Oz

Volume 33 Article 3

1-1-2011

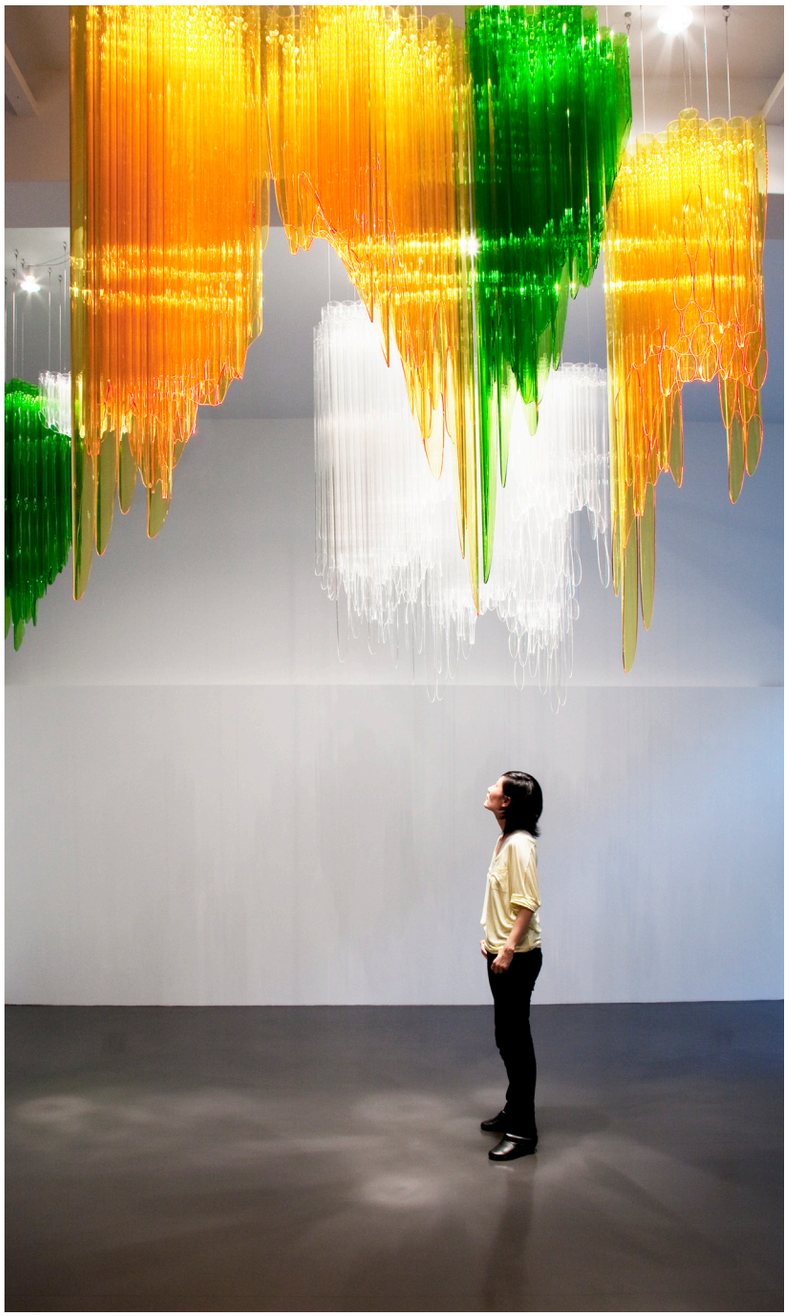
Revolutions of Choice

Frank Barkow

Recommended Citation
Barkow, Frank (2011) "Revolutions of Choice," *Oz*: Vol. 33. https://doi.org/10.4148/2378-5853.1485

Revolutions of Choice

Frank Barkow



The invitation to contribute to this volume of the *Oz* journal reminds me that even though I am now Berlin-based, I was born in Kansas City (albeit on the Missouri side) and that I spent much time in my youth in Atchison, Kansas from where my parents come. During one of those hot humid summers, I worked as a carpenter with a local construction crew on a number of jobs up and down the river. I was able to quickly affect that particular eastern Kansas drawl, listen to a lot of Merle Haggard, and am convinced that this was the essential core experience that kicked-off my architecture career, which then led to studies at Montana State University (near where I grew up) and then later to Harvard.

Following graduation from Montana State (where finding architecture work was next to impossible in a place where there are more cows than people), I worked for some five years in San Francisco, an experience that led through my licensing and apprenticeship while convincing me that I would likely be 50 before I got a chance to design a building myself. This led to graduate studies at Harvard, allowing me more autonomy to pursue my own work through teaching or private practice. I was something of an anomaly at Harvard, a 30-year-old licensed and experienced architect, a background that helped me develop projects quickly with an understanding for structure that led to a coveted teaching assistant job for George Wagner. That job then, two weeks after graduation, brought me a visiting critic position at Cornell, first in Ithaca, New York, then for their Rome program with Val Warke and Colin Rowe. A pivotal year, we met many good friends at the Rome academies who supported us with juries for student reviews, discussions, and trips down the Almalfi Coast. At this point, my girlfriend from Harvard (now wife and partner) Regine Leibinger and I decided to stop teaching, for the immediate future, and establish a practice in Berlin where Regine had studied in undergraduate school. In 1993, a reunited Berlin was still a very raw and dissonant place culturally and architecturally but for us the most vital and vibrant city in the West to imagine establishing an explorative and critical practice. Rents were cheap and a thriving art and architecture scene began to explode. Since then the practice has expanded from first projects, to industrial, cultural, and office buildings that respond to and are enabled by an expanding interest in emerging technologies, know-how, and materials transformed by analog and digital tools.

The topic explored in this issue of *Oz*, "augment," strikes me as a good fit for the type of research and practice we have been developing in our firm over the last 15 years or so. One ambition that keeps reoccurring in our practice is the idea of considering material(s) from the outset of a design process, and then identifying tools that can transform these materials, leading to a formal (structural/spatial) solution. That is, we are asking, how do you

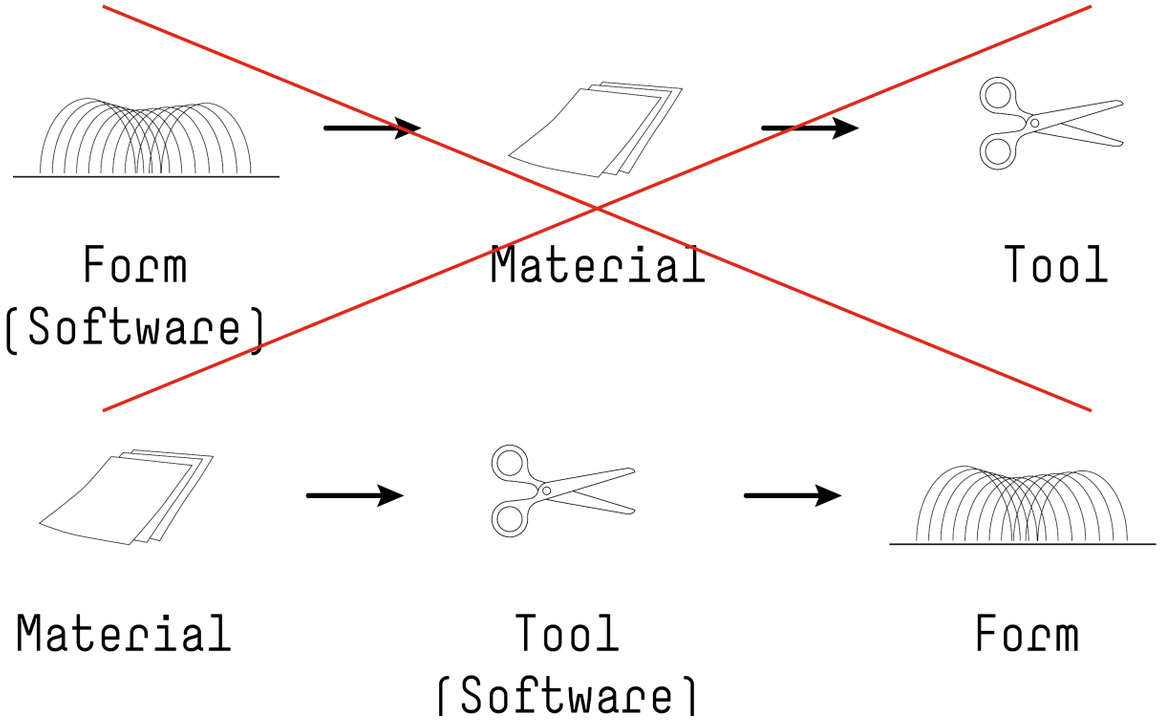
exploit a material's potential and how might that lead to an architectural solution that is less deterministic and less predictable from the on-set? Augmentation, like accumulation, is an accurate way to identify, archive, and apply fabrication systems (elements), which then contribute to buildings.

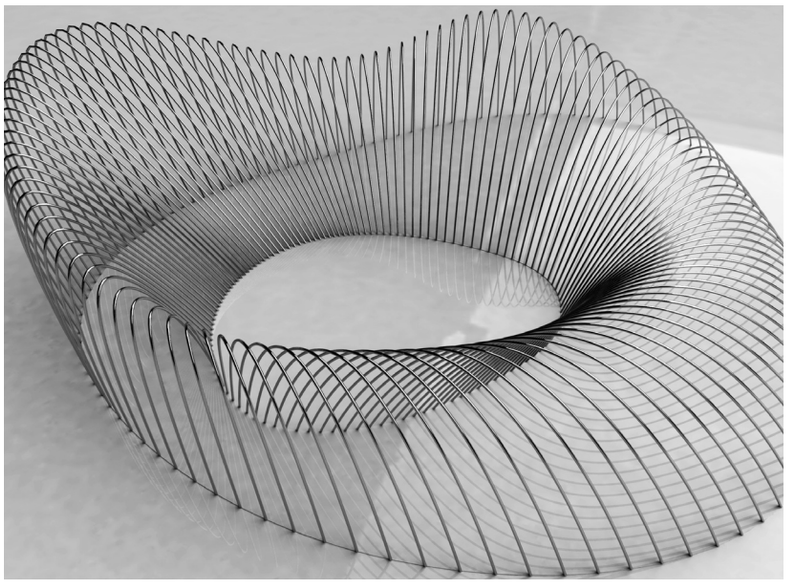
Another ambition, in our practice, is that our material research expands to take on all building components in a comprehensive way. For example, digital fabrication, at the beginning of the research, was a way of "accessorizing" the buildings, (hand-rails, built-ins, etc), with a secondary construction role. Now, it can contribute to all major building components, including structural systems and cladding.

Consideration of technique in our work, is very inclusive and is, in itself, an evolving form of research. Cutting, stacking, pouring, bending, weaving, or inflating with both digital or analogue controlled tools are all legitimate means of fabrication, and are all at our disposal. Action-verbs like these describe ways of activating material transformation. This means we are as interested in both digital software, (scripting etc.) in transforming material, as well as discovering more archaic crafts such as terracotta tile making or ceramics.

In order to discover new methods of fabrication, or to re-think old ones, student-interns locate (or are asked to research), for example, digital machine-tools. They learn what their capacities and limits are, including speed, economics, material compatibility, sizes, and geometrical range, and then begin to speculate, in the practice, on how they might be used. This research, or active-archiving, sets up a resource library within the practice as a latent archive that can be activated, when needed, for any on-going building projects. Critical to the success of this project is to establish research within the practice as a semi-autonomous discipline from clients, deadlines, budgets, or specific functional requirements. This allows an experimental approach to direct the work. This "Atlas of Fabrication," generates internal building systems independent from standard building catalogues, a revolution of choice, where architects can generate, test, and apply their own conceived and developed building components for their buildings. This empowers us, as we become our own best experts in determining the systems, which make up our own buildings.

While this form of research occurs within the practice, it extends to academic teaching where the interest is in closing the gap between practical and academic concerns, the physical and representational. We aren't particularly interested in teaching any particular technique, rather, we have thought about teaching as a research-based way of finding something out. A good recent example of this would be our teaming with Chris Bangle (the former head of BMW Group design) to apply his GINA technology (for a concept car), a kinetic elastic fabric skin covering a car body, to an idea for a sustainable suburban housing in a studio at the Harvard University Graduate School of Design. In this way, we are exploiting a technology from an outside discipline (the car industry) as an application to an





architectural problem (sustainable suburban housing) to determine a new result.

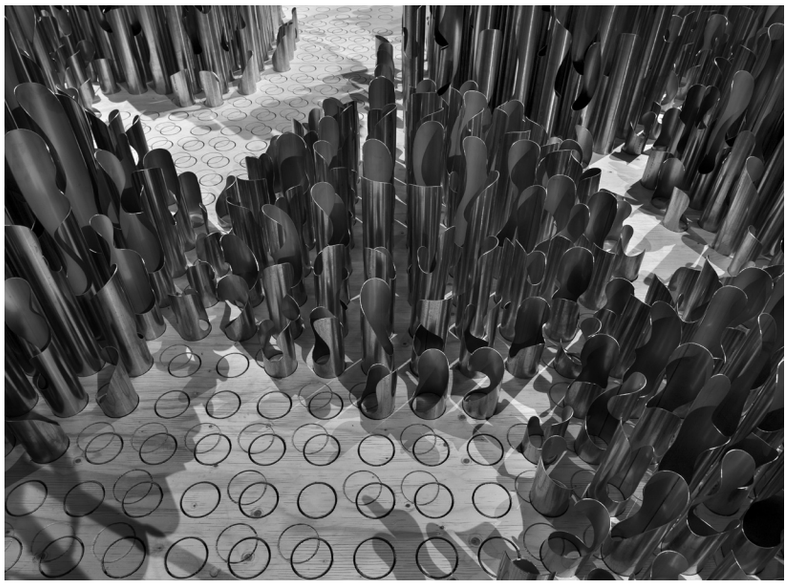
In order to support these forms of research, we have established a network of international fabricators that all offer different forms of expertise. These are resources that are constantly being added to or retired if replaced by a better process. Here, we find fabricators, who generally, are specialists as related to the materials wood, plexi-glass, ceramics, sheet metal, etc. While these groups are almost always good problem solvers, they remain open in respect to applications of their equipment and are as keen as we are in finding solutions. Perhaps, the most compelling aspect of interfacing with industry is how architects can speculate about how these technologies might be used. Here, digital information is aimed at controlling material tooling and workflow as a guidance system as well as a drawing system.

A search for an idea of an architectural prototype that emerges from the control of a technical system prefaced our work at the Architectural Association in the late-90s. This meant that understanding how to transform a material by a tool could generate architectural elements or types. This form of procedural reversal is an endorsement of the idea that design follows technology. Technology can enable new forms and spatial experience by exploiting its potential.

The one-to-one scale architectural prototype has become the single most important instrument in our work for gauging or determining an architecture's success aesthetically and performatively. A prototype that is wind and rain tested is also tested for its visual effect, as well as its economic viability. This is a way for us to close the historical gap between representation (models and drawings) and a building. The prototype does not represent an architectural condition, so much as it precisely duplicates and forecasts its material and tectonic characteristics and performance. A prototype (or mock-up) is the hinge project between the more speculative work (experimental) and the more conclusive (buildings).

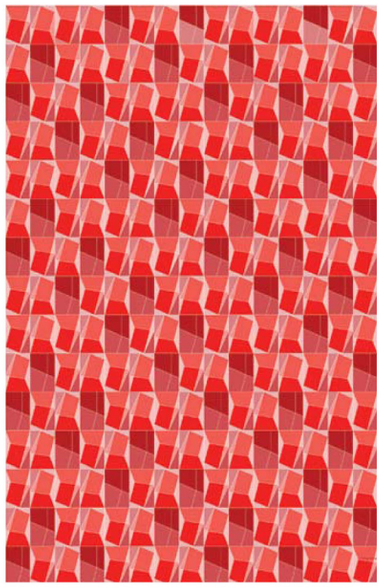
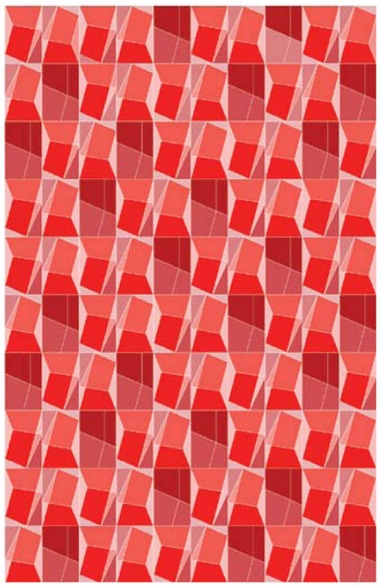
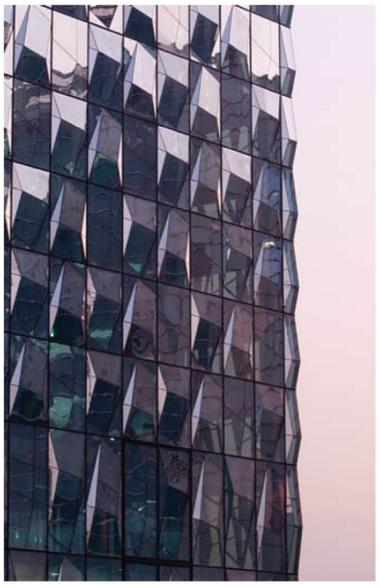
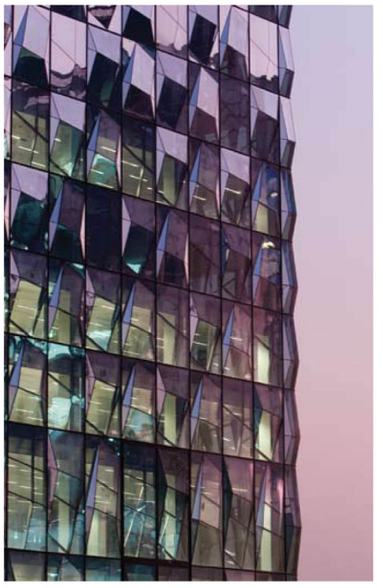
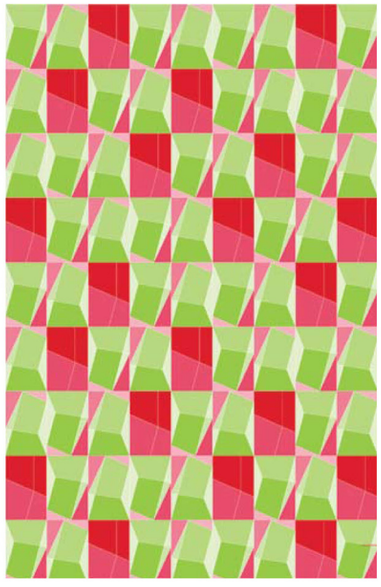
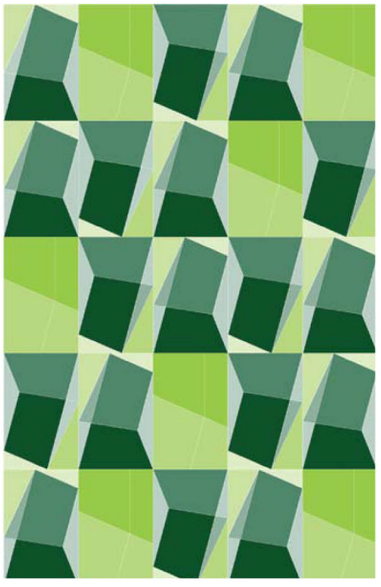
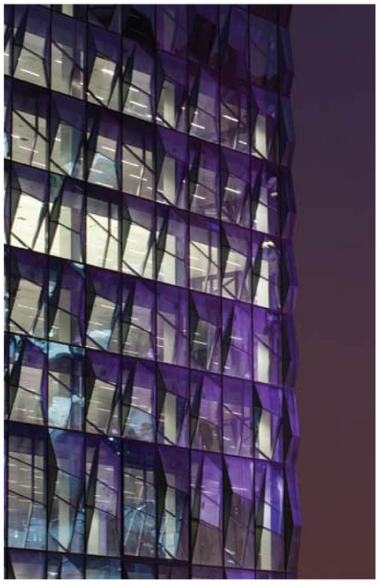
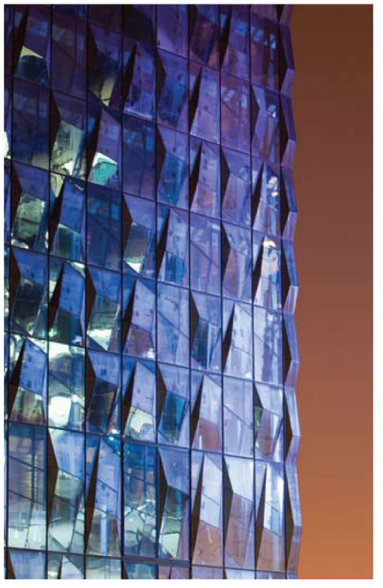
As the fabrication research evolves and is available to on-going building projects, it has also been supported and given direction to by architectural exhibitions. Exhibitions have transformed from gallery shows of architectural representations (drawings and models), to installation scale exhibitions, or demonstrations of our architectural prototypes. Here, the architectural exhibition is not referring to an architecture outside of the gallery so much as actually producing an architectural event of its own. It represents nothing other than its own material, spatial, and experiential effect.

Recent exhibitions, such as our project "Nomadic Garden," for the 2008 Venice Biennale, Beyond Building, Arsenal show; Re-visiting Ornament, Swiss Architectural Museum, Basel; "Atlas of Fabrication" Architectural Association, London; or the Pavilion, German Architecture Museum, Frankfurt, provide forums for our material research to be presented in a more speculative and provoca-



tive manner. These exhibitions are particularly useful because they offer direction to the research work, which is typically non-linear, offering a site that is temporary and less conclusive than on-going building projects. A kind of halfway house in-between the open-ended research work and complete exhibitions is useful because it formalizes research (into an installation-scaled project) while remaining inconclusive.

Despite the claim for globalization, we find enormous differences in building cultures around the world. This means if we are working in southern or eastern Germany, Switzerland, Connecticut, or Seoul, we will find extreme differences, limitations, and opportunities. Our method is to get on the ground, team with local engineers or architects, and find out

how best to exploit the conditions "as found," rather than trying to force a sameness, formally and technically in our work. This also means that our work differentiates in relationship to place.

A number of our current and completed building projects serve as case studies in other projects, which are driven by, and then absorb, fabrication systems that aggregate elements, contributing to unique and comprehensive solutions. The Trutec Building in Seoul, Korea was the first application of a digitally-fabricated facade at the scale of a large office and showroom building. Adapting to this building culture, local fabricators acquired European CNC equipment and taught themselves, with support from Arup Engineers, Hong Kong, to produce this complex facade combining two base window modules that create repetition and variation. The ambition is to create a visual effect, like a kaleidoscope, so that the facade reflects weather, passing cars and pedestrians, or nearby LED advertising at night.

Two additional projects: the Gatehouse and Cantina project for Trumpf in Stuttgart, now illustrate buildings where multiple fabrication projects are integrated comprehensively, including structure, cladding, furniture, pre-cast stairs, and ceramic tiles. The Gatehouse maps the logic of structural loading diagrams onto a parametrically-variable roof truss system that cantilevers an enormous 22 meters from the structural columns. The facade is entirely constructed of glass (float and plexi) in a double facade thickness of 20 centimeters, sandwiching a stack of varying plexi-glass tubes, which act as an ornamental screen and sun protection.

The roof of the Cantina is a hybrid construction of steel and laminated timber that, like a leaf, hovers over an excavation (at campus tunnel level), forming an amphitheater-like space for a cafeteria and event space. The digital fabrication of the honeycomb-like roof enables unique connections to occur, no two the same.

While technology fascinates us, it is a means to an end. Ultimately, it is the experiential and spatial effects that drive the identity of our work and this will remain so. These techniques and capabilities are all means for us to expand our knowledge, where we mediate imagination with the reality of technology as it becomes available to us. We feel this empowers us as architects, when we are able to situate ourselves precisely at the point where we have the best chance to predict and control the buildings we make. It is an incredibly fascinating and challenging time to be an architect, when the trajectories of emerging technologies, materiality, sustainability, and imagination intersect.

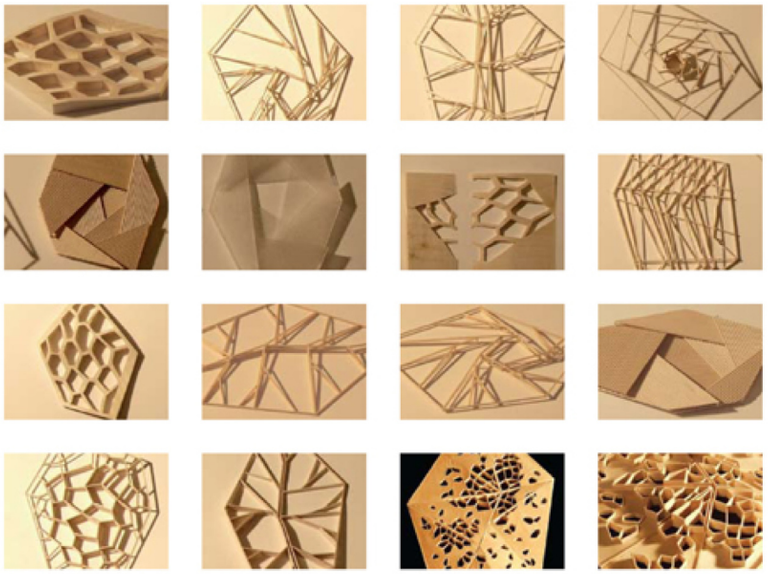


Photo Credits

Page 11: Corinne Rose, Page 14: (Top Left and Right) Amy Barkow Page 16: (Bottom) David Franck, all other images courtesy of the author