural, circulation and programmatic patterns of the project.

The learning objectives were:

- To learn how to properly represent building system components graphically.
- To learn how to show the integration of structural patterning, life safety systems, and building program spaces.

Students were assigned to work in groups for the analysis of two Library Case Study Projects. Jester re-represented Ito's Sendai Mediatheque Building.

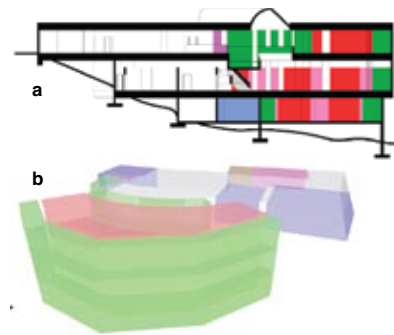


Figure 5: Selected Work: (a) Cross-Section; (b) Volumetric Program Model from Case Study Project #1 (Mount Angel Abbey Library, Alvar Aalto).

Instructor's Reflections

The re-representation exercise provided students a foundation for understanding the proper way to represent space in 2D. Over a 12-year period I have seen a dramatic decline of the use of 2D drawings to represent 3D space, which seems to be prevalent in many programs. It seems that a lazy reliance on digital media to represent 2D space (or the use of 3D programs to navigate through space in real time) does not seem to be adequate for students to really understand the implications for understanding both the navigation and spatial implications for design work. These representations allowed the studio to have a discussion regarding lessons learned about the importance of the connection of program, structural pattern, vertical space(s) (and the best ways of showing it) for developing the identity of their own project.

Student's Reflections

The re-representation exercise was a quick way to learn both about how this case study building worked and how to re-represent and learn about the spatial qualities of this project as a way for using later in our own projects. This exercise introduced collage and line drawing representation techniques in a context for applying to our own designs.

Overall, the first two weeks helped eliminate fear and hesitation, so that when the time came to begin our own work, we could have the confidence to dive in.

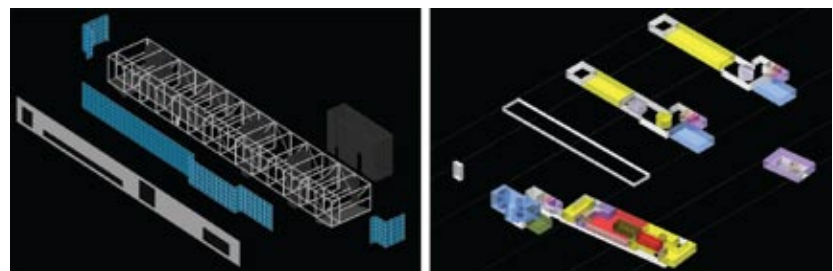


Figure 6: Selected Work: Left: Exploded Axon of Project; Right: Program Model from Case Study Project #2 (Clinton Library, Polshek Architects).

Journal: Friday, 10.10.08

1. The analog models were a lot of fun and learning this week. It was easier than I thought to disregard the 'building' aspect of it. I thought I would try and make it into architecture, but it was fun to just make spaces that interact with each other and work together with found objects- but it wouldn't be nearly as good of an experience if it weren't based on the ADLV compositions and ideas about reading—they don't completely rationally connect, but it fuels intuitive decisions with the same vein... if that makes any sense. Also, I found that doing collages made me take a step back from the model making, (which was a nice break in itself) and look at the space from another perspective, which serves to solidify underlying ideas, and forces more commitments to my evolving project design. I developed a small program model on Monday (I think this was the day?), which helped a LOT in focusing my decision-making.

2. I don't know if this counts as whole week goals—but this is what I'm thinking about right now...the book collection (reading section of it) and atrium needs to be developed further. The presence of books cantilevered over the readers shows up as a nice interaction between the readers and the books, which shows well in my 2nd iteration of my analog Inhabitable Book model—but it keeps getting oversimplified in my program studies. So the #1 goal for next week is to refine the translation of my program as it relates to what I'm trying to do conceptually. I'm super excited to make these Inhabitable vocabulary model studies as they relate to my project concept. Also my project concept needs to be solidified. There is a bit of tension in how my ideas for my concept of the "Power of the Book" relates to the evolving vocabulary of these models, but I will just need to sort this out as I move further down my design path. Goal # 2—I'm excited to work with **form•Z** modeling software this weekend. My digital media skills need a lot of work, but now that I've gotten back into using it, it's really fun and there's a whole other realm of possibilities to achieve similar compositional qualities of the analog models that I created.



Figure 7: Found Materials Inhabitable Book model, by Jester.

3. Inhabitable Found Materials Book Model

The Inhabitable Found Materials Book project asked students to develop an inhabitable series of spaces that reflected a student's personal views about reading. Students developed several physical models integrating both found materials and others materials such as chipboard, wire, plexiglas, etc. into the project. Analog vertical cross-sectional views and plan collage drawings were also developed.



Figure 8: Analog Found Materials Inhabitable Book model and vertical cross-section collage drawing, by Jester.

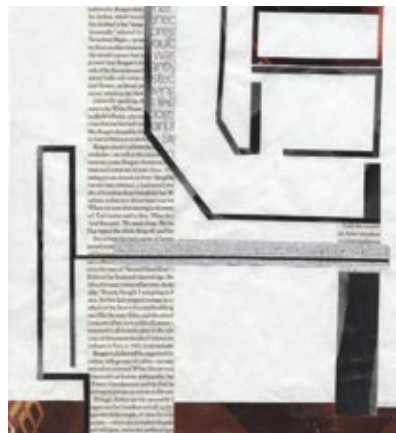


Figure 9: Cross-section collage of Found Materials model, by Jester.

Instructor's Reflections

The inhabitable book project became a pivotal point in the quarter for assisting students in the synthesizing knowledge acquired from the group Library Case Study Projects and individual representation exercises. This was also the point in the quarter where each student established their foundation vocabulary and started to connect their concepts of reading to space.

Student's Reflections

The found materials model was an excellent way to suspend anxiety and develop vocabulary. It was the foundation that tied the whole project together. It allowed for constant progress and development in the project; there wasn't the typical leap from a non-spatial concept to architecture.

In the early stages of the project, the found materials model was so rich that it was overwhelming to understand how it could function spatially. Collages offered a clarification of the spatial qualities of the model and became a diagram of my intentions and expressed a visceral sense of my project. At one point, I felt like my digital model was leading me in the wrong direction, so I used one of the initial collages as a guide to keep me on track.

Later on when the building was more developed, I had built all the pieces of my digital model, but there were parts that I could ignore because they were just difficult to see on the screen or they were never obvious in any rendered views. So it doesn't work to just draw all the lines cut in the digital model. Analog drawings forces you to clarify your vision for project's spaces, and also deepen the thoughtfulness of the spaces developed. I feel like my project could have used more drawings to solidify the program earlier in the design process.

Journal: Friday, 10.17.08

1. I learned that using digital media during the design process is a useful tool... and I'm kind of surprised to admit that. It's challenging for me, because I still don't think the digital models that I have developed look that good, but I'm learning a lot about my design in using **form•Z** as my modeling tool. I just need to not fiddle around too much—but make sure I am exploring the bigger idea of the project, quickly, and not taking too many steps backwards. I've also been noticing an actual concept emerging from my design, that seems to be becoming clear as to how to develop the architectural vocabulary of the spaces to support this idea! I can start to talk about what my design is doing and how it relates to a user and how my ideas about reading work... and I don't feel like I'm making things up.

2. We are doing site analysis—for one, I hope all the group work goes well, but for myself—I hope I stay grounded by the site. I feel like I have a tendency to get carried away, and I end up with something that relates in my own head only, but maybe isn't clear to anyone else. I make a lot of compositional decisions that feel right—but maybe that's okay? I have a clear, rational logic to my decisions—but things (my diagrams/collages) seem to end up too 'abstract.' I mean, I think that they work—but maybe they could be better? I don't really know how direct things should be—so I hope to have a better idea of that within the next couple weeks.

3. I'm pretty excited to work with acrylic paints in developing my site analysis painting!!!! I never have done this before, but it's turning out to be really fun! I just have a few more layers to go...

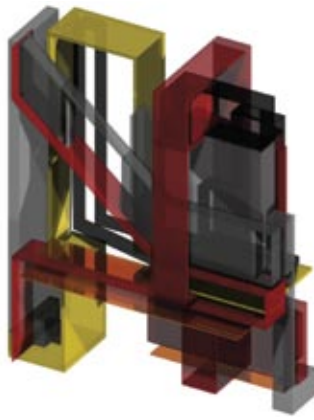


Figure 10: Digital Model of Found Materials analog model (Alternative 3).

Continuation of Inhabitable Book Project

As a continuation of the Inhabitable Book project students continued to develop the vocabulary of the spaces and sequences that were tied to their concepts about reading.

Instructor's Notes: The translation of the physical found materials models into a range of alternative digital models continues the design process development. The digital models do usually start out very stiff (this is pointed out in Sarah's weekly journal) but these models evolve over a series of weeks to become more dynamic as they are worked into. As students work digitally they are required to freeze the development of digital models by both printing out views and saving as application files. This process always allows students to go back to earlier versions of a designed project, if the clarity of modeling becomes fuzzy. Many times the earlier digital models are more cohesive.

As students were developing their digital models, the studio took a field trip to San Francisco, CA to visit and analyze the project site.

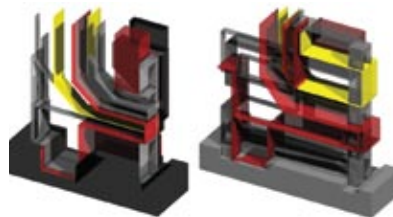


Figure 11: Digital model alternatives of Inhabitable Book, by Jester.

Instructor's Reflections

I require that students work from the original group warm-up exercise digital model and use the analog found materials models and collage studies to inform how they work into this digital model. I have always found that when digital modeling is more of an editing process, as opposed to developing a digital model from a blank slate, these digital models never seem to take on the animated qualities of the design project being developed. I tell the students that the editing process of working into this digital model is more akin to Michelangelo carving out a body from the solid piece of stone.

Student's Reflections

At the beginning of the digital modeling process, I was very unhappy with the digital model because there are so many ways to alter the rendering. It's not like a physical model where you use the given physical properties of the material you chose.

But once I became more comfortable with how it looked and just used it as a tool, I started to really enjoy working in my digital model. I could feel when I needed to update it, and I looked forward to it because I knew I would figure out a lot that I was struggling with, and then take that and work physically again.

I've learned that the value of all these tools we have—digital, physical modeling, 2D work—is that they are tools that allow for their own distinct development of the whole. How they are used in the process and how they reveal different aspects of the design becomes the best means of representing the project. As opposed to using them only as clean cut representation.

Journal: Friday, 10.24.08

1. I can't even remember what happened this week – painting – group precedent stuff – program translation – field manipulation... Working with the field of the site has clarified some things for me, (mostly the sequencing of how I want the approach to work) and this way of generating it off the painting is a lot of fun, I keep learning new things about how my design works... or wants to be.

2. AHHHgg vertical building circulation – I don't know what it wants to be – I figured out a couple wrong answers, but I'm really struggling with it – so I hope to figure out how you actually get to some of my upper floors, because this direct connection to circulating through my project is an important aspect of reinforcing the "power of my book concept" in my project. Maybe I should develop a magic carpet that allows you to just jump up to the last level? I just need to build some more physical and DIGITAL models to sort this out!! The digital model does need at this point to get updated again... but at this point just don't know about how to improve the digital model so it does not look so digital.

3. I thought something out of the ordinary was happening this week... but now I can't remember.

Figure 12: Site painting analysis.



4. (a) Site Painting Analysis and (b) Group Site Analysis Exercise

Site painting analysis: This site analysis painting exercise had students revisit the initial Richard Diebenkorn diagrammatic analysis accomplished the first week of the quarter in groups. Students were encouraged to adopt a Diebenkorn typology for painting to connect to the painterly way that he was able to capture the Bay Area landscape as part of "The Bay Area Figurative Movement"^[6]. The learning objectives of this exercise focused on having students anchor the library project to the site based on their evolving project concept.

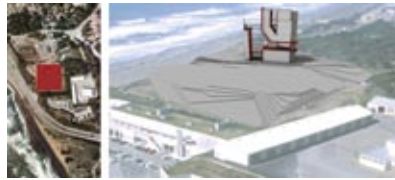


Figure 13: Site aerial (left) and bird's eye view (right) location in San Francisco, CA's Sunset District with Jester's Library project shown, by Jester.

Group site analysis exercise: Students worked in groups to build physical and digital models of the site. One group constructed a digital contour model of the site, the second group built a physical contour model of site, the third group developed a series of site vertical cross-sections and the fourth group documented site artifacts via a series of drawings and photographs.

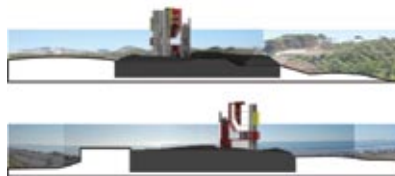


Figure 14: Site cross-sections with Jester's library project shown. Top: Site section looking north; Bottom: Site section looking west.

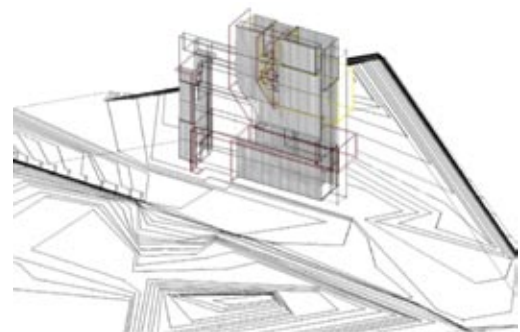
Instructor's Reflections

Building placement on an open site always poses a problem for students. I find the more constraints that can be provided for project siting the better the developed strategies. I do think the introduction of the painting requirement did help, but there are still issues of dealing with such a small project on a large site that we did not get to regarding site access and the overall processional qualities as it relates to the sequencing into the building.

Student's Reflections

My painting focused and anchored the way I thought envisioned my building on the site. The site manipulation and project placement would have been overwhelming without the painting analysis. It was very easy to use an underlay of the image of my painting in the site context in form•Z to develop the topography of the site. It let me easily manipulate the contours and make changes, without getting overwhelmed by the arbitrary quality of site contour lines. The painting was a crucial step in the process, but it had even greater value because of how it could be used in conjunction with digital media.

Figure 15: Digital wire frame of site and library project, by Jester.



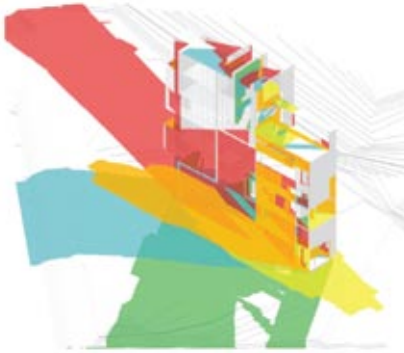


Figure 16: Color-coded solar orientation analysis, by Jester.

Journal: Friday, 10.31.08

Mid Review Comments Summary from Critics^[7]:

1. *The jury talked about my clarity of project's design process, in that the critics could see the progression through the different phases and analog and digital media that I was using to develop my project. However, I need to remain true to those things and be very careful that I do not try to refine too much (make things too shiny) so that I don't lose anymore of the original qualities of the beginning struggle that is very apparent in my initial Inhabitable Book studies. I'm really afraid that I am going to end up with a boring building with a typical library program that is just shoved in it, but I think it will be okay. I just need to keep making things as a way of moving forward with the design refinement for my project.*

2. *Cladding system for my project needs to be further refined. I have a system confirmed, but I really need to model how it connects to the building and affects the sitting and opens itself to the exterior. Also—the way my project gets anchored on the site is a big issue. Developing the contour drawings and sun peg study will help with this site placement refinement. Clarifying how the building is reconfigured based on how it sits on the site regarding the approach and entry and overall reaction to the surrounding context are all important to address.*

5. A Satellite Library for San Francisco

Students were provided the entire building program for the satellite library project.

The library building program (Total of 15,000 sf):

- a. (RED) Book Collection (Storage space for the number of volumes of Books) (5,000 sf).
- b. (PINK) Space for Collecting Books that have are coming back (5,000 sf).
- c. (GREEN) Reader(s) Spaces for reading (2,250 sf).
- d. (PURPLE) Staff Work-Space (1,500 sf).
- e. (BROWN) Toilet Rooms (Men & Women) (200 sf each).
- f. (WHITE) Horizontal and Vertical Circulation Systems (provide horizontal and vertical systems).
- g. (BLUE) Atrium Space (sf varies).
- h. (YELLOW) Additional space required for special uses and miscellaneous (6,250 sf).

Students were required to translate conceptual positions that developed from inhabitable book studies in formulating the entire building program for the library, via color-coded program studies. Color-coded mapped solar orientation analysis also provided additional information on project site anchoring and orientation specific cladding system responses.

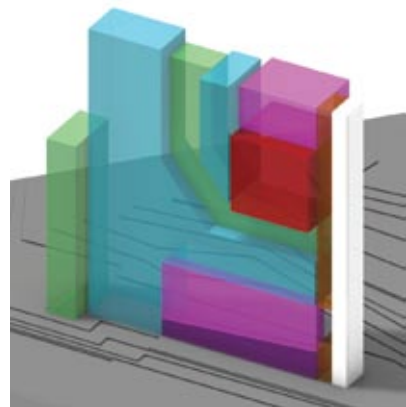


Figure 17: Library program model, by Jester.

Instructor's Reflections

Building programming is another difficult step in the development of a design project. Often the way that programming is approached takes students far away from their initial conceptual ideas, in making too much out of the shapes of the spaces, weird circulation strategies, or trying too hard to reinvent all of the program adjacencies. I have always found it better for students to jump right into the 3D volumetric configuration of the program without too much 2D program work (bubble diagrams, etc) early on, since it helps when students can connect their project concepts to the spatial strategies for how this relates what they are trying to do along with knowledge gained from case study analysis.

Student's Reflections

I realized at this point in the quarter that it was very important that we were involved with learning from the precedent studies early on in the quarter. I feel like we had a good sense of what was successful in library design (beyond our own experiences with libraries), and this established a strong base that we could adapt our projects to. I think if we didn't have that sense of what was already established and necessary, we would have ended up doing weird things for weirdness sake. In the past I've been afraid of where the 'boring' things should go—the bathrooms or administrative spaces. I felt like I had to make some kind of brilliant decision about how they work. But the point is that they DO work and it's in a way that attempts to connect back to the overall concept for the project.

I would like to have done another phase of programming and refinement to see how I could have opened up the building more, while still working within the established vocabulary response of my project.

Journal: Friday, 11.07 and 14.08

Project's Concept Title:
The Power of the Book

Haiku:
Traveler gathers knowledge from books and daydreams; exhales and returns.

Site:
The site is located on the coast of San Francisco, off the Great Highway, near a wastewater treatment plant.

Project Overview:
An individual makes a choice by reading. The reader acknowledges the power of books—both sacred knowledge bearers and inspiration for radical and unconventional thought. The reader becomes connected to the larger whole of society while engaging in a highly introspective, intensive activity, as well as, gains a deeper understanding of self through discussion and collaboration within a group. This library is a place to honor the power inside books and the energy created by bringing them together with readers who can investigate, wonder, and give back.

Program Overview:
The library functions as a satellite library to the San Francisco Main Public Library. The book collection hangs over the larger, more open reading spaces, which wraps through the building. The entry level, containing most of the administrative spaces, has the most informal reading space, connected to the major atrium, intended to be the place with the highest level of disruptive activity and noisemaking. Opposite the wrapping spaces, is a core of small, intimate reading rooms, allowing intensive, individual, focused thought, while having the only view out to the ocean.

Figure 18: Study models of library project: (a) Library on site; (b) Color-coded sun study; (c) Site contour study; and (d) Physical study model.

6. Final Requirements for Project Development

Final deliverables for the course were:

For Design Studio:

- Composite poster of project (4 – 20" x 20").
- All process files organized.
- Power Point of the entire quarter's design process sequence.
- A Reflective Design Process Narrative Essay that explains the student's approach to design and how design tools were used through out the entire process.

For Building Constructability Studio:

- Three Diagrams (Structure, Program, Circulation).
- Full set of Line Drawings for project (1/8" scale plans and sections).
- Cladding System Details.



Instructor's Reflections

This is my favorite part of the quarter in starting to see the synthesis of lessons learned from earlier foundation exercises into the refinement of all of the students physical and digital models and details. It seems that the range of alternatives students developed early on in the quarter and the range of media that they worked with, allows many of the students when they get stuck to get inspiration from parts of earlier studies as a way of moving forward. It also allows me as the instructor to assist students in moving them along on the project refinement path by pointing out solutions they had early on to current problems.

Student's Reflections

At this point in the project, I was really overwhelmed by how the project cladding details were going to work. I had finally figured out my circulation, but I was insecure about it and it needed refinement. Having to figure out the cladding and talk about the program helped make decisions about how they tied back into the site and concept.

It's difficult to remember that it wasn't until Week 7 that all this was clarified. In my current design studio, I need to have patience with this new project I'm working on so that I can develop a strong vocabulary in order to let the qualities of the building emerge from this process in a cohesive way.



Journal: Friday, 11.21.08

1. I think the biggest thing I've been learning is that I need to do things right away so that I have a chance to develop multiple design iterations of my project. When I don't just dive into studying what is possible, I end up spending just as much time thinking about what needs to be done as opposed to just doing it. Also, I try to always tell myself that I love my project, I do love it, but sometimes I look at other people's stuff and think—oh, my building needs to be more this way, or more that way, and I seem to lose sight of the strengths that I do have.

2. It's just kind of crunch time (as if that was different from the rest of the quarter, heehee). But the major push will be 1/4" scale vertical cross-sectional model (which focused on showing the connection of building cladding system to building structure), which is hard to work with because of the section of my building that I chose to study in this larger scale due to the angle and cantilever that I have for this book storage space, so I do hope that it is able to stand up. Also, trying to develop digital immersive views, and cleaning up the digital model a little is a focus during these last efforts to refine my project. The development of my four 20" x 20" posters are on track, but I need to print out another test print for Monday, so hopefully I can have the final prints by Wednesday because of the limited business hours due to the Thanksgiving holiday schedule.

3. Thanksgiving (!!!!)...still trying to decide if I want to make the drive home or not.



Figure 19: Library project Cladding System: Channel glass: Exterior side: Sandblasted, Interior side: 'carissimo' transparent. Top: Sample application; Bottom: Detail of channel glass connection.

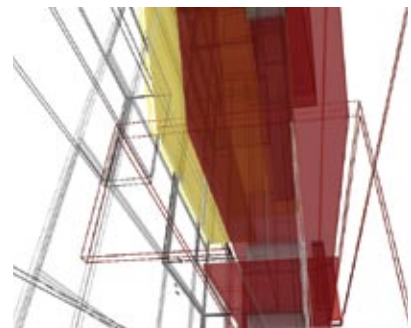
Instructor's Reflections

Students' have about 2½ weeks to refine and develop the details of their design projects. In the connected building constructability activity course, students are required to develop cladding details and specifications for their design project.

Student's Reflections

It's stressful to be making a mess working in five different media trying to develop the design because nothing is done and I felt like I had only half a clue of what was going on. But eventually everything starts to come together in a serendipitous way. The last couple of weeks in the process were filled with producing final models and details. At this stage in previous studios, I have been unhappy and wanted to change significant parts of the design. But with this quarter, I was confident that I had worked toward a strong, cohesive design. I do feel that certain aspects were rushed and I would have liked to develop them further. But that is a much better feeling than wanting to change the building. I was able to learn a lot from the final critics comments, and I'm excited to apply the concepts from this process to future projects.

Figure 20: Immersive detail study view 1, by Jester.



POWER OF BOOKS

Traveler gathers knowledge from books or daydreams; exhales and returns.

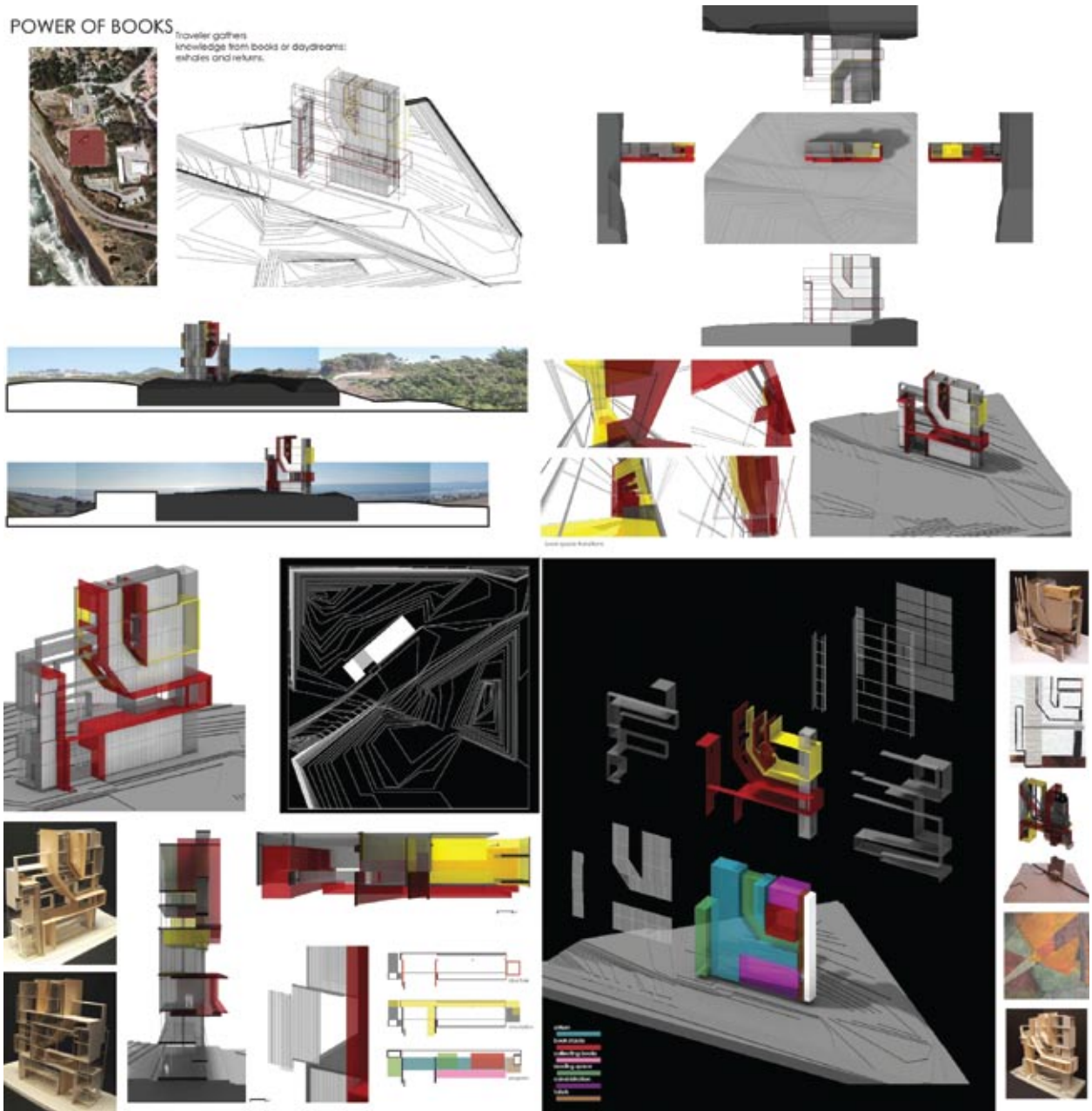


Figure 21: Final project boards of Library project, by Jester.

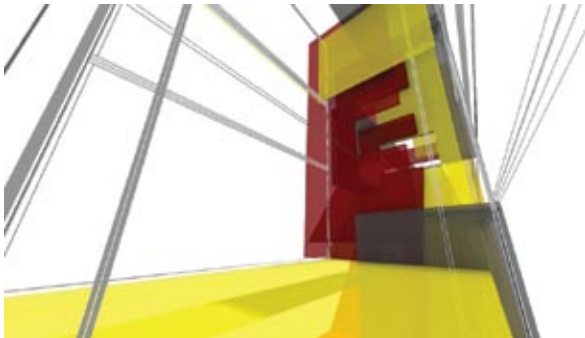


Figure 22: Immersive detail view 2, by Jester.

Student's Final Reflective Essay on the Entire Quarter's Design Process⁸¹

Digital Modeling Experience

Before this class, I had a small amount of experience with form•Z from my first year classes. I also harbored MUCH bitterness toward computers!! I have too much computer drafting experience, drawing construction documents and dreaded toilet room details for large (boring) commercial projects. I hate how flat and lifeless things are when they come out of the computer—and the computer thinks it knows how you want everything already!!! I love the way the hand can make something look raw and real, give it character, and it just naturally shows the bias of the author. I took this instructor's class even though I knew there would be a digital requirement, because I also knew that there would be a lot of physical model building as well, so I figured that my emotions could handle it, as long as digital work wasn't glorified.

form•Z isn't hard at all, you just need to know a few basic commands and it goes pretty smooth. I learned that developing digital models along with analog models gives another lens to your thinking and design development. Digitally, you don't have to worry about gravity for one thing, and it just has its own quality that adds to development of the vocabulary of the project. I did a little modeling in Revit for one of the case study projects, but I hate the interface. It's like using Microsoft image editor instead of Photoshop. It's more geared toward production than design.

The Design Process

Our process began with the found materials model. It was fun to build something architectural that wasn't architecture. This process allowed me to stress less and focus on the development of the vocabulary and the first impressions of space. My digital vocabulary model was not as strong as my physical, but I think the digital work was what pushed the development of the formal 'wrap' of the buildings envelop that happens in my building. The program was easiest to explore digitally, but it still had some unclear areas until I made the jump to the 1/8" scale physical model. Until that point, I found collage to be a good way of clarifying my intent. When I would get frustrated by modeling, a collage of the plan or section acts as a quick way to diagram the important pieces that are emerging and develop the hierarchy of the project. The site painting provided a great way to look and analyze the site and provide the inspiration for the site manipulation and connect this to the overall architecture of the project. Plus, it was just fun to paint!!! After the mid-quarter review, I had to rethink my site manipulation and how it responded to the larger context. I think the sitting of my building was actually stronger before the review. There was a lot of energy in how it sat on the edge of the void that went through my site (as this was developed from my painting) but in working with the actual topography, I couldn't get the void to be as effective. It became very awkward. I think a better understanding of the approach to the site and its relationship to the context

would have helped with the development of the site.

The Case Study Precedent Projects

Inevitably, with group work, not everyone carries the same load, just like how the weight of a car isn't evenly distributed on the tires when it's in motion. So, at times it felt like, "I just want to do this myself if you're not going to put any effort into it!!" or "I'm really sorry because I feel like I'm not helping you right now!!" But it was actually good to work in groups because so much more got accomplished than any of us could have had time to do individually. I feel like we got a holistic view of each project—most helpful was program, cladding, and drawing representation. The only thing I think was missing was that we divided up the work the same way every time—so we would do the same part of both buildings, instead of doing something different and learning a new part.

Conclusion

This quarter I learned how to develop a design process. Normally when you are moving so fast, totally absorbed in design, it goes by in such a blur that you weren't paying enough attention to absorb what you're learning. The daily aphorisms and weekly journaling forced me to take a break and reflect on what was going on. I really enjoyed that, and I hope to continue the habit. The found materials models were a great starting point and guide. I'm not sure in what ways it will manifest itself in future projects, but I think it's important to have some sort of inspiration and analysis to launch a project. Otherwise, you have an architecture that is trying to accommodate only words. I remember writing at the beginning of the quarter that I wanted to learn how words effectively supplement the development of the architecture, because I had a bad relationship to the development of my project's narrative and the connection to the developed architecture last quarter. Most importantly during the period of 11 weeks this quarter, I learned how to SUSPEND DISBELIEF and through constantly going back and forth between media—digital, physical models, drawing, collage—pieces of the project begin to surface on their own and this allows you to discover what your design wants to be. It really did feel a little like being a sculptor, like Michelangelo working to release David from the block of stone. I loved how encouraging this class was. My curiosity was always encouraged to take an idea further, develop it more and see what it could turn into. That taught me not to second-guess myself too much. Any decision you make will inform future ones, so don't spend too much time worrying about every little thing you do. Just DO SOMETHING and develop it, instead of changing and starting over and never having time to give anything depth. You have to have faith that it will turn out even if the first version looks bad. It's like painting—the whole time you are working on a painting it never looks like the final painting, you might hate it sometimes, but you keep adding layers and changing it until it's done enough.

Instructor's Final Reflective Essay on the Entire Quarter's Design Process⁹¹

Digital Modeling

Over a 12-year period of actively integrating digital media into the design studio's building design process, I find even though more students have knowledge of a range of digital modeling software (there is a lot to choose from today) it seems that still students do not come to class with the level of understanding of how to best use these digital tools as complementary tools in the building design process. What I also find interesting is that there are still only 30% of the students that I get in my design studio course (same as it was in 1997) that feel comfortable using digital media as an integral part of the design process. Some might argue when they see this statement that it is an issue related more to Cal Poly, but it seems to be an issue that I have seen in a number of other programs. I have found over the years that the way to bring all students to a similar level of integrating the use of digital media in their design process is to set them up in technology tools teams the first day of class and get the groups to complete a warm-up exercise that requires the use of digital media for a design assignment. These groups are balanced with a range of skill sets with students who know a great deal about the digital tools to those who know very little. The ones that know little, do much of the driving to complete this warm-up design assignment and this seems to work in at least starting the class with more of an even sense digital tool proficiency. Sarah used **form•Z** in a balanced and integral way with a range of 2D and 3D physical media, which seemed to assist her in moving her project along. I don't think she would have had the same success if she chose to use only physical or digital media exclusively. It was great to see her excitement at key design milestones, periods in during her design process.

The Design Process

Giving students a tight framework to divide their design process into several inter related assignments, seems to assist the students in moving the development of their design process along. With the use of digital media I find it useful to have students freeze and archive digital work many times on a daily basis, since sometimes the longer something is worked into, the more it starts to lose its clarity. Models that have been archived allow students to go back a step and then continue working. Also the idea of printing out and leaving digital models up along side the physical models does help students to see how these two versions of the same thing give different readings of their project.

As a key part of the design process I have also found that not letting on to students what the actual building type and program are until much later in the quarter (around week

number 4 or 5) allows students not to be side tracked early on in the vocabulary development stages of the project with the particulars of building program. It seems like studios sometimes are too much about designing for a particular building type and not enough about pushing the envelope of developing strong design vocabularies.

Sarah, like many of the other students in the studio, were very good at getting the most out of responding to the range of assignments to move the design of the project along. It seems that not all students are comfortable working on a series of parts that eventually lead up to becoming a whole project, so I need to continue to find ways of improving how this process is framed in the studio assignments.

The Case Study Precedent Projects

Over the years I have discovered that the analysis of key case study projects in groups can really assist the individual students in establishing a kind of kit of parts for how these projects work regarding the connection of concept to program, structural systems and cladding system configurations. Students also discover some of the inconsistency of projects that are analyzed, which does add to the level of discussion in the studio. The difficulty that students seem to have is the using of the lessons learned from case studies as a foundation to build their own arguments for project. So framing assignments that require students to reuse analyzed case study components is always something that I am trying to figure out how to improve on as to how this happens. The individual re-representation case study project was a new assignment to see if it would help students improve the way that they were able to represent space in plan and section. Students did seem to acquire more of an appreciation representing projects in plan and cross-section drawings and did use these strategies for developing their own designs, but I needed to spend more time with the students in the refinement of their final drawings for design project. Drawings were better than usual but more improvement is needed in this area of studio regarding expectations of the level of the quality of drawings for projects. It does not seem that 2D plan and section drawings are valued the same way as 3D digital models.

Sarah's project benefited from her re-representation of Ito's Media Tech project in the way that she developed a series of vertical voids in her tall volumes of space. She did get stuck a bit on how to best configure the circulation system to work with the vertical voids in a thin and tall vertical enveloped building, but she did get it to work after a few iterations of design.

Conclusion

I learned a great deal this quarter about lessons to improve on in future design classes. I thought I probably had students spend too much time on carving into the solid corrugated cardboard inhabitable book models (was the way that I got students started on connecting reading to space), since I think it was at the expense of the further development of the digital models. Over the years I have discovered depending on how assignments are framed in the studio and the timing of when students are being asked to use digital verses analog tools really depends on whether the outcomes of the student work will be more

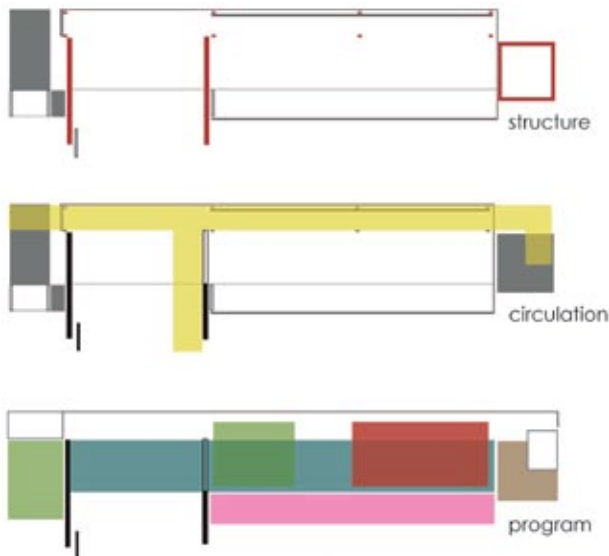


Figure 23: Library project 2D diagrams (structure, circulation, program), by Jester.

digitally or analogically project developed. I don't know if there has ever been an even balance of physical and digital models developed to the same level of refinement. I do think this was more of a physical model quarter with many great results, and the digital models were used as a way to understand aspects of how the projects worked regarding cladding systems and in many cases simulating the day lighting qualities in the interior spaces.

Notes

- [1] All student design work in paper (except where noted) is authored by Sarah Jester.
- [2] Weekly Journal by Sarah Jester, Third Year Student.
- [3] Instructor's Assignments and Samples of Student's Work, by Thomas Fowler, IV.
- [4] Post Studio Reflections by Instructor (Thomas Fowler) and Student (Sarah Jester), these comments were written after the quarter was over.
- [5] Concept Statement from Group ADLV Warm up Exercise, Sarah Jester, Naoko Miyamoto, Shawn Morse, Paul Hedgcock.
- [6] The Bay Area Figurative Movement, <http://en.wikipedia.org/wiki/Bay_Area_Figurative_Movement, Accessed September 26, 2008>.
- [7] Response to Mid Review Comments made by Critics, by Sarah Jester. Each student responded to their buddy note taker's summary of the comments made by critics during this review.
- [8] Final Reflective Essay on the Entire Quarters Design Process, by Sarah Jester.
- [9] Final Reflective Essay on the Entire Quarters Design Process, by Thomas Fowler, IV, AIA.

References

1. Fowler with Bermudez, Univ. Of Utah, Bennett Neiman, Texas Tech Univ., "On Improvisation, Making, and Thinking", October 2005 ACSA South West Regional Conference Proceedings [Conference Cancelled, but proceedings published].
2. Fowler, Muller, Physical and Digital Media Strategies For Exploring "Imagined" Realities of Space, Skin and Light, ACADIA 2002.



Thomas Fowler IV, AIA, NCARB, is a Professor at the California Polytechnic State University, San Luis Obispo. His teaching responsibilities include third year design and building technology courses, working with a range of independent study students, co-teaching an interdisciplinary fourth year design studio (architecture and architectural engineering) and directing his digital media facility founded in 1997, called the Collaborative Integrative-Interdisciplinary Digital-Design Studio (CIDS). During his career he has received numerous awards in recognition of his teaching and research activities, which includes: American Institute of Architects (AIA) Education Honor Awards for the Integrated Project Studio (IPG) taught in collaboration with full time Lecturer Barry Williams, AIA in 2009 and for CIDS in 2008, selected for the AIA Doer's Profile in 2008, received the College of Architecture and Environmental Design Wesley Award for Teaching Excellence in 2007, the Architecture Department's Faculty Teaching Award in 2005, received the Young Faculty Teaching Award from the ACSA/AIAS in 1996-1997, and was selected as part of the Young Architects Competition, Progressive Architecture magazine, July 1994.



Sarah Jester is originally from Placerville, CA, a historic gold rush town. Outside of architecture, she likes being outdoors, hiking and running. She also has a classical piano education, and enjoys drawing and poetry. She is very interested in the design process and the way different digital and analog media contribute to the understanding of a project. Before using **form•Z** in the fall, Sarah did not understand how digital media could benefit a project. Since then, she has realized how crucial it is to developing the project and keeping it moving forward. Sarah looks forward to next year when she will be participating in Cal Poly's SOM Professional Studio for Advanced High Rise Buildings, where she will gain valuable experience in the building design process and how technology is used in practice.