

# ANDREW KUDLESS AND ADAM MARCUS WANT YOU TO DRAW: AN INTERVIEW ABOUT DRAWING CODES VOLUME II

by *Katherine Jemima Hamilton*

Drawing Codes: Experimental Protocols of Architectural Representation, Volume II, is the second part of the two-part exhibition curated by CCA Associate Professor Adam Marcus and former CCA Professor Andrew Kudless (now at the University of Houston). The show brings together another 24 drawings from and architects of varying backgrounds to explore the ideas and forms activated by constraints and limitations. It is on view at the CCA Hubbell Street Gallery until September 24th. On Wednesday, September 29th, the Architecture Division will host Erik Herrmann and Ashley Bigham of the architectural practice Outpost Office for a remote lecture and workshop.

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**Scaffold**

For *Drawing Codes*, you sent a prompt to participants that placed restrictions, limitations, or rules on creative architectural freedom. The works in this exhibition are the innovative products that arose from those limitations. So, to begin, why did you want to do two volumes of an exhibition on constraints?

**Andrew Kudless**

Maybe it's a cliché at this point, but I've heard my professors say it when I was a student, I've listened to my colleagues say it, and I know I say it: we all design better with limitations. Pushing back on constraints is integral to the creative process. When we extended the invitation, it was fascinating how everyone interpreted the exhibition rules. This willingness to creatively work within the limitations did two things. First, the participants created exciting and unexpected responses to the exhibition rules. Second, the entire show has an aesthetic cohesion due to the various regulations such as the square format, the black and white palette, and the orthographic projection. And as diverse as the drawings are, they still hold together as a family.

*Drawing Codes, Volume II installation view at the Hubbell Street Galleries. Courtesy of Nick Bruno.*



**Adam  
Marcus**

We thought of the brief itself as an algorithm or a code. Andrew and I were thinking about how architects are grappling with the impact of computation, artificial intelligence, and all these new technologies on traditional architectural drawing practices. In many ways, these drawing practices have been marginalized to the point where you can build a building without drawing at all. We were interested in inviting others to interrogate this condition. By prescribing a set of instructions for people to follow (or, in some cases, not follow), our hope was that this common baseline would allow the diversity and range of all the drawings to become even more evident.

**Scaffold**

As you mentioned, one of the rules was conformity to black and white. Why was that limitation critical for both Volume I and II?

**Adam  
Marcus**

When we initiated the first volume of the show, there were definitely logistical motivations to some of these constraints. Keeping all drawings black and white and all at the same size made it possible to produce a sizable exhibition with limited resources. But beyond these motivations, we were also interested in the generative capacity of constraint, as mentioned earlier. It is common in first-year architecture school to impose a rule that students complete drawings in black and white so that they aren't distracted by color choice and can focus on the basics of line weights and line types. Similarly, in the show, having all the works be black and white and fit within a square frame allows the differences of each drawing to arise in a much more obvious way.

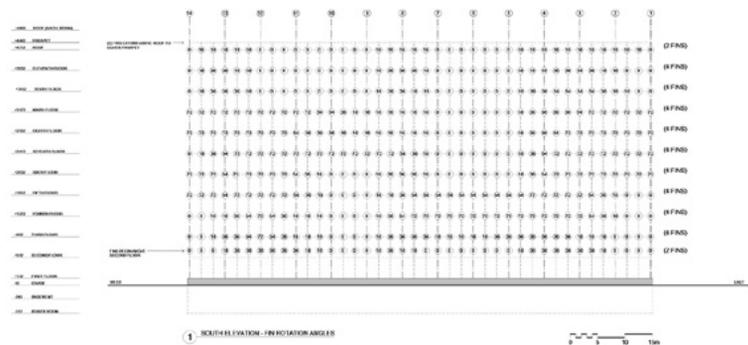
**Andrew Kudless**

Historically, architectural drawings were made using just a pen and paper. As rendering technologies have improved, we see these stunning, photorealistic images that speak directly to many clients or non-experts. Non-architects have a hard time reading architectural drawings, and we increasingly see digital models and renderings as the primary way architecture is communicated and designed. In this context, we intentionally backed away from rendering as an architectural medium and focus on the core of drawing to ask: is there still value to drawing in the discipline? And if so, what is the role of computational drawing?

**Scaffold**

The contributors' professions and practices varied widely, as did how these architects engaged with the prompts. But there seems to be one through-line: many of the creators who participated in Volume II pulled from the histories of art, design, and architecture. What themes emerged from the separate but related histories in this exhibition?

*Tsz Yan Ng, Twisted Concrete Codes.*



**Adam  
Marcus**

When Andrew and I lecture about the show, a few works we discuss consider how drawings are used in relation to the way buildings are made, and how new ways of making buildings might demand new approaches to drawing that differ from tradition. One drawing in the show that speaks to this is *Twisted Concrete Codes* by Tsz Yan Ng. This contribution is an elevation construction drawing for a project built in China a few years ago. It relates to the facade, which is made of hundreds of customized louvers. Instead of documenting the geometry of these complex louvers, the drawing simply includes numbers associated with the rotation of the vertical members of the building. It's an example of using a drawing in a productive way for a design created on the computer but translating it into information that is particularly useful to a fabricator and installer.

*Aranda\Lasch, Another Circle GPS Plan, Year? Material?*

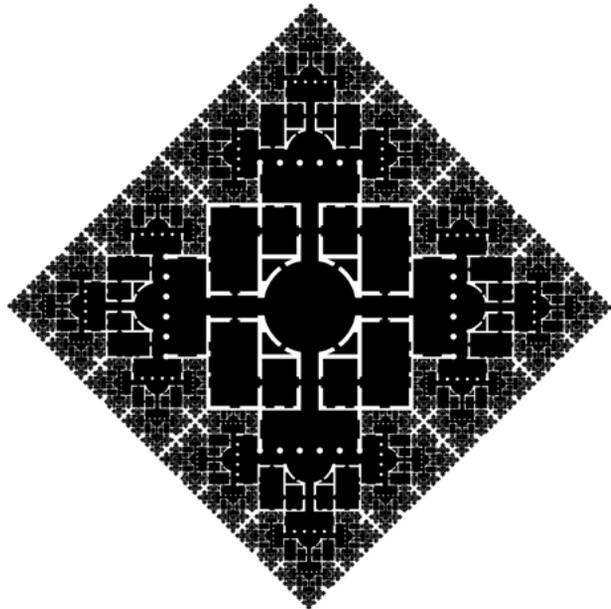


Another Circle GPS Plan by Aranda\Lasch offers another example of this kind of thinking. It's amusing when you first see it because it's a circular drawing of hundreds of little Google Map thumbtack icons arranged in an apparently chaotic pattern, relating to an installation Aranda\Lasch did several years ago in Columbus, Indiana. The installation consisted of a series of monolithic pieces of limestone placed in a field. The only information they had to communicate to the installers placing the rocks was a Google map with GPS coordinates; in their words, the installation was made with only "phones and stones." This drawing represents the use of geolocation data as a form of drawing to tell somebody who is not the architect how and where to install the pieces.

**Andrew  
Kudless**

The one that stands out for me in the current show is *Another Villa* by Outpost Office. To your question about history, this piece exemplifies a theme that runs through several other drawings: the specter of historic buildings in our new technological world. When we show this drawing during tours of the space, we'll say, "This drawing is based on a famous historical building that probably all of you know. What do you think it is?" Nobody knows. When we tell them it's the Villa Rotunda by Palladio in northern Italy, everybody sighs in recognition. The Villa Rotunda is this famous Renaissance villa that architecture professors and historians use as an example of the "perfect villa" because of its proportions and symmetry. In the drawing, Outpost Office has transformed it through fractal multiplication of every façade. It's fascinating for a couple of reasons. Firstly, the transformation of this historical artifact that every architect has studied is a nod to those who get the reference. Secondly, Outpost Office's text for the drawing expresses a nonchalant approach to computation, which is refreshing. They begin with the statement, "We're exhausted—digitally, at least." And although the project exemplifies an algorithmic approach to drawing, in the end, they actually didn't use an algorithm either—at least, not a computational algorithm. They followed a set of rules in their head to produce the drawing. This piece demonstrates that we don't have to fetishize the technology to achieve the technology's result: we can do it by hand, too.

*Outpost Office,  
Another Villa.*



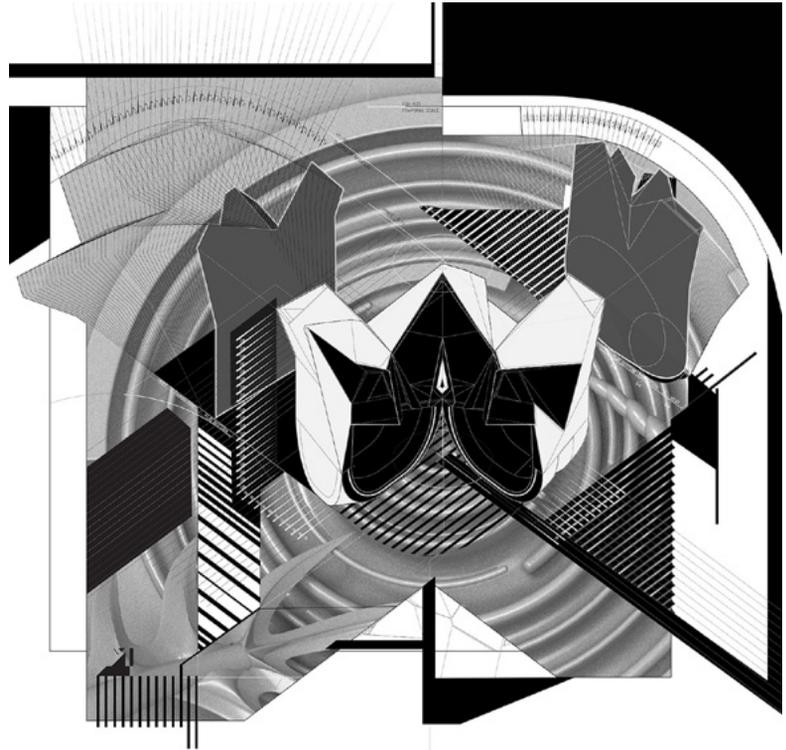
**Scaffold**

Were there any works that really surprised you? Were you at all taken aback by how far people were willing to bend the rules you had given them?

**Andrew Kudless**

When we first conceived of the exhibition, it was going to be about drawings produced by robots because that's what Adam and I were doing—making drawings with small little plotting machines. However, only a few of us out there made robot drawings, so we decided to expand the exhibition concept to think more about the role of computation in architecture. This shift opened us to many more interesting ideas and people we wouldn't have considered if we continued with that very limited premise. For example, Mariana Ibañez and Simon Kim's holographic drawing is this lenticular painting, which changes depending on how you look at it. They emailed us asking if they could do that, and I said, "I have no idea if we can do that. Sure, let's try it!" The result is the work 家神, which translates to Kashin, or "household deity." I was amazed at how the drawings went way beyond our expectations based on the exhibition's original conception.

*Ibañez Kim, 家神.*

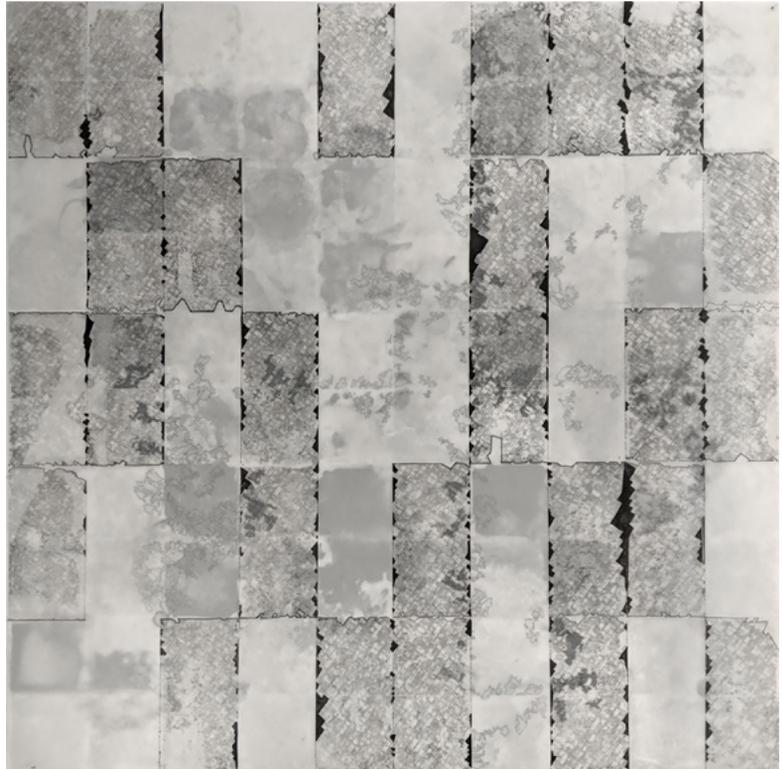


**Adam  
Marcus**

We had an idea of how contributors' prior work might relate to computation and drawing. In many cases, the expectations played out, and individual drawings are very much in character with the contributors' prior work. But in some cases, we received drawings that completely surprised us—in a good way.

The drawing that surprised me most was *Failure* by landscape architects Emma Mendel and Bradley Cantrell. Mendel and Cantrell are both landscape architects who often integrate computation in their work, but what they produced for the show was entirely analog and drawn by hand. *Failure* consists of four or five layers of drawings on mylar that document the transformative process of chemical transfers over time. It's a beautiful process-based work that speaks to multiplicity and complexity in ways that are unexpected and compelling.

*Emma Mendel &  
Bradley Cantrell,  
Failure.*



**Andrew  
Kudless**

I hadn't seen mylar in 15 years! This is the material that we would draw on in the 90s. I was almost nostalgic looking at the drawing and remembering how hard it was to clean this material. Failure is a beautiful drawing on its own, but they kept on layering the mylar thick enough that I don't know if you can see the first layer by the end. That technique brings out these super subtle hints of gray. It's great.

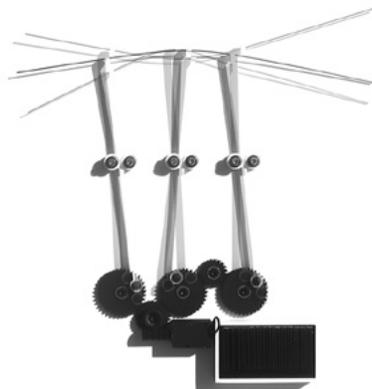
**Adam  
Marcus**

Another work that surprised me was Maria Yablonina's drawing, *The Perpetual Spline Machine*. Maybe I shouldn't call it a drawing... Maria Yablonina is an incredibly talented architect and designer who teaches at the University of Toronto and works primarily with distributed networks of robots, many of which she makes herself. Of all the people in the show, I expected her to send us a drawing made by a robot! Instead, Maria emailed us before the deadline and said, "Actually, I want to send you a robot as my drawing." She made a straightforward solar-activated robot that works very slowly over extended periods in the gallery. The sun or an artificial light source activates the gears, which are connected to three pistons that structure a wire, or a spline. It's an analog for the spline curves that we all use in our drawing software. So, the work is a commentary on the math and the calculus behind drawing curvature. But of course, it's being performed in real-time with a little robotic machine.

**Scaffold**

It's a really subtle piece—if you don't get up close to see that it was an actual robot, you would think it was a drawing of gears or a paper cut out.

*Maria Yablonina,  
The Perpetual Spline  
Machine.*



**Scaffold**

To move to my final question, what kinds of experimentation or refusals of the rules do you hope to see in future architectural projects?

**Adam  
Marcus**

Independent from the focus on rules and codes, I think both volumes of this exhibition represent what I see as a reawakening of interest in architectural drawing. I studied architecture in the early 2000s during the height of the so-called “digital turn” in architecture. Computers had just been installed everywhere in schools, and students were using animation software to create spectacular forms. People were euphoric about this new technology, but there was zero emphasis on making drawings; in many ways, the belief was that drawings were unnecessary or even obsolete. Now, with more distance from that initial euphoria, there’s a return of drawing to the center of architectural practice and education. And this show, even though it’s a small cross-section through the discipline, is evidence of a vibrant culture of architects engaging with drawing practices.

**Andrew  
Kudless**

One of the other things we wanted the show to tap into is that, with a lot of the software we use now, you’re essentially creating a digital model, and then the software algorithmically slices and dices the model into drawings. Those drawings are essentially just legal documents to hand over to the contractor or city for permitting. Drawing was the heart of the profession for many centuries, but we’ve reached a point in the discipline where it’s like, well, why draw? At some point, we’ll be able to permit off the digital model, and robots will build from the digital mode. So really, the main question is, why draw? What is the value of drawing in the current profession? Is there a role for computation in drawing that doesn’t just treat drawing as a product spat out at the end of the process? If so, how do we do it? I’m encouraging my own students to consider drawing as part of the process of making buildings, and I’m teaching the concepts of computational design and algorithms. Still, I’m doing it through the language of drawing because it’s both simple and profound—it has a very deep history within the profession.

*Drawing Codes,  
Volume II installation  
view at the Hub-  
bell Street Galleries.  
Courtesy of Nick  
Bruno.*



**Andrew  
Kudless**

is a designer based in Houston, Texas, where he is the Bill Kendall Memorial Endowed Professor at the University of Houston's Hines College of Architecture Design and the Director of the Advanced Media Technology Lab. In 2004, he founded Matsys, a design studio exploring the emergent relationships between architecture, engineering, biology, and computation. The work of Matsys has been exhibited internationally and is in the permanent collections of the San Francisco Museum of Modern Art, the Centre Pompidou in Paris, and the FRAC Centre in Orleans, France.

**Adam  
Marcus**

teaches design studios and courses in computational design and digital fabrication, co-directs CCA's Architectural Ecologies Lab, and collaborates with CCA's Digital Craft Lab. He also directs Variable Projects, a design and research studio that operates at the intersection of architecture, computation, and fabrication. His work explores how new technologies can interface with longstanding architectural traditions of craft, materiality, ornament, and pattern.

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