GoodFastCheap

GoodFastCheap is an alternative Design-Build model that privileges speed and efficacy in an effort to break down barriers that may otherwise prevent a majority of students from participating in Design-Build projects throughout their academic tenure.

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DEMOCRATIZING DESIGN-BUILD

Good in these projects refers to the ability of students to engage a social agenda while advancing their disciplinary knowledge; an effort toward both intellectual and social good. But the definition of good is also positioned in a way that accepts Fast and Cheap as having positive connotations in their ability to deliver agency to the students; empowering them to act. In other words, the good described in the projects below allows a greater number of students to partake in the process of Design-Build; more student participation equals more good.

Acting fast requires that we accept a variety of scales and let time become a more definitive design driver. For instance, we may begin with a constrained amount of time as the ultimate design driver and ask what is possible within this time. This develops a resourcefulness in our students that helps them conceptualize alternative practice models wherein every material encounter in the world becomes ripe for speculation as a project. If students and faculty embrace GoodFastCheap as a Design-Build model then the waiting game is over; no more waiting for a grant, a sponsorship, a donor – engagement in the process can begin immediately.

Cheap embraces materials that may typically be thought of as waste. This is not new to Design-Build but we embrace this part of its history unabashedly. Historically there are pleasures in the cheap being masked by our current educational model that overemphasizes the expensive. Cheap is all that some people can afford, so good designers need to learn how to make cheap appealing.

This paper will discuss projects that have been built within the academic setting that embrace the principles of GoodFastCheap described above. The first project, Barn Again, involves the reuse of falling barn materials which were harvested for a series of Design-Build efforts focused on hybrid assemblies that created multiple spatial installations and eventually a unique piece of furniture for a social organization. The second is the Super Sukkah, a competition that involved the design and

construction of a temporary pavilion that merged conceptual opportunities with logistical challenges as an animating condition of the architecture. While the final projects discussed, the 2to3 Chairs and the Drift Lamp are examples of small scale, rapidly produced furniture design and construction projects that have the pedagogical value of understanding the nuances and traps of the transition from design to build without having to wait too long for the results.

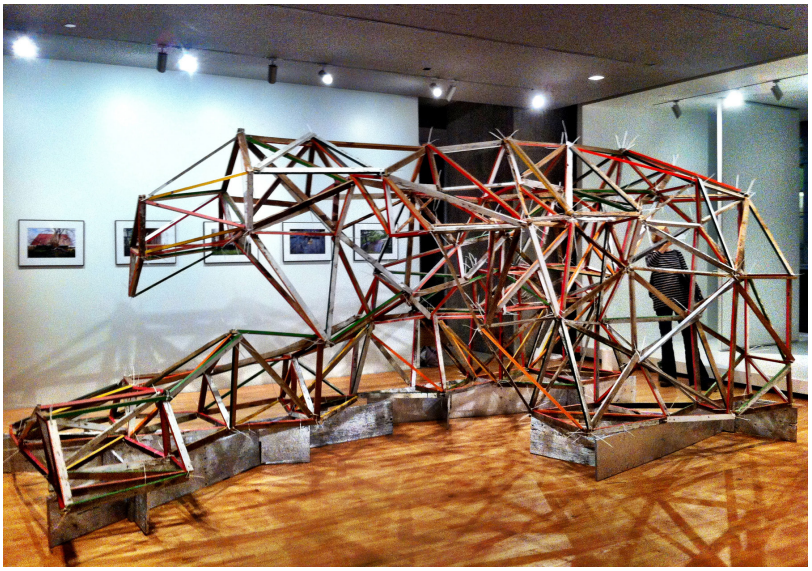

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Figure 1: Barn Again Installation

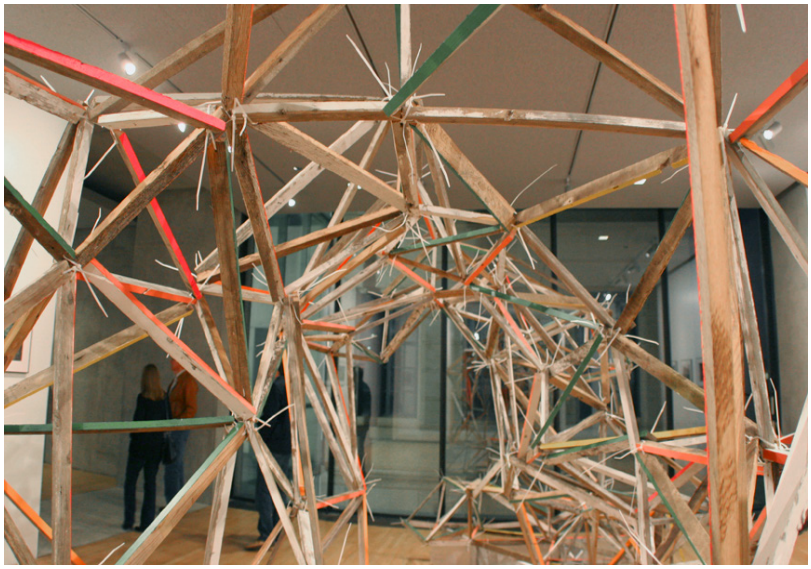
BARN AGAIN

Our interests and inspiration for the project were two-fold, contextual and disciplinary. Inspired by the photography of Falling Barns in the Ozark region by Phoebe Lickwar, we became interested in the possibility of reclaiming the wood of one of the barns to live on in a spatial installation that could travel and be adapted in a variety of contexts. The social agenda of project was a means to contemplate the extinction of an American rural archetype in the context of contemporary architectural form without being nostalgic.

Lickwar's images revealed two consistently oppositional qualities. On one hand was the persistence and resilience of the iconic figure of the flat façade in many of the barns well into the process of decay, and the other, a dynamic filigreed space of immense depth as the wood members began to fracture and become suspended in animation. Our installation began as a speculation on how to synthesize these two competing conditions within a single architectural space or folly, to design a process that would create an otherwise unimaginable space with unique affects, offering visitors the possibility to walk through and experience a space that they could not otherwise engage.

As the design process unfolded, it became clear that we were engaging the recent history of discipline's interests in the architectural object, as the image of memory or motion. The image of memory, suggested by the transformation of vernacular or iconic form and style, best exemplified in the "Ghost Houses" of Johnson at New Canaan or Venturi at Franklin Court, use outlines or profiles of figures to suggest immediately recognizable images without facades transformed into a new kind of architectural space. The image of motion, suggested by deconstruction, and brought to fruition with the rise of the digital in architecture reached its apotheosis with

Shop's PS1 Dunescape from 2000. Fields and patterns of flocking and swarming points, lines, and planes persist in the contemporary architects' design of pavilions since the Dunescape. We saw the design of our pavilion as the reconciling these two positions, speculating on the possibility of developing a logic of post-modern computation, having both the image of memory and of movement, at once both informal and classically formal and frontal.



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As a point of departure, we lifted, and lofted, profiles traced from Lickwar's photos. The profiles were scaled with dimensions positioned to fit within an 8' wide x 8' high x 16' deep envelope. This was the largest dimension within the Smith gallery that would allow for visitors to move both around and through the installation, to experience it as both an object and a space. The series of spline profiles were then lofted in an expedient process that produced an unpredictable and strange geometry. In anticipation of constructing the installation out of nominal length wood members, the geometry was translated into a three dimensional faceted space frame of similar length line segments, creating a filigreed spatial affect.

To insure the complex shape could be built quickly we developed a computational process that would allow the installation to be fabricated and assembled by hand, as an act of construction. A script was developed that would not only rationalize the geometry, but would color code each segment by length, and ultimately produce a set of shop drawings for construction. The plans and sections of color coded line segments corresponded to a nominal grid, labeled as coordinates in space. This automation facilitated a quick turnaround for new shop drawings as the shape was tested and adjusted for structural stability, clearance, and accessibility requirements.

Century old yellow pine siding and red oak battens harvested from a local falling barn are the principle material used in the installation. As expected, the vintage material was weathered, warped and inconsistent. The wood could easily be cut to nominal length and widths, but precision geometry, fussy detailing, and exquisite craft were out of the question. Joinery would have to be elastic enough to allow for material movement and to accommodate the inconsistency of the processed wood members. The zip tie was ultimately chosen for its inconspicuous aesthetic, flexible, and quick assembly.

Figure 2: Barn Again Installation Close-Up

An experiment in expedient construction process within the Design-Build model, those that built the barn did not design it, and did not know what the final product was to ultimately look like. This released the constructors from attempting to create an idealized image, and allowed them to progress expeditiously. One piece at a time, line segment by line segment, and the shape emerged as the color coded pieces were accordingly zip tied together. Essentially a self-supporting largely tensile structure, the final form was "found" only after the last piece was installed.

The use of found, inexpensive, and non-traditional materials and construction techniques allowed for the installation to be realized economically. As with any Design-Build program, cheap labor doesn't hurt, but for around $350, and in about 2 weeks, this sizable installation was brought to fruition. A testament to the nimble design and construction methodology, the installation was reinstalled as part of a juried show, with a different size and form, but with a similar process to its realization. Additionally, months after the final exhibition, a service opportunity was presented to the Fay Jones School of Architecture to make a reception desk for the local food bank. Faculty and students again worked together to repurpose the wood into laminated planks and screens that would insure that the once falling barn would have an extended life, albeit, in a new form.

SUPER SUKKAH

The Super Sukkah project was prompted by an annual competition that involved the design and construction of a temporary pavilion that attempted to rethink the traditional Jewish Sukkah as a 21st century phenomenon. The project translates the Star of David into a three-dimensional shelter with a distinct day and night presence. Just as the traditional Sukkah was covered with materials that were once organic but have become disconnected from the Earth, the Super Sukkah's day time presence disconnects the slowly evolving characteristics of the organic materials in its immediate environment through the act of surface reflection. The day-time phenomenon signifies an environmental absence as the Super Sukkah becomes a Chameleon that reflects the nature of its surroundings. The night presence of the Super Sukkah is a geometric inversion that provides a new figural character defined by the illumination of the interior surfaces into Citron, Palm, Myrtle and Willow - four plant species important to Sukkot. These colored lights become a campus lantern whose figural presence glows from the energy gathered on one of the Super Sukkah's photovoltaic surfaces. The Super Sukkah employs reflection [absence] and transmission [presence] as both an embodiment of the Sukkah's rich cultural heritage and as a reinterpretation of its continued meaningfulness in the 21st century.

We learned about this project approximately one week before the competition materials themselves were due and approximately 3 weeks before the finalists Sukkahs would have to be constructed on the Washington University site. This project also happened outside of any formalized class structure and so would not be able to consume much of our or the student's time. In other words, the fast in GoodFastCheap would act as a primary force in determining how to execute the project successfully. We quickly gathered a team of interested students and began working on strategies that could employ a minimal amount of material to create a maximal amount of space. Using the triangulated character of the Star of David we began to experiment with a series of triangles that could be extruded and rotated to create dynamic form and space. Through this process the triangles became pyramidal shapes that rest against each other to form the space of the Sukkah itself.

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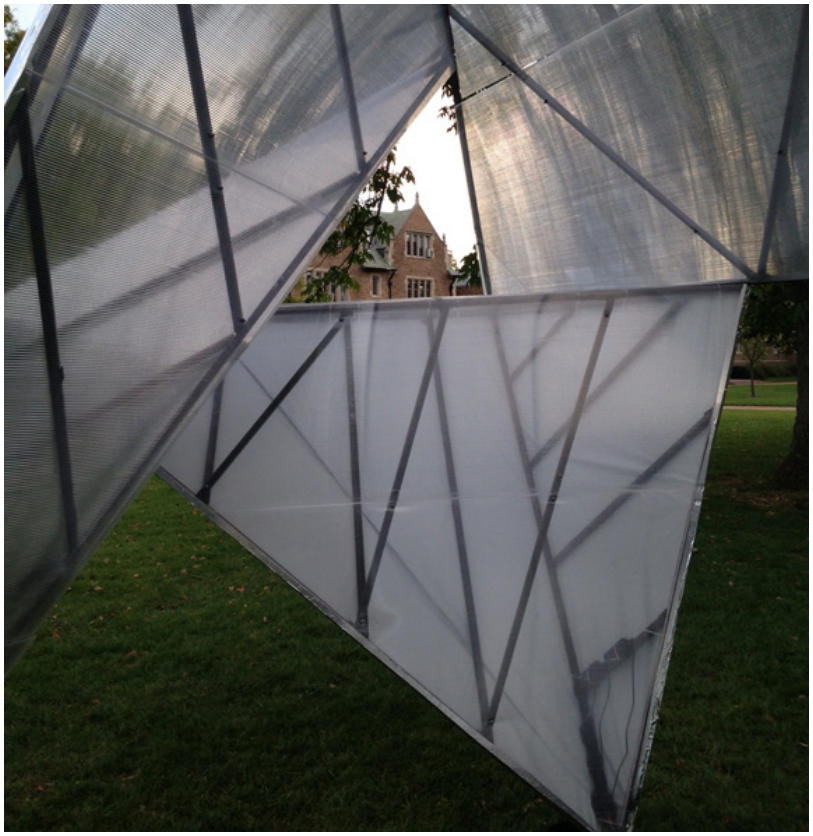

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We asked the students to drive much of the build effort with limited guidance from the faculty (good). They gathered their team and as word spread about the project more students joined or volunteered to help when their schedules allowed. As mentioned earlier, fast became a given in this project due to the ambitious project schedule set by the Sukkah competition committee. We had a limited budget (cheap) and so the students had to economize and determine how things were to be done within a limited means.

Figure 3: Super Sukkah at Night

Figure 4: Super Sukkah Detail

The GoodFastCheap model of the Super Sukkah project taught the students that they had to be self-starters, had to learn to make decisions quickly, and had to work within a very specific set of constraints. We believe that this process teaches leadership, maturity and the ability to compromise a particular design intention to employ a deeper creativity by inventing another intention that may be necessary to get the job done.

2TO3 CHAIRS

Beyond the larger scale project discussed above, furniture Design studios are an opportunity for students to take architectural projects from concept through full-scale construction as well. In many cases this is their only opportunity to do so during their tenure within an architectural curriculum. Critical knowledge, such as the effects of material properties and the nature of material assemblies on design decisions is often lost on students whose designs have remained too affixed to the virtual world. This problem reveals itself most frequently in the furniture design studio when students, who haven't had the opportunity to test their drawings through hands-on, full-scale building, put together and test a descriptive drawing set. The process of construction of the full scale piece reveals many of the drawing's shortcomings, such as lack of details, misunderstanding about how certain elements will be supported, or an over appreciation (or sometimes under appreciation) of material strength. These problems are symptomatic of a lack of understanding regarding the physical nature of material and an over reliance on two-dimensional, "virtual" space. Through the process of construction the students discover the inadequacy of what they believed to be a comprehensive and descriptive drawing set and gain an understanding of the level of thought, detail, and embodied knowledge required when developing a set of drawings. We believe that the GoodFastCheap model is perfectly for these smaller scale Design-Build opportunities as well.

Figure 5: Quartered Chair

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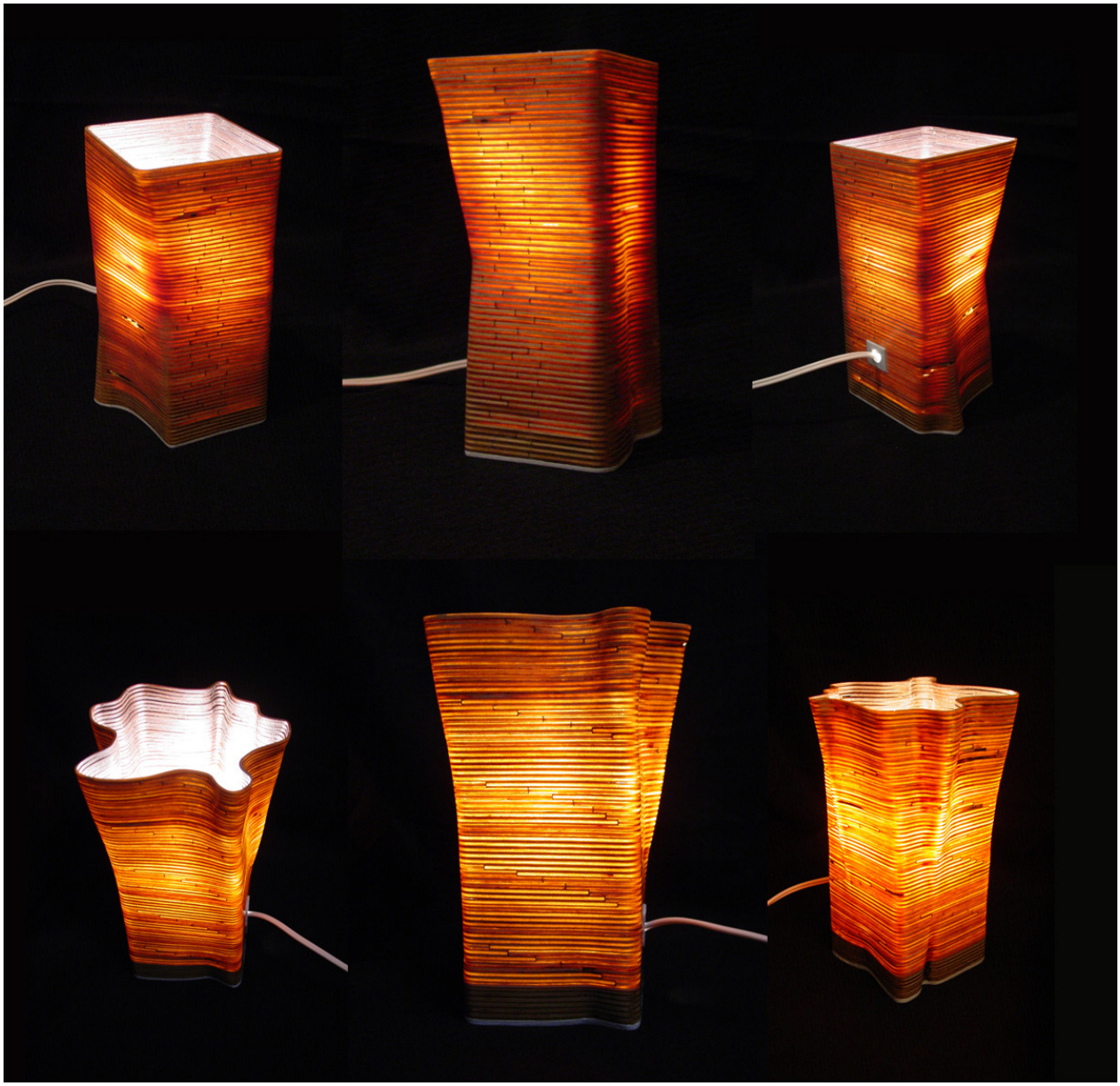

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An example of this mindset is embodied in the Quartered Chair, a piece of furniture built for 2-3 year olds out of a single 30”X30” sheet of Baltic Birch plywood that uses the CNC machine as the primary production tool. The Quartered Chair idea arose out of our fascination with the potential for using computer automated tools in the rapid production of low cost furniture products. Toward this end we set three primary goals for the project: minimization of waste (cheap and good), ability for rapid assembly (fast), and a playful masking of the two-dimensional nature of the stock material. For the 2to3 Chair project we translated the first two of the Quartered Chair parameters into the project brief but left it up to the students as to whether they wanted to conceal or reveal the flatness of the material from which their chairs were built. Beyond the goals of minimizing waste and rapid assembly the 2to3 Chair project focused on the transformation of a two-dimensional, 30”X30” sheet stock material into a three-dimensional functional object designed with mass-production in mind. By its nature this project forced the students to focus on issues of material

Figure 6: Drift Lamp

waste and tightened design constraints; ideas that they'll encounter repeatedly during their lives as practitioners.

The project brief for the 2to3 Chair created a design problem that added definitive material constraints to what would have otherwise been an open ended search for a formal solution. In this respect, GoodFastCheap became an embedded value within the project that forced the students to acknowledge process, material and time as values within a design project that have the capacity to transform and bring a definitive social meaningfulness to the outcome.

DRIFT LAMP

Our final example of how GoodFastCheap process can be employed in the academic setting is the Drift Lamp project. This project was done as a part of directed study with several students who signed up for the class due to their interest in the potential of small scale fabrication. The basic goal was to design a lamp whose form could be manipulated through a social network (good). In order to achieve this, a single parametric definition through Rhino / Grasshopper was created for each lamp that is transformed through a shared social network. The challenge was to design the definitions such that, no matter the allowable formal transformations, each new iteration would be able to be constructed as easily and quickly as any of the others. In other words, the parametric definition had to employ the constraints necessary to maintain a high level of order and organization in the lamp's manufacturability without being too limiting in terms of the potential formal variants (fast and cheap). This process emphasizes design as a social activity (good). The established parametric definition allows for virtually infinite variations with the same formal vocabulary - ensuring the uniqueness of each new lamp (good and cheap).

CONCLUSION

Small scale Design-Build projects, including furniture design and construction studios, offer a unique opportunity for our students to understand their relationships to society at large, to understand that time acts as a transformational value with a design and build process, and that the economics of a project has the potential to drive new form and material choices. The GoodFastCheap model empowers students and faculty, in a culture of tightening budgets, to become overly reliant on others to ensure projects get the momentum to become reality. This model ensures that the educational vitality that exists within Design-Build as an educational model is able to be experienced by all.