

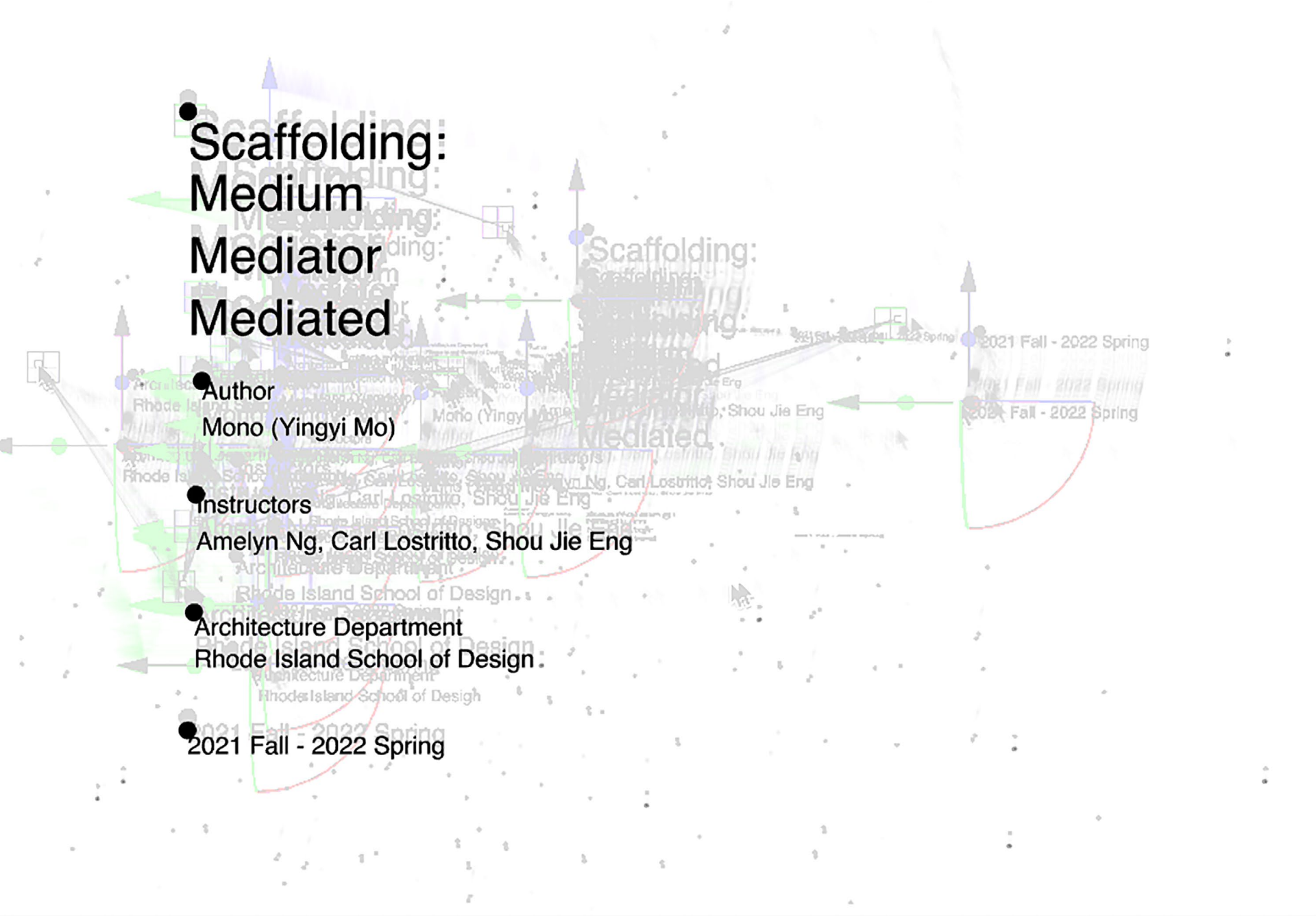
**Scaffolding:
Medium
Mediator
Mediated**

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Scaffolding: Medium, Mediator, Mediated

Scaffolding: Medium, Mediator, Mediated

Thesis Abstract

This thesis investigates, analyzes, and fictionalizes scaffolds, seeing scaffolds not strictly as physical material condition, but as a medium, a mediator, and a thing to be mediated. While one tends to think of scaffolds as secondary structure, in this thesis they are active agents and generative interfaces. Scaffolds in this thesis are therefore registered as a poly-dimensional group of frameworks, tools, and agreements, ranging from scaffolds in the built environment, architectural drawing conventions, CAD program interfaces and interaction modalities, and codes behind the digital programs. Together, these scaffolds simultaneously enable and prescribe architectural design processes. The project aims to make the scaffolds visible, de-familiarized, and rediscovered. The current outcome of the thesis consists of a collection of speculative, either representational or performative pieces, each being about a certain type of scaffold or certain aspects of a scaffold.

Other Scaffolds, Slope

Scaffolds enable constructions. Scaffolds also circumscribe certain buildings. They are not neutral. Scaffolds assist, support, create, and transform; they also presume, bias, and limit. Scaffolds are ubiquitous in the built environment, but they are far from being permanent, universal, unchangeable, or unquestionable. Given their distinct position in the built environment, scaffolds present an interesting subject for study. What other forms can scaffolds take? What other spaces, digital and physical, that can be created by redesigning the scaffold differently?

Other Scaffolds, Rail

To approach the questions, one can start with adopting different design processes. More than often, scaffolds, a framework surrounding the realization of form, are only brought to the table after a primary concept takes shape. However, I argue that scaffolds are already present prior to form, in the form of conventions, customs, common tools, and other underlying givens. Being mostly invisible though, these scaffolds actively shape designs based on their inherent capabilities and limits. However, there are other sequences to follow. Consider the design of scaffolds in advance of design itself. Consider scaffolds in parallel with the act of designing. Consider scaffolds as an inherent part of design.

Other Scaffolds, Robotic Arms

This means that design starts at de-familiarizing scaffolds. One then moves to familiarize with the de-familiarized, retrieving rationality and logic from the new scaffolds, and conceiving establishments from them. Design practices like this may not guarantee success, but it will make design more scaffold-aware. This helps resist the gravity of conventions and lead to different design outcomes.

Other Scaffolds, Hang

Being process-oriented, scaffold-awareness is also about methodology and instrument. Rethinking scaffolds in the built environment encourages us to ask: Do workers still mostly stand upright while constructing? Is the construction still heavily about hands-on activities, like lifting, hammering, soldering, drilling, etc.? What other poses, gestures, tools, and construction methods can be enabled by other scaffolds?

Tempos

Scaffolds are not just temporary, but also temporal, sequential structures. Some scaffolds might march forward continually, repetitive and unchanging, others may be punctuated with pauses of various lengths; still others may be discarded midway or left in a state of incompleteness. Here are some narrative questions that arise from scaffolds as time-based media:

If a scaffold marches continually: How does it sound? As it marches, what must be held back à pedestrian, traffic, marketing, etc.? Does it leave any traces behind à waste, trash, friction marks, etc.? How long does it take for the surrounding environment to get used to its arrival, and how long does it take to forget after the scaffold leaves?

If a scaffold's course is punctuated: How does it sound, when it is paused and resumed? What happens during each pause? When paused, does it make an impression that it will proceed soon, or does it look like being abandoned? When it is resumed, how is the reaction of those that came during the pause?

If a scaffold is eventually discarded: How does it sound à does it sound like being sadly forgotten, or sound like being actively repurposed, or sound like being naturally blended with the context? Is it hated, loved, or ignored? Is it seen in this way all the time, or does the emotion it triggers change over time? How fast is the change? Would it be eventually removed? If yes, by who? The same group who abandoned it in the first place? Would the components become another scaffold? How and how long would the scaffold be remembered? What about the void that is left behind?

For all scaffolds: Where are those scaffolds? What is being built with and upon them? And what happens after each timeline ends?

Who?

Scaffolds can also be spaces of subjectivity, yielding uniquely different spatial, optical, and bodily experiences. It is a platform for watching and observing what is being built. It is an apparatus that one can climb while meditating. It might produce sensations of acrophobia. It might be a game field, a 'fun palace'. It might be a landmark or observation-tower for views out. It might be a maze without shortcuts for a character to traverse from start to end even when the hands are full. In each of these imagined experiences, the bodies of fictional characters engage the scaffold in different ways, with different narrative parameters à the frequency and heaviness of steps, the location of the holding hands, the steadiness of the torso, the clarity with which the scaffold is seen, a character's desire to escape the limit of the scaffold and the body.

Even this same scaffold is experienced by bodies with different interests and purposes.

Pneumatic Scaffolds

As we move through these experiments, one might begin to say that scaffolding involves considerable, if not endless, variations, as if they were amorphous. Add to that are the facts that scaffolds are typically built with slender members, that they are short-lived compared with other built objects, and that they are physically flexible and adjustable to accommodate different topographical attributes. Scaffolds are not static.

If scaffolds become more dynamic, transparent, lighter, even pneumatic, would they begin to blend in with the built environment, integrated with the scenography of the city? Then, isn't this integration turning every building into a scaffold? Does it mark a forward move toward a more adaptive and responsive built environment?

Line Weight Conventions

And aren't line weight conventions in architectural drawings also a kind of visual scaffold? Line weights help establish legibility and hierarchy in architectural drawings. Line weights enable drawings to convey architectural information about materiality, proximity, significance, relevance, etc. A common assumption is that the 'correct' way to use line weights would be to render it as unobstructive as possible; what is seen should only be the content. On the other hand, line weight conventions have limits: by encoding information, it makes things abstract and esoteric; it is far from being standardized and universal. Moreover, as design activities become increasingly digitized, establishing line weights requires less manual labor, retains less operational stability, and may even become irrelevant: establishing line weights has been parameterized and removed further from drawing gestures. What often results is the convenient adoption of preset architectural graphics.

If line weights are misused, messed up, how much effort would one spend correcting them? What qualifies for graphical correctness? Does everyone arrive at the same correct line weight establishment? What is then recognized in the drawings, materiality-, proximity-, significance-, relevance-wise? What if assigning line weights is not a quantitative operation decided by precise numeric values or iteration counts?

This browser-based interface allows users to draw scaffolds and practice 'correcting' line weights in a more qualitative way with the number-less sliders.

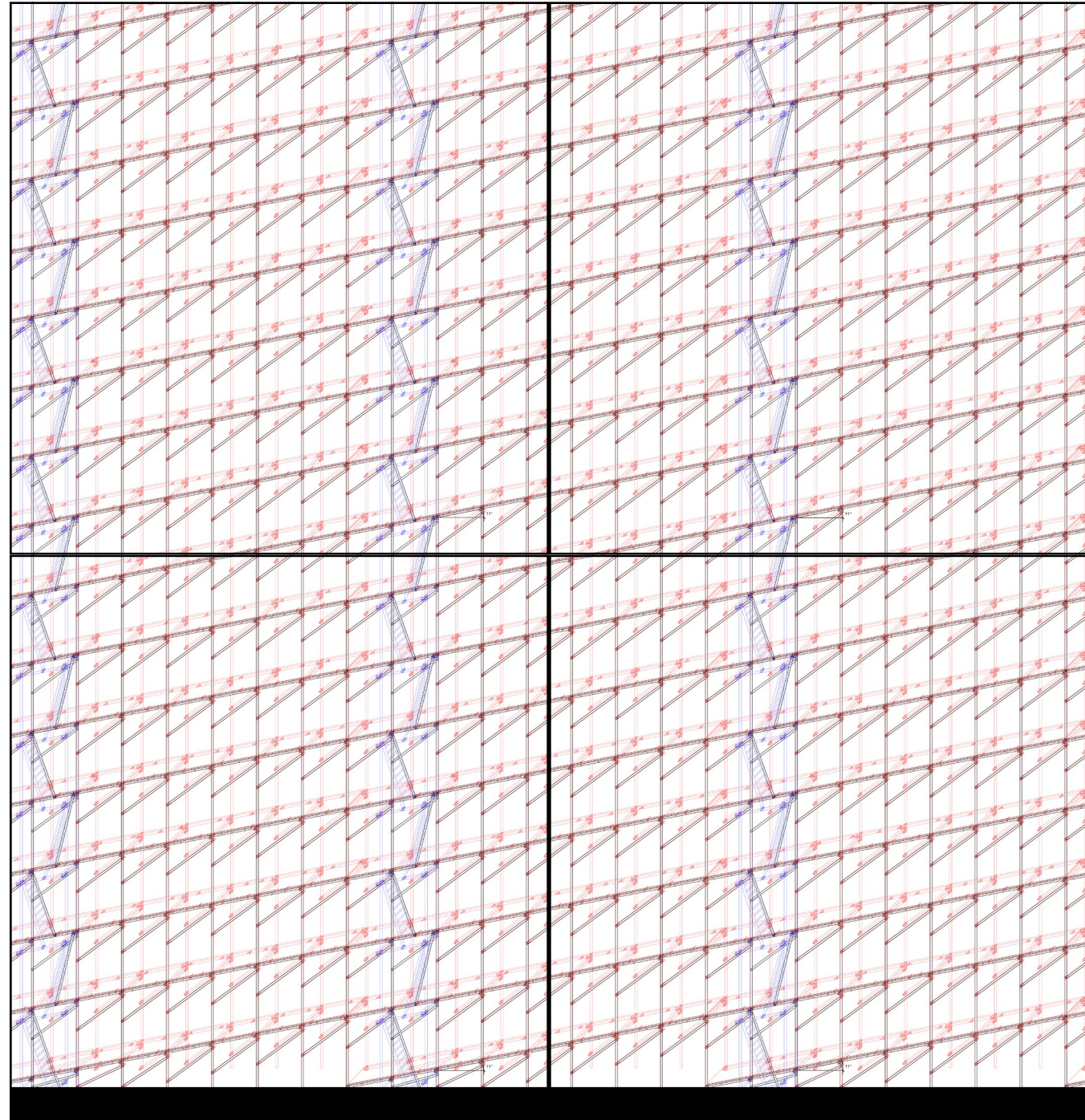
Interfaces and Interaction Modalities

Designers operate a digital program through the interface and follow a certain interaction modality. Such a mediatory, enabling role makes interfaces and interaction modalities also scaffolds. Not only does each such scaffold have different strengths and limits; but they also share certain commonalities. While digital interfaces and digital interaction modalities assist in the design process, they also domesticate designers. In a digitized era, becoming professional to a great extent equals becoming familiar with digital design programs. One strives to memorize tools, functions, shortcuts, mouse gestures, etc. Therefore, designers anticipate stable interfaces and repeatable interaction modalities. Designers are thus given a know-all perspective and an impression of stability and unchangeability. Only that this is an illusion. Outside the digital world, reality is full of changes and almost unfathomable chaos.

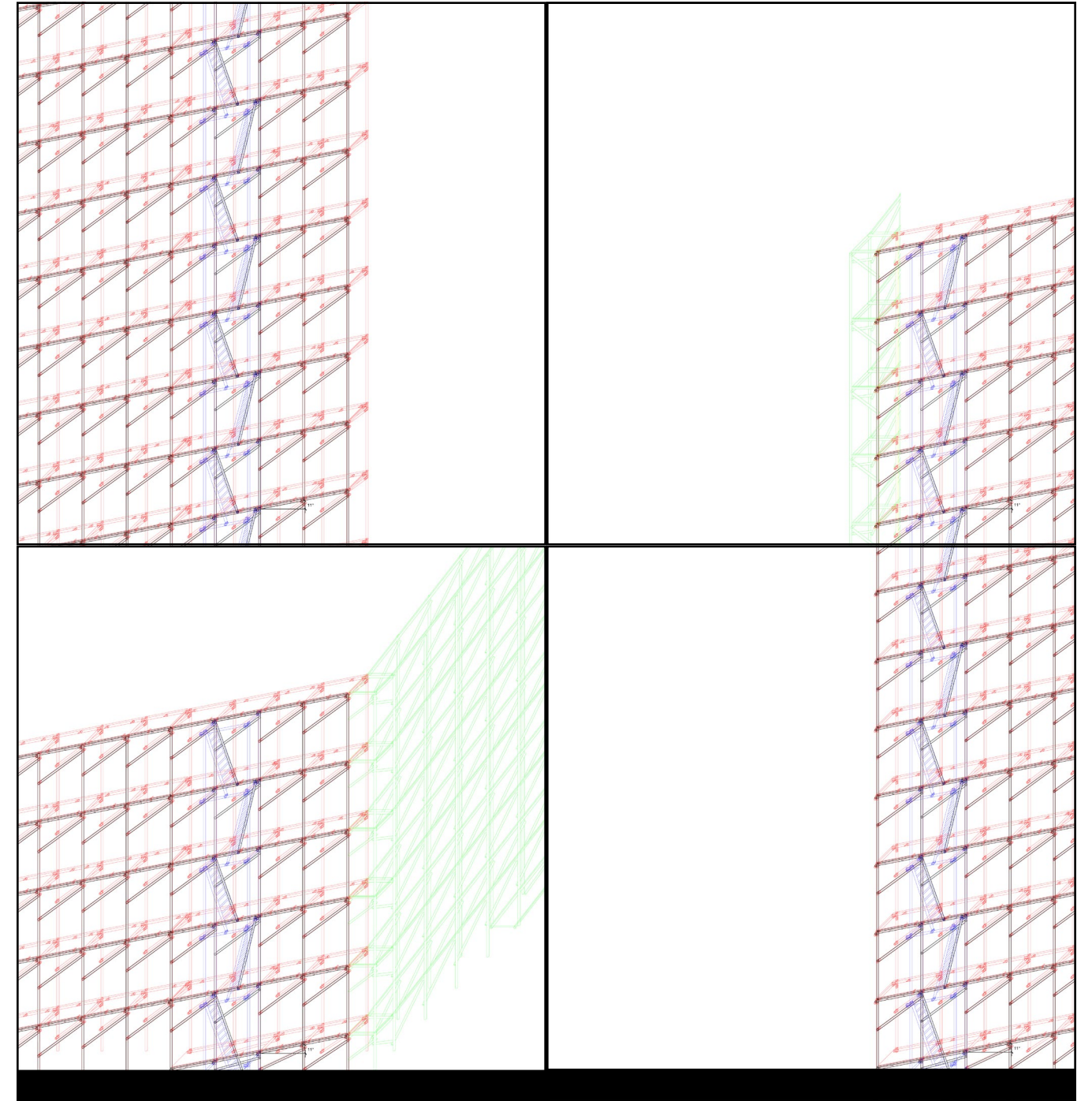
Therefore, as a response, maybe these scaffolds should be dynamic as well. In this second interface experiment, sliders are only momentarily available, always floating and escaping, perspective is marching, and user setups are ephemeral. What can be created with scaffolds like this?

Code

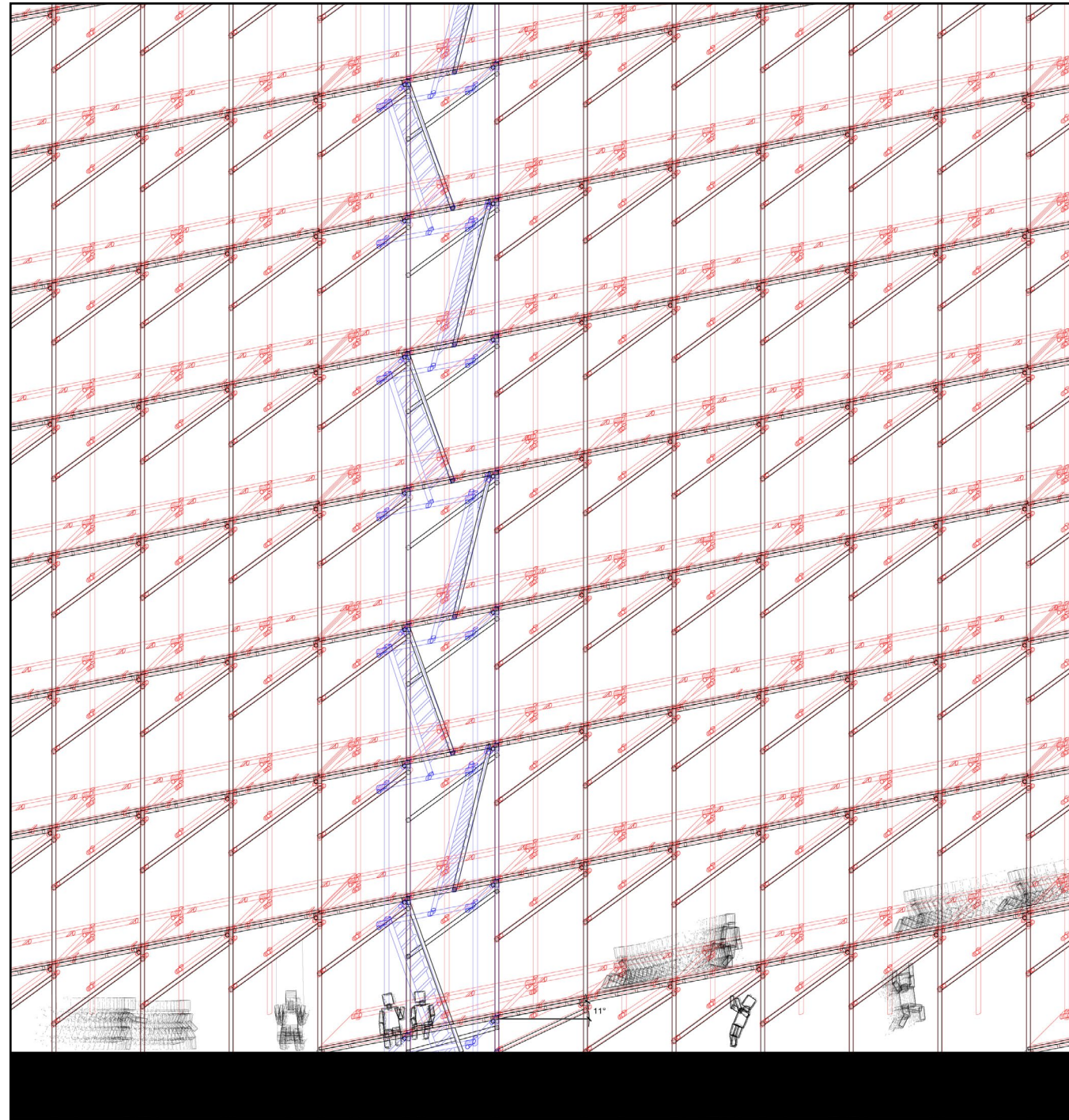
Finally, scaffolds can be likened, compositionally, to code itself. Code is written with nothing more than a limit set of letters, numbers, and symbols. As an analog, scaffolds in the built environment also consist of a fixed set of functional elements: framing members, planks, mesh, and joints. By repeating simple components, complex structures can be created. Yet, like scaffolds, code may appear overwhelming, purely functional, or simply be taken for granted as invisible substructure. While a script of code is appreciated for what it does, it is also worth examining how it performs, which allows us to also see its limits. What a script of code cannot do might result from the conventions, presumptions, unorganized data structures, etc. Yet, the scaffold's limit does not mean that the creative act of design has to stop there as well. Examining, analyzing, and making visible those underlying scaffolds could lead us to new discoveries and propositions for form and representation.



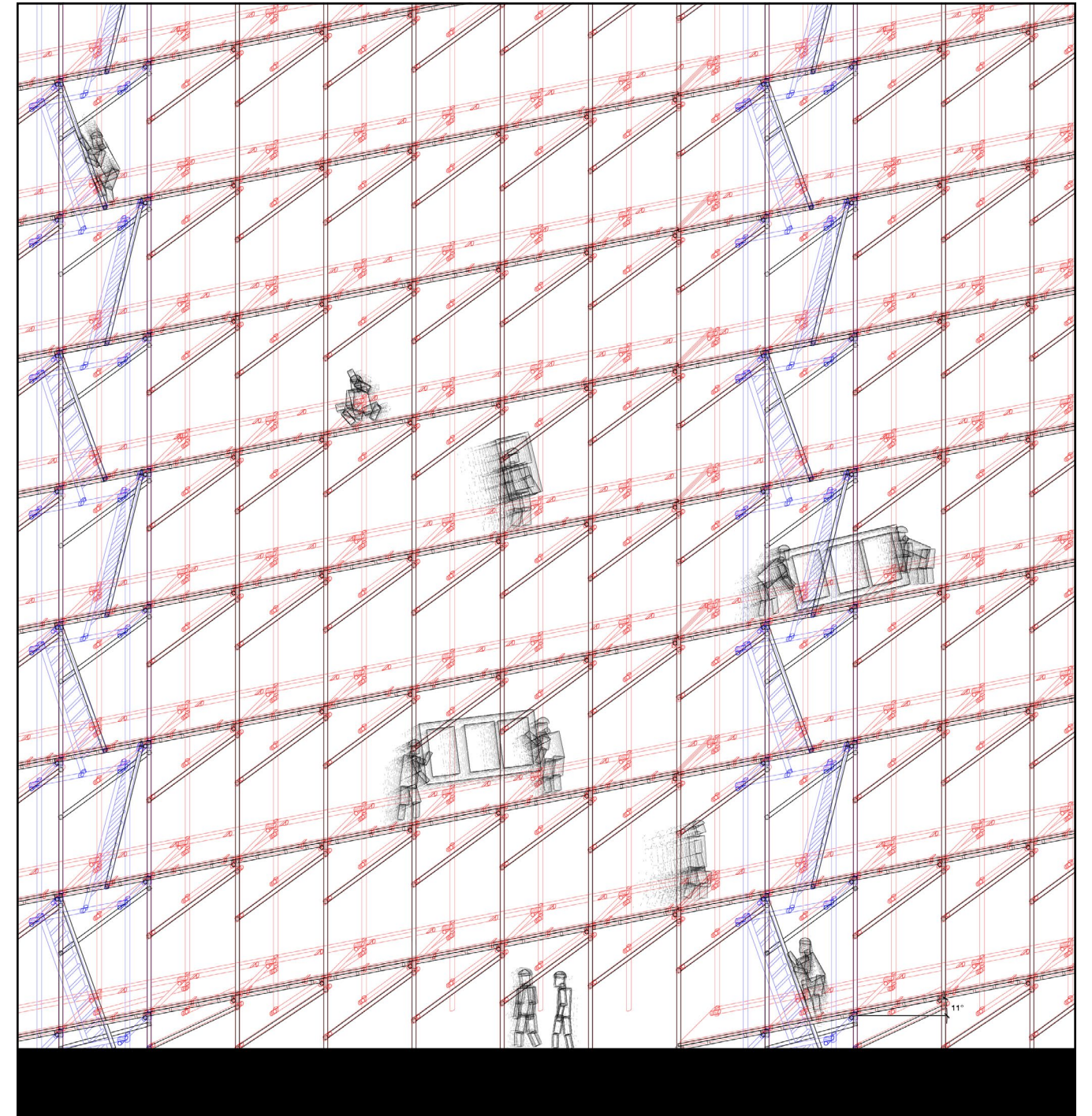
Other Scaffolds, Slopes
: drawing, wallpaper



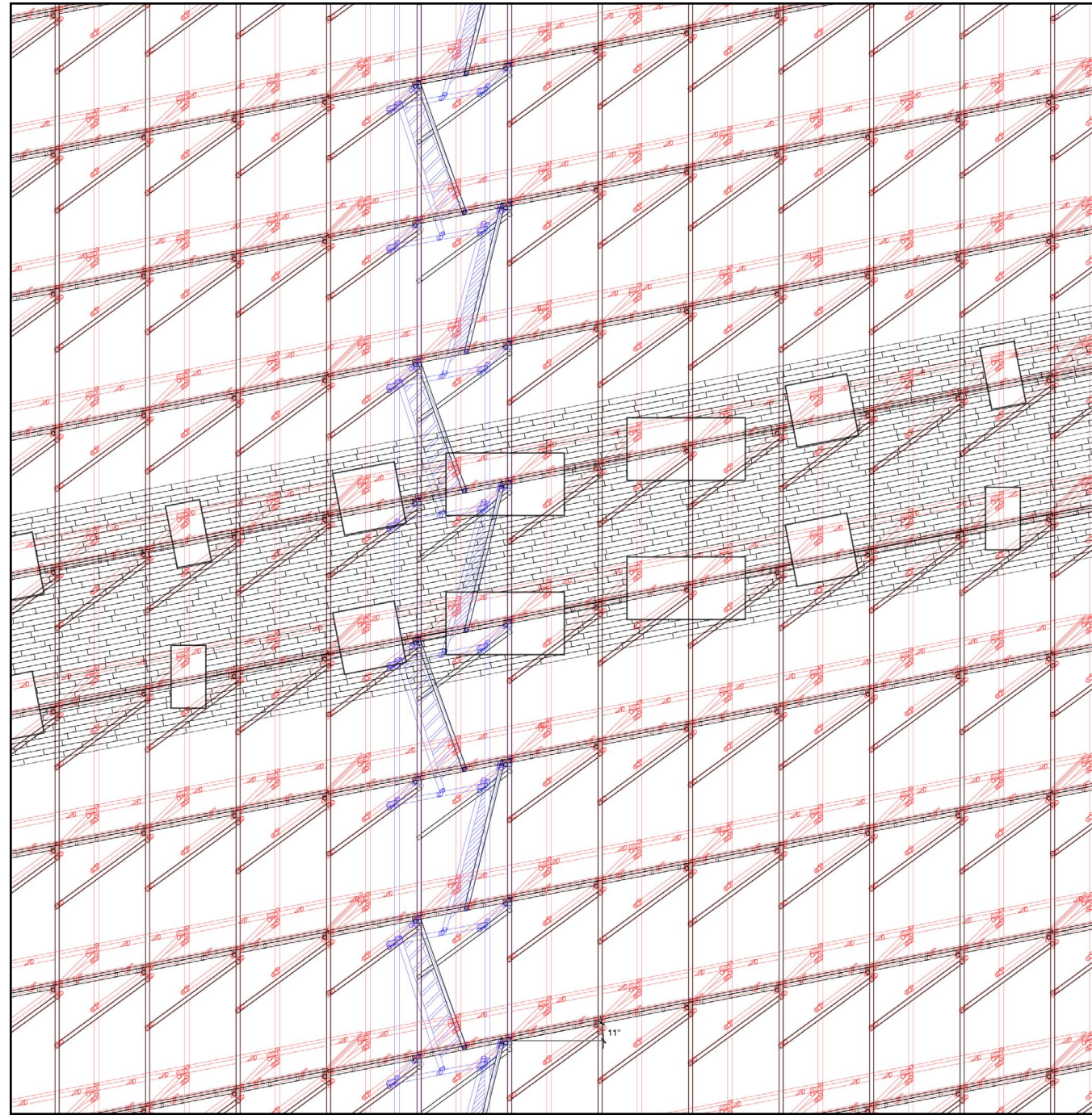
Other Scaffolds, Slopes
: drawing, wallpaper



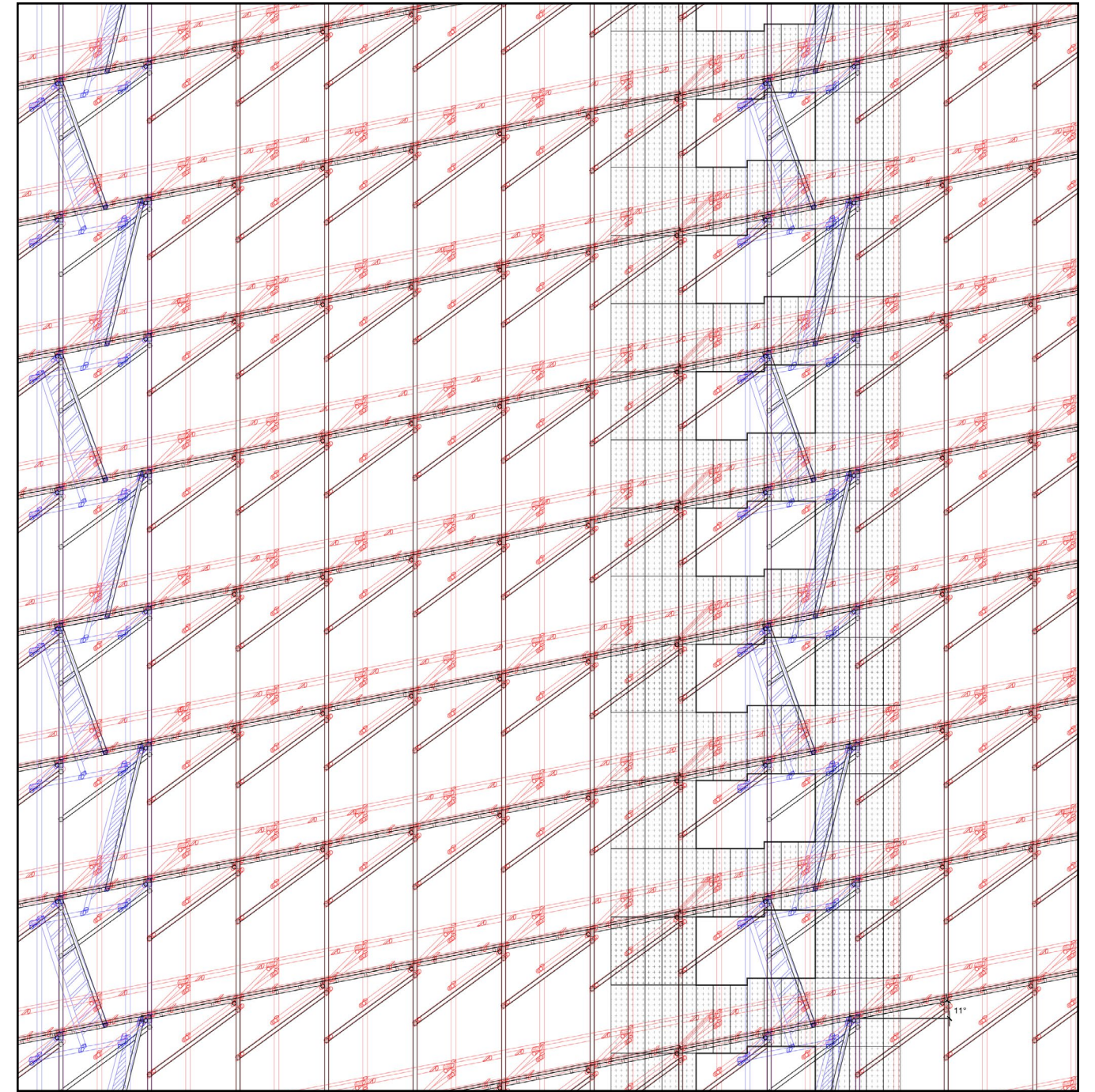
Other Scaffolds, Slopes
: drawing, wallpaper



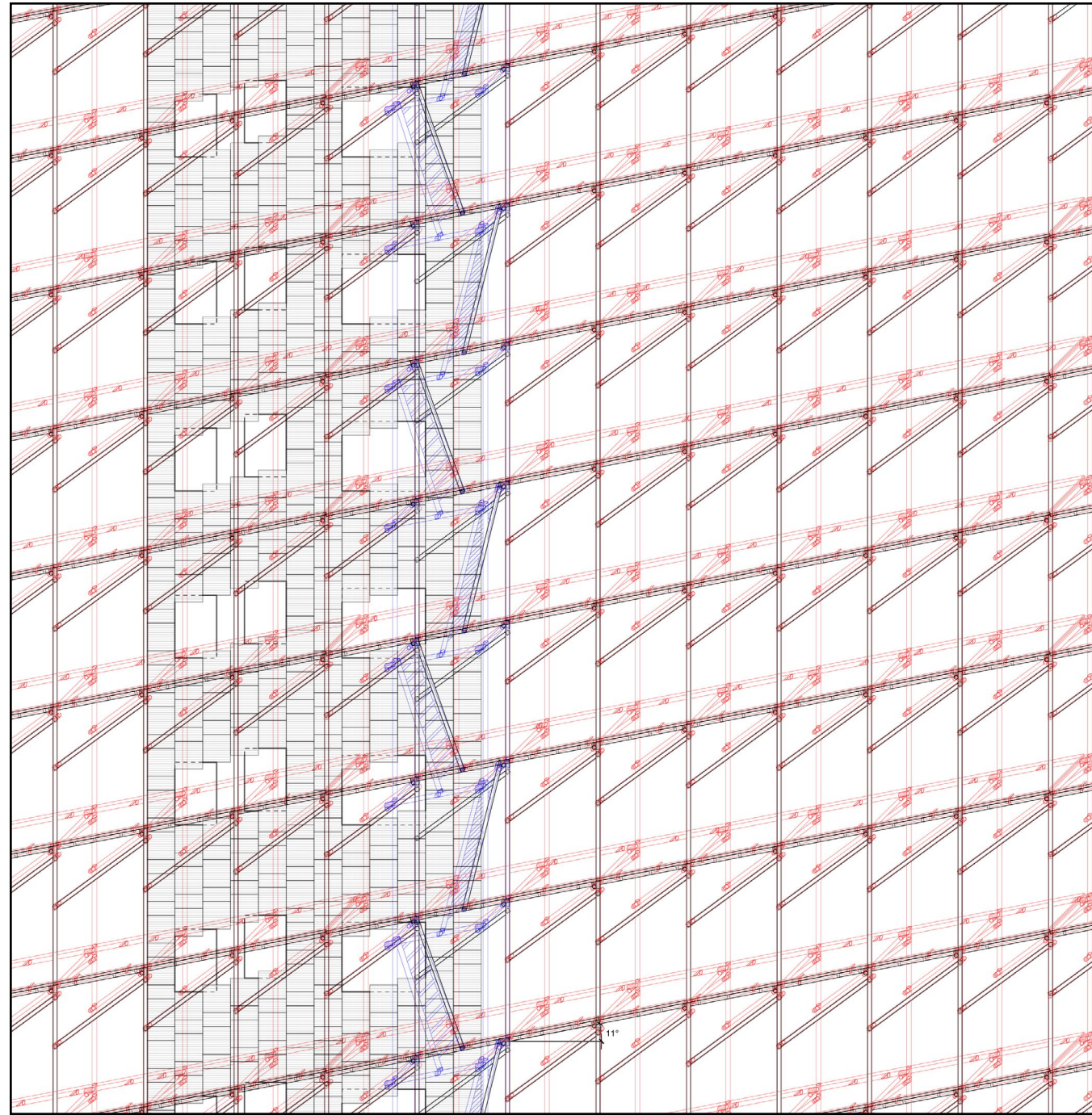
Other Scaffolds, Slopes
: drawing, wallpaper



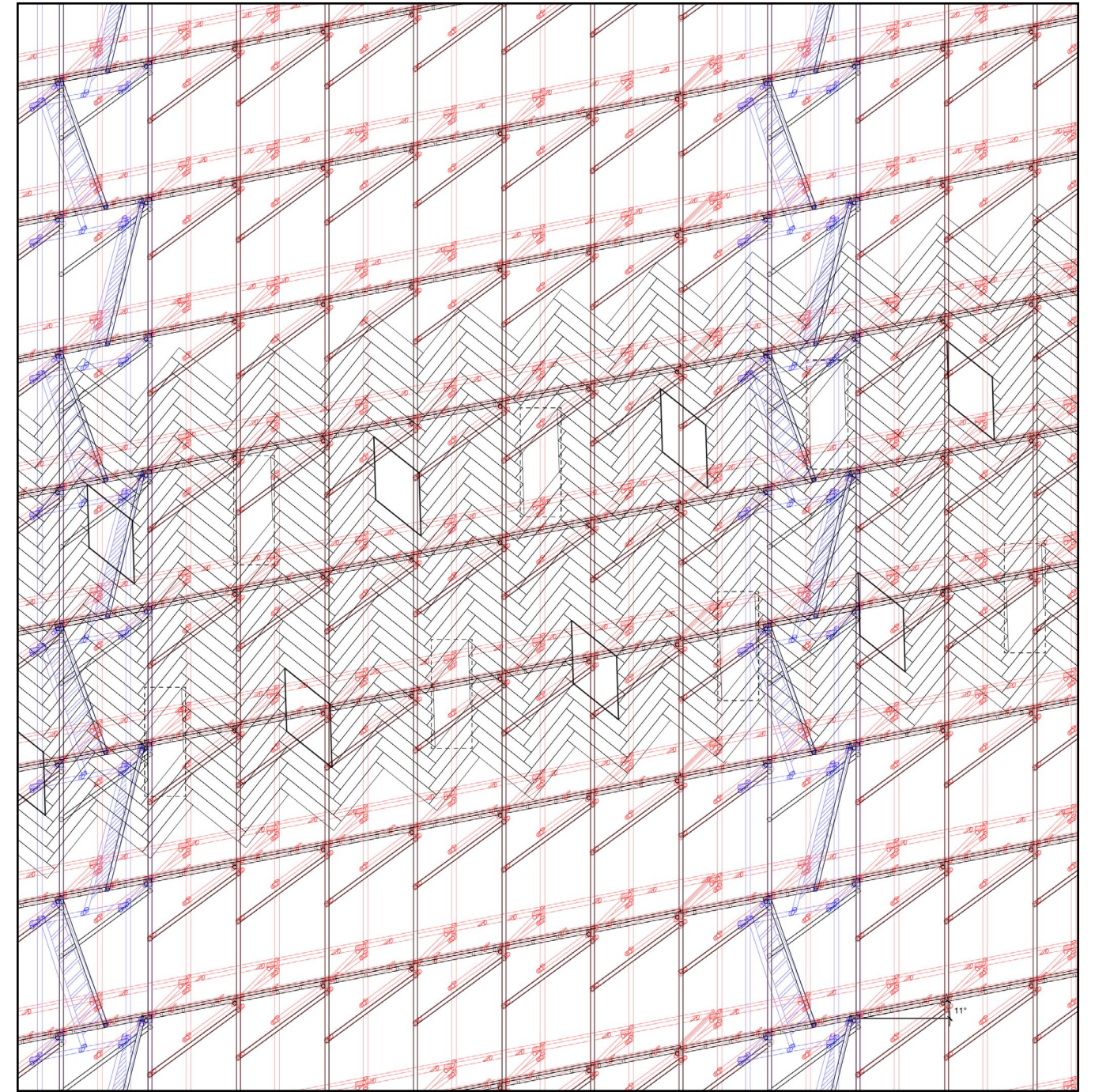
Other Scaffolds, Slopes
: drawing, wallpaper



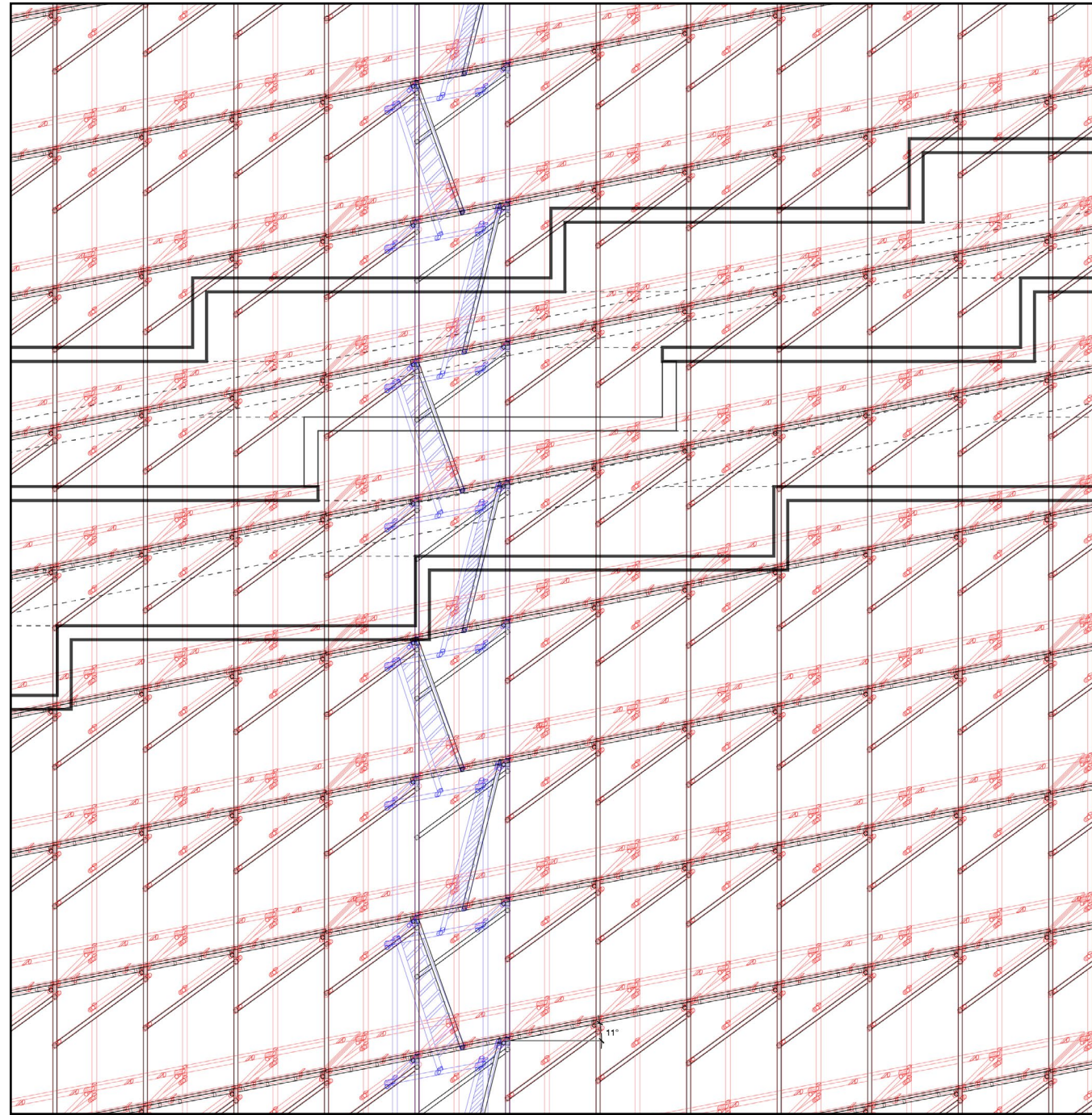
Other Scaffolds, Slopes
: drawing, wallpaper



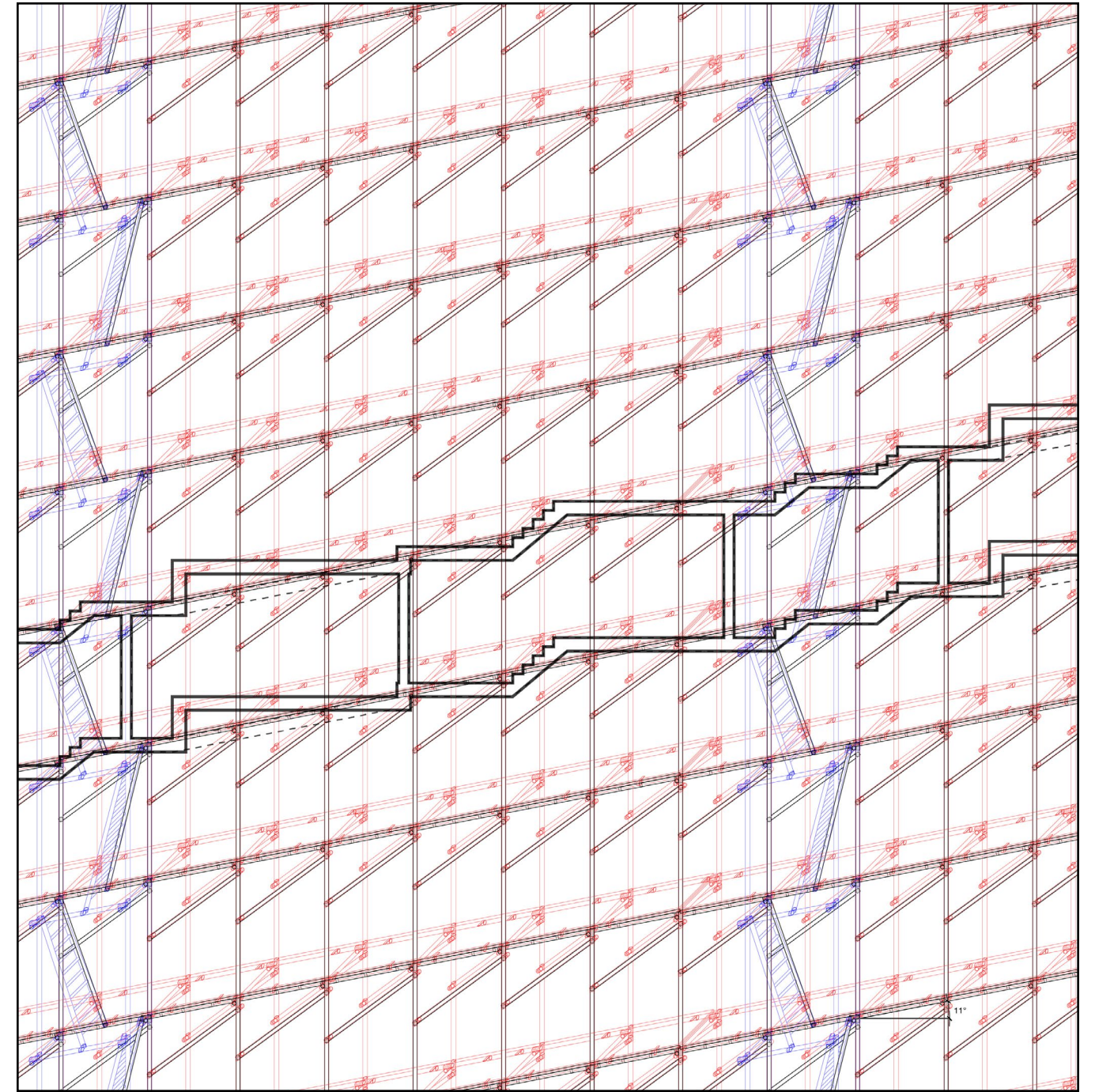
Other Scaffolds, Slopes
: drawing, wallpaper



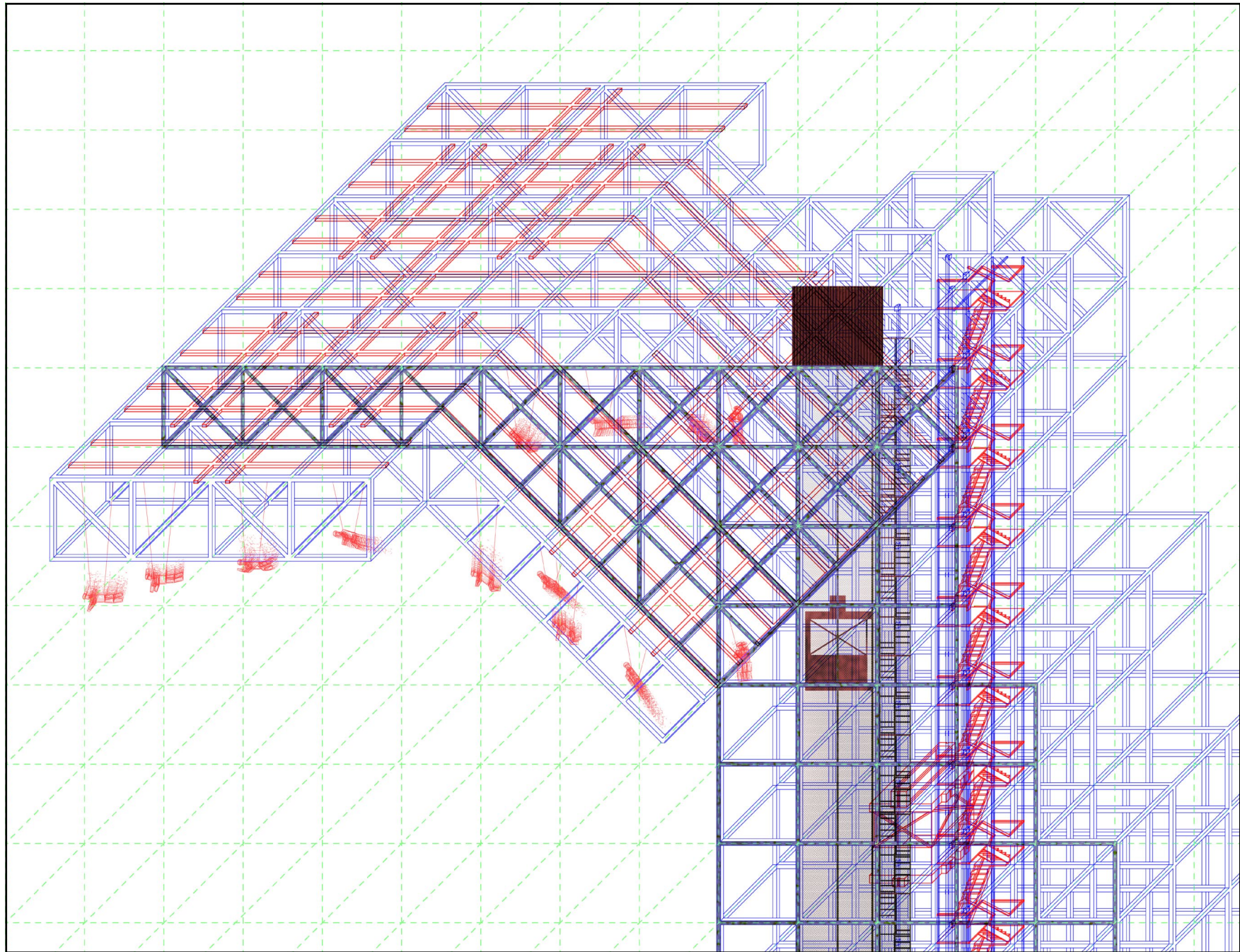
Other Scaffolds, Slopes
: drawing, wallpaper



Other Scaffolds, Slopes
: drawing, wallpaper



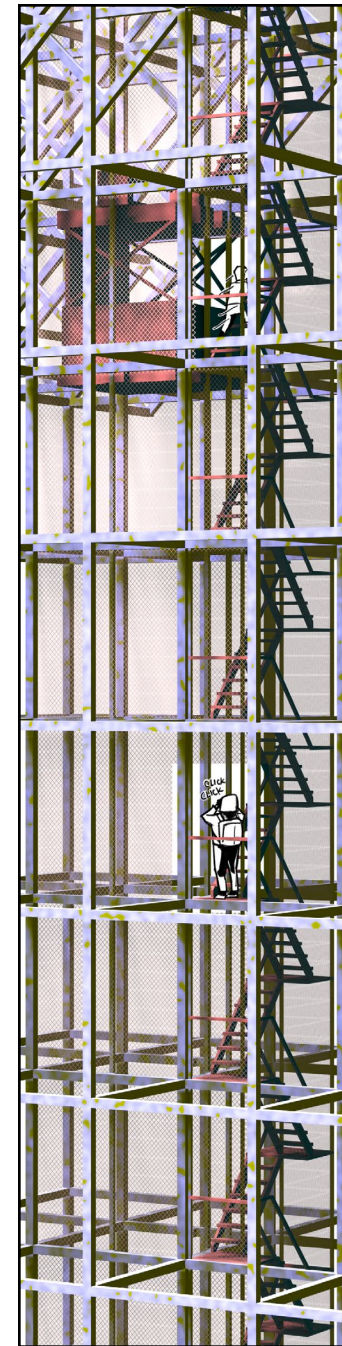
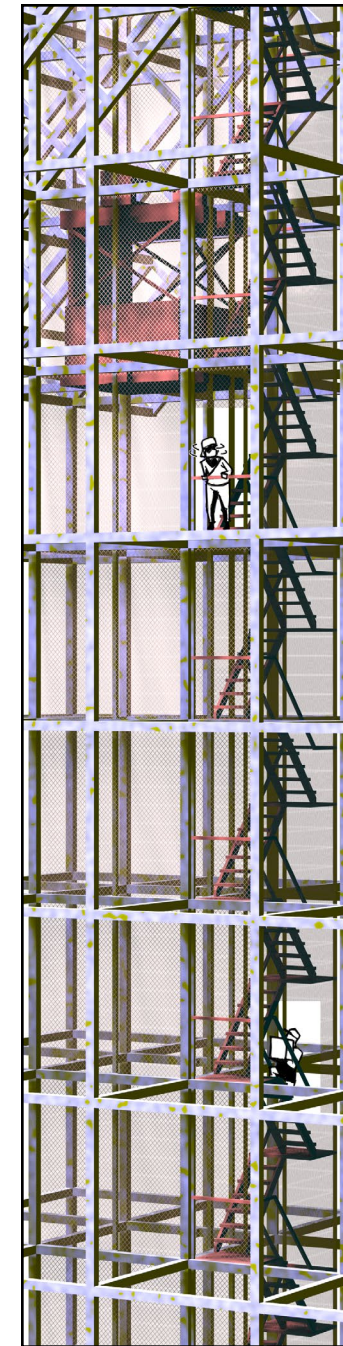
Other Scaffolds, Slopes
: drawing, wallpaper

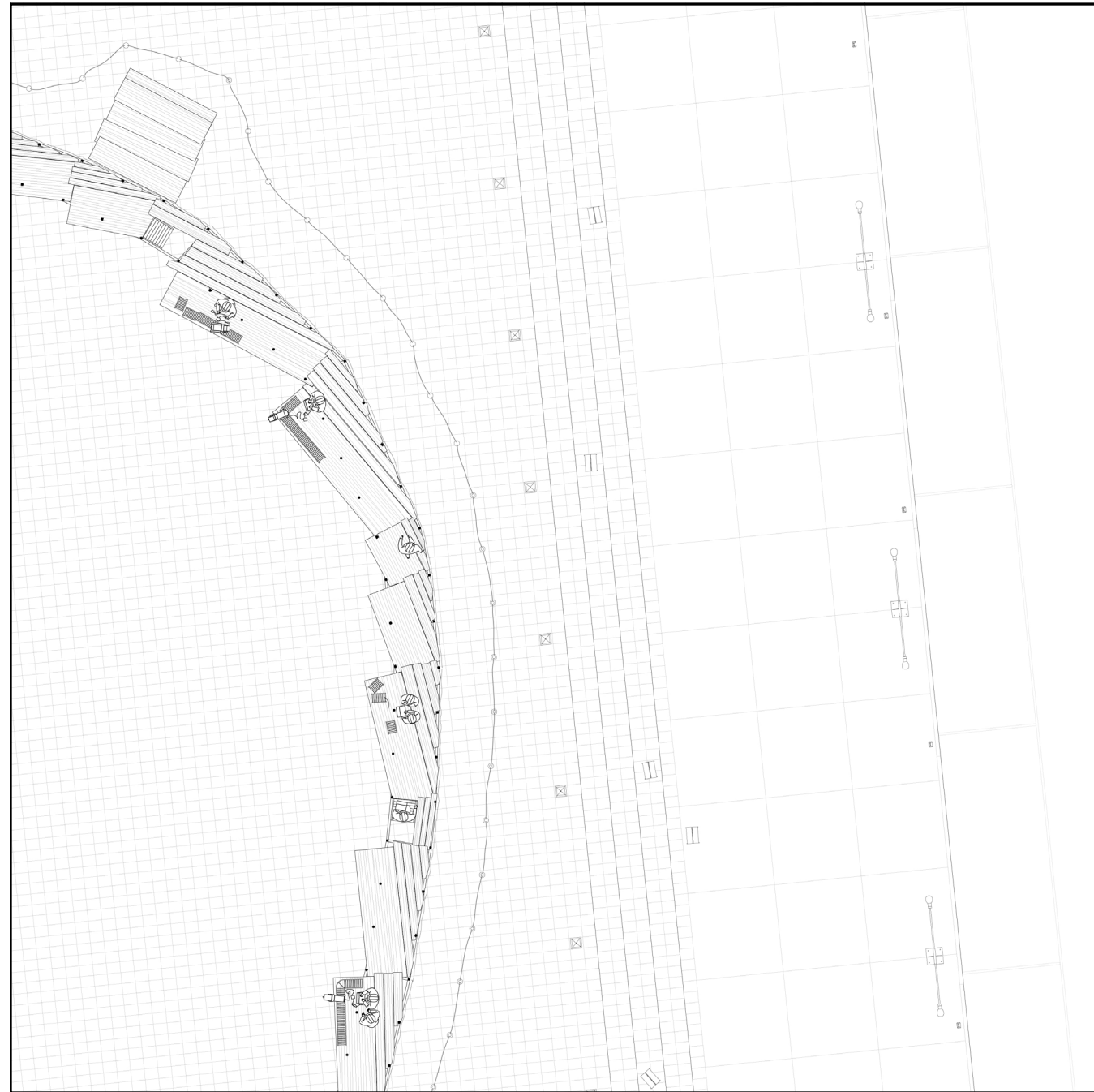


Other Scaffolds, Hang
: drawings

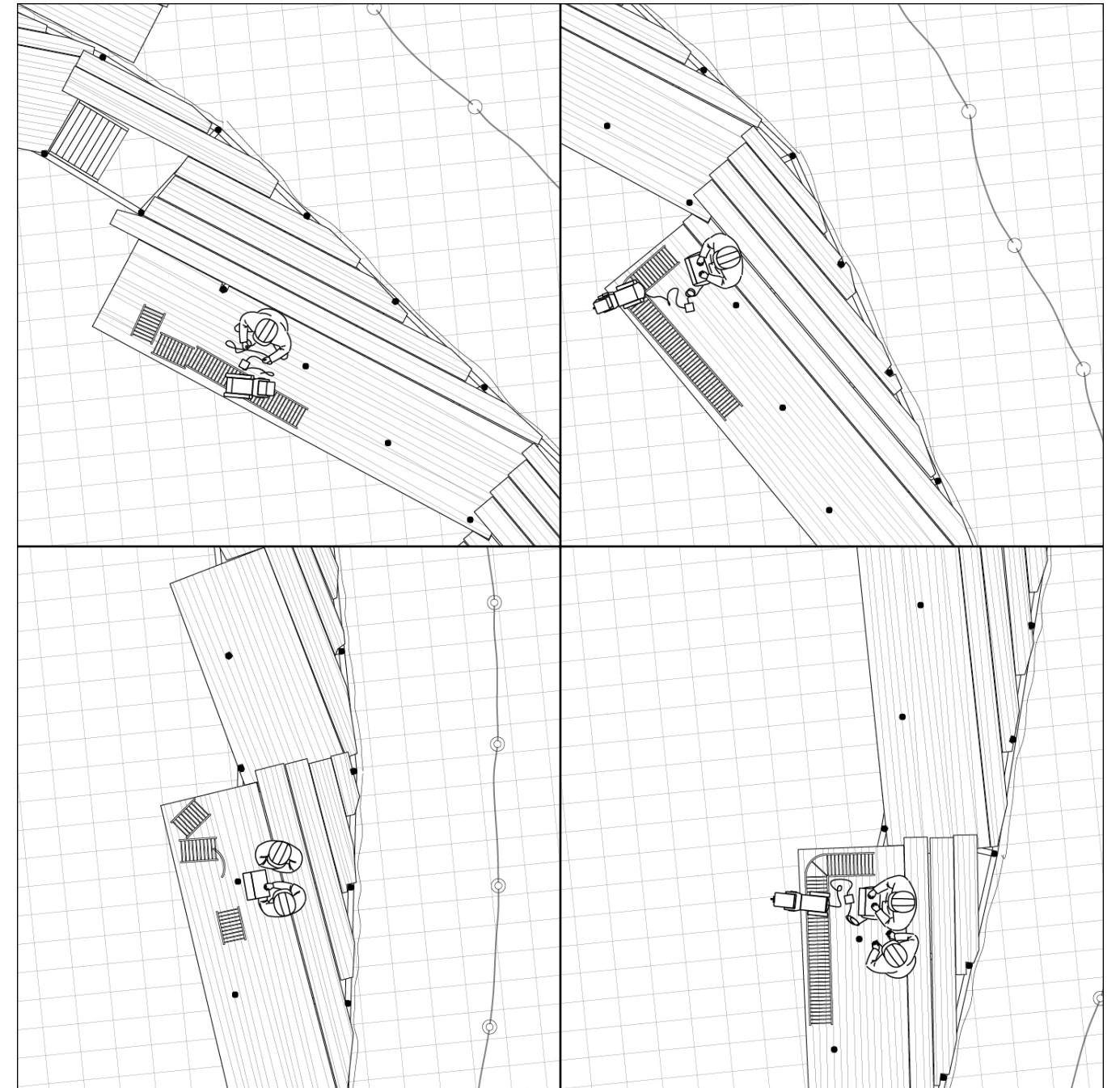


Other Scaffolds, Hang x Who?
: drawing, wallpaper
: characters





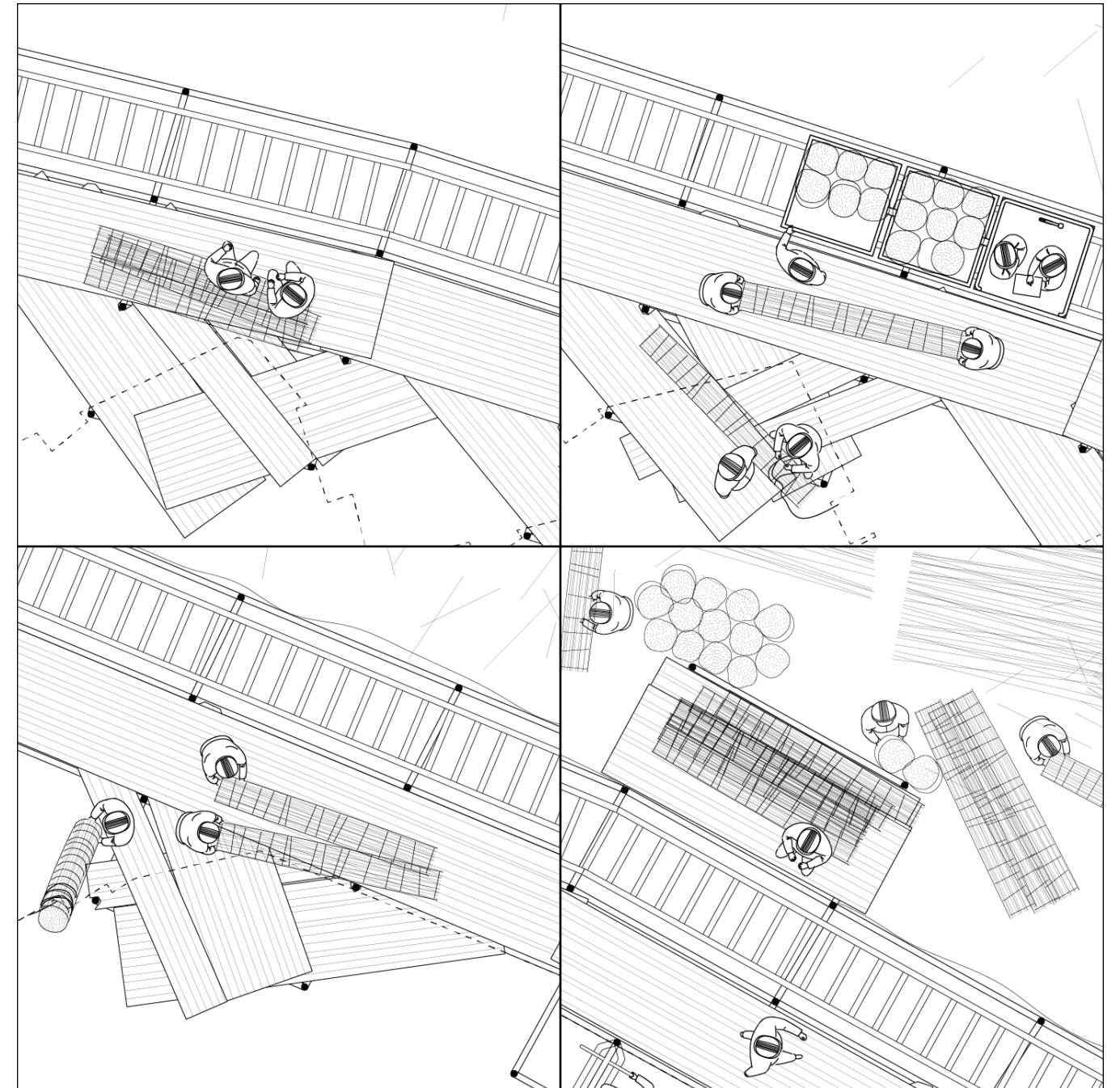
Other Scaffolds, Robotic Arms
: drawing, installation



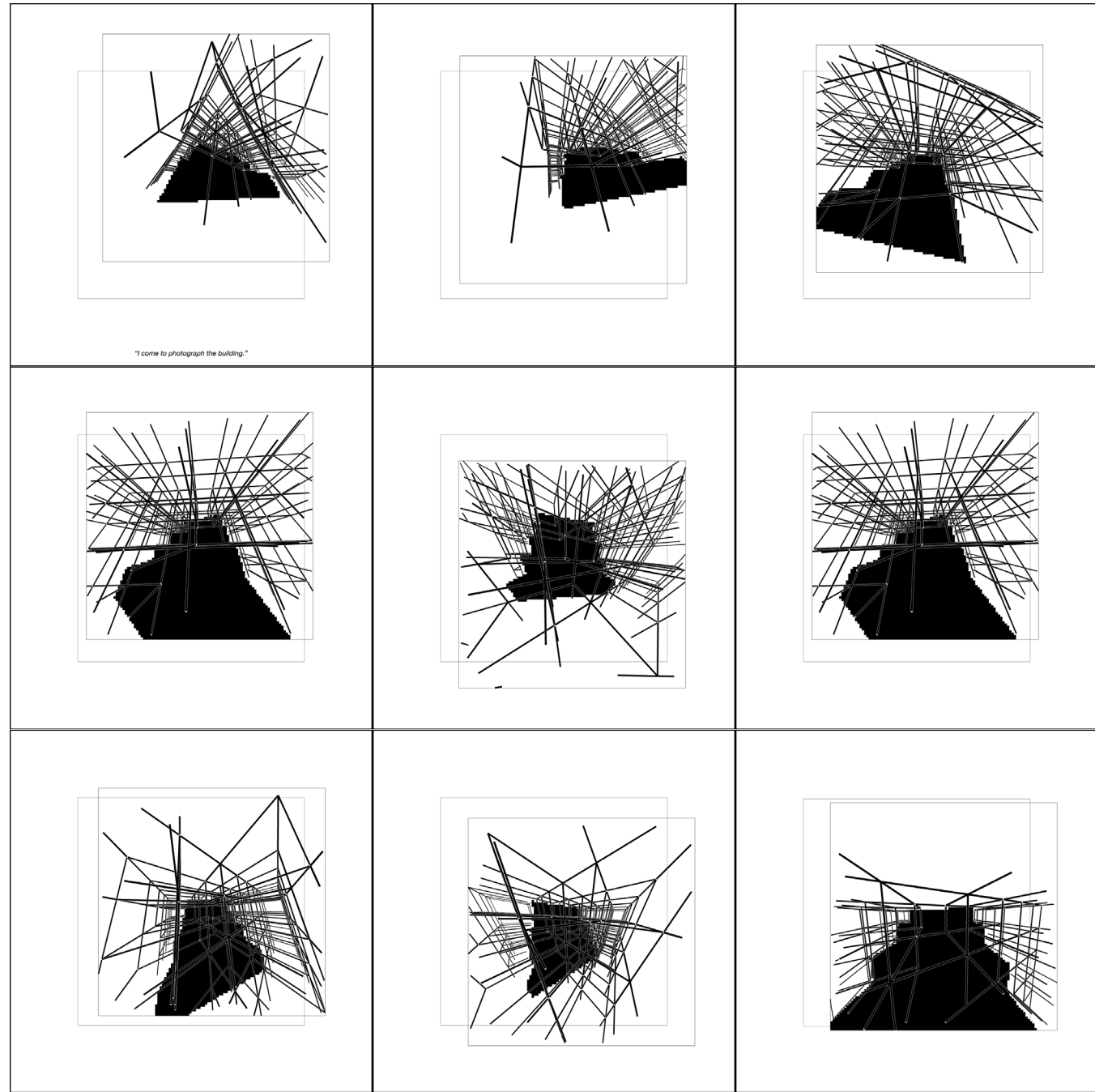
Other Scaffolds, Robotic Arms
: drawing, installation



Other Scaffolds, Rail
: drawing, installation

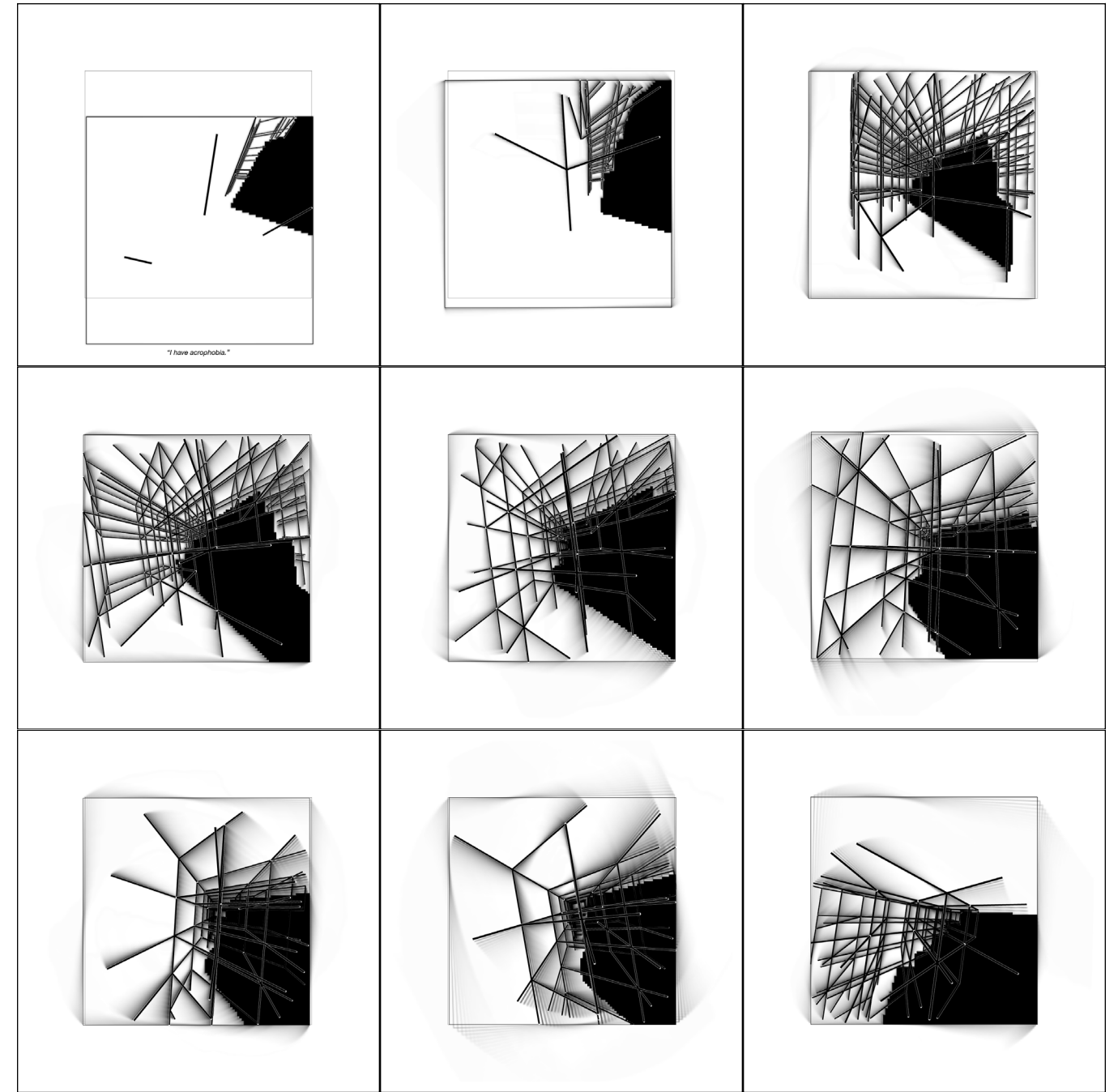


Other Scaffolds, Rail
: drawing, installation



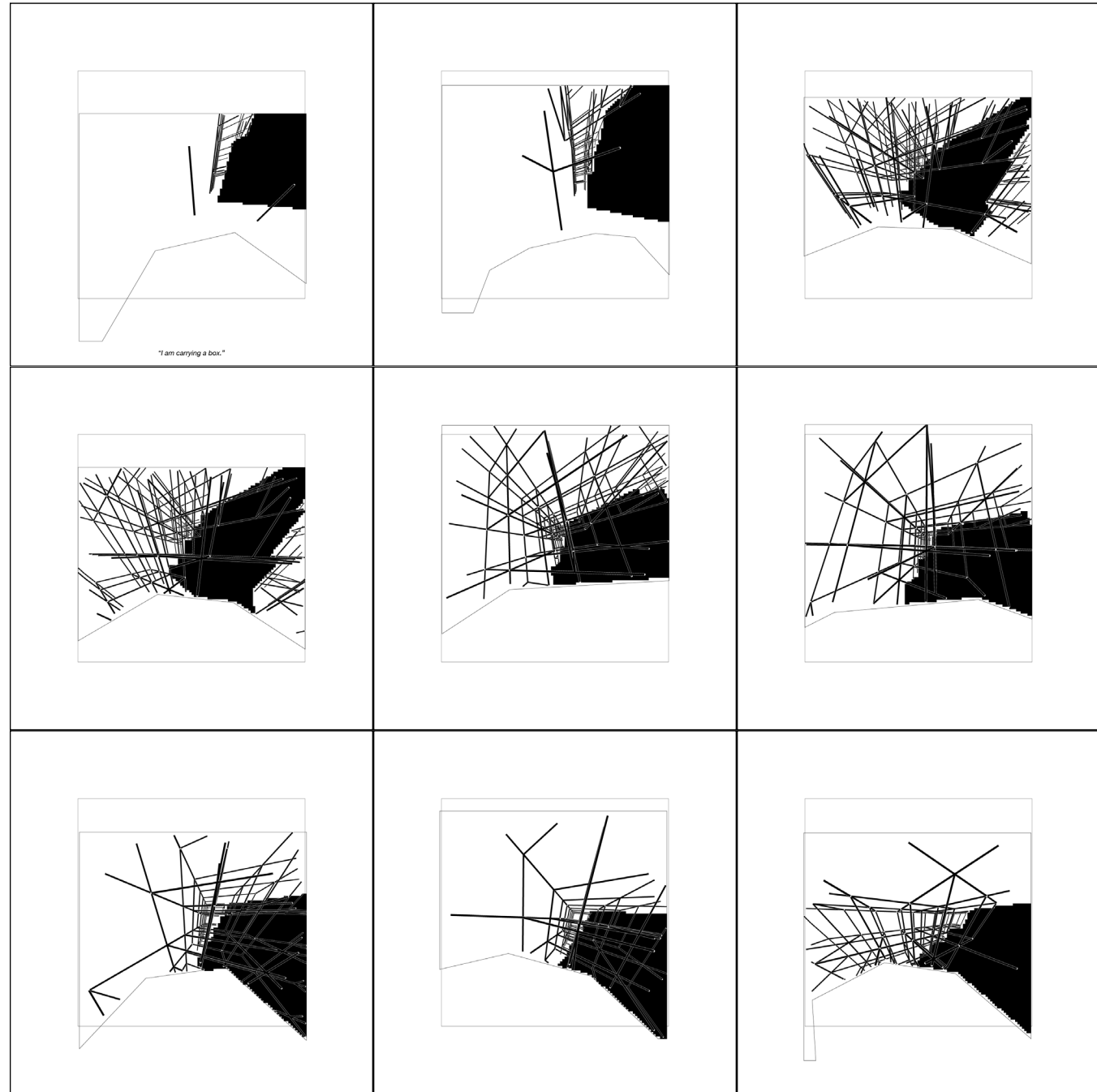
"I come to photograph the building."

Who?
: films (frames), projection

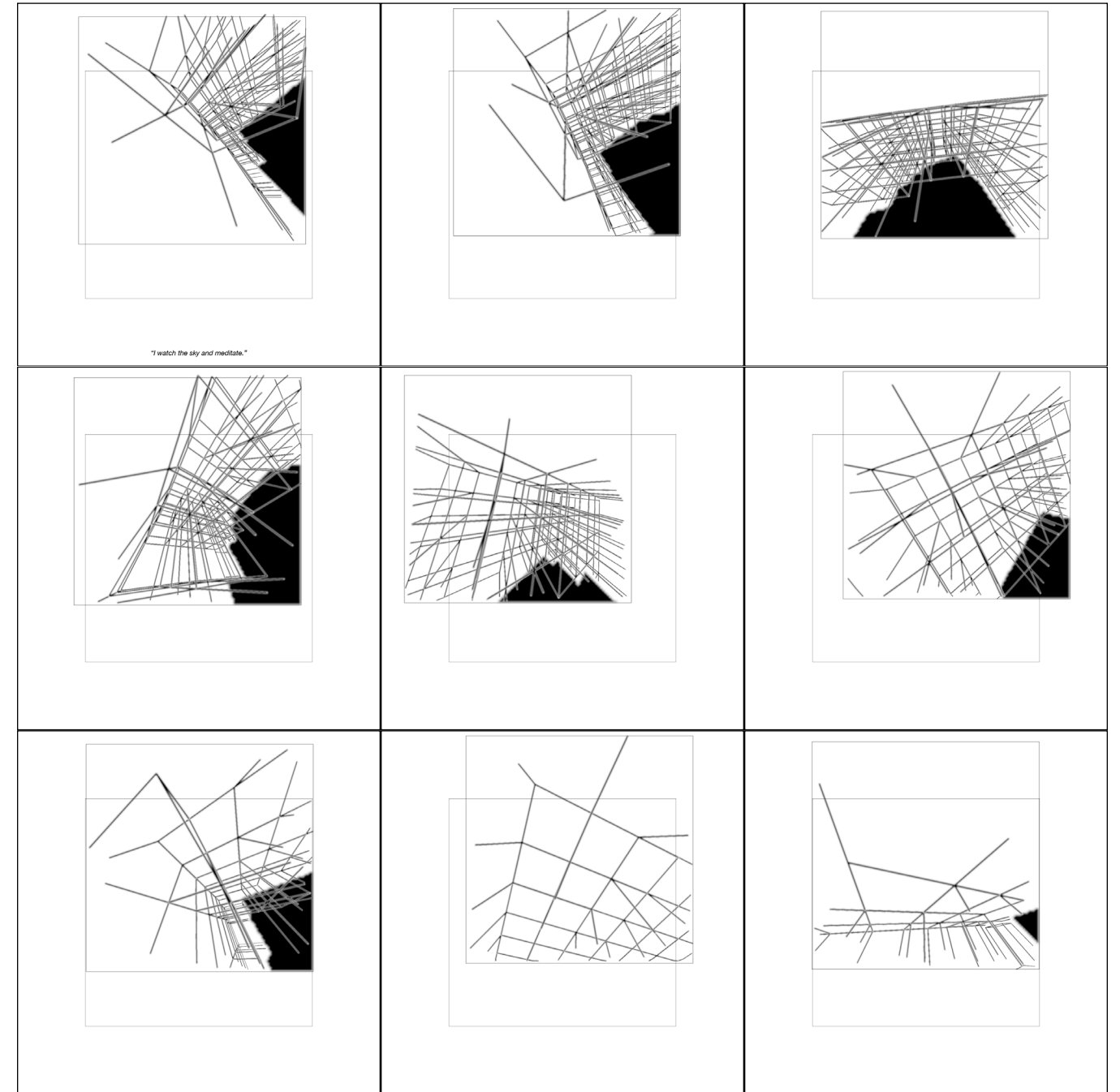


"I have acrophobia."

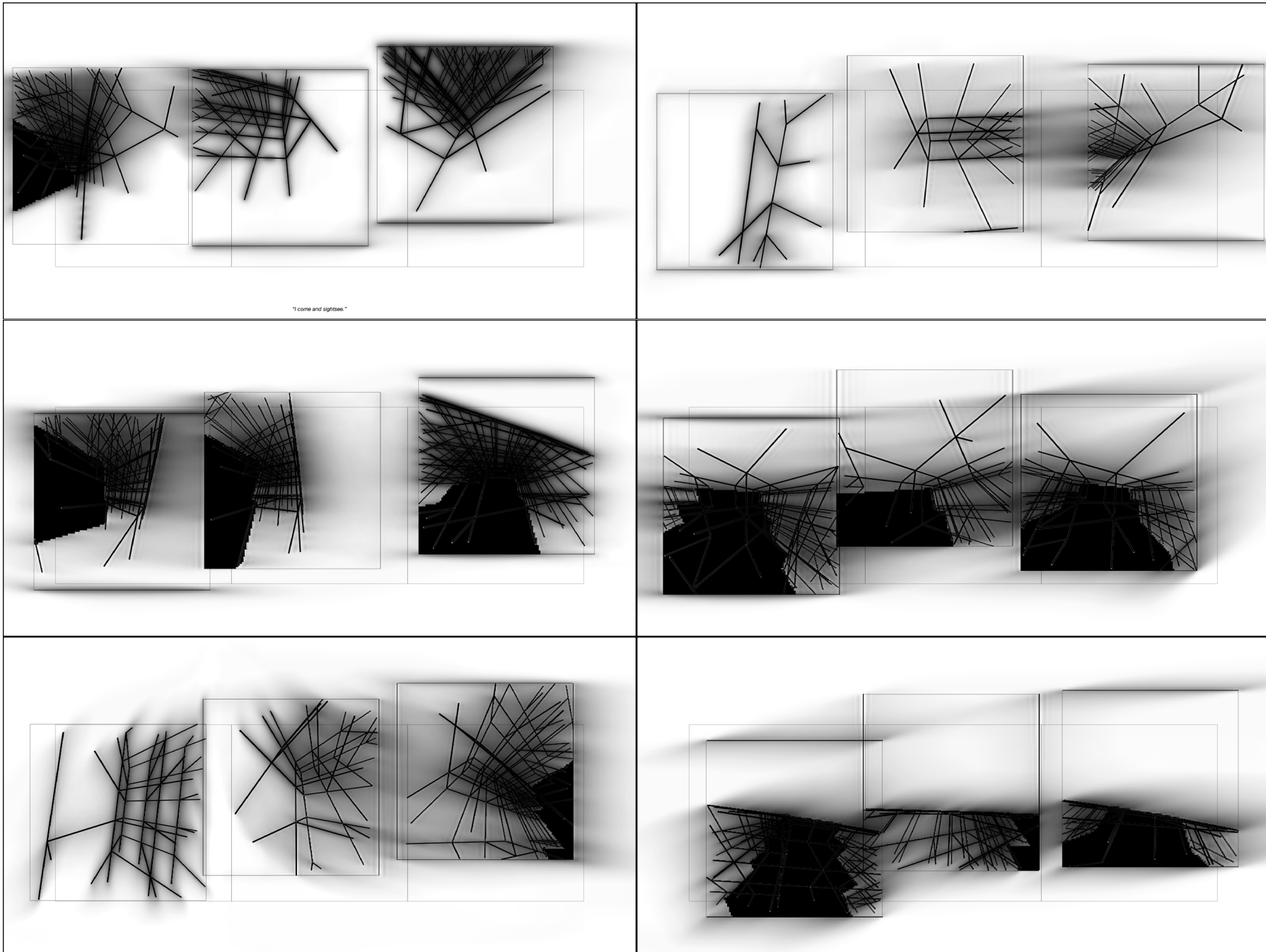
Who?
: films (frames), projection



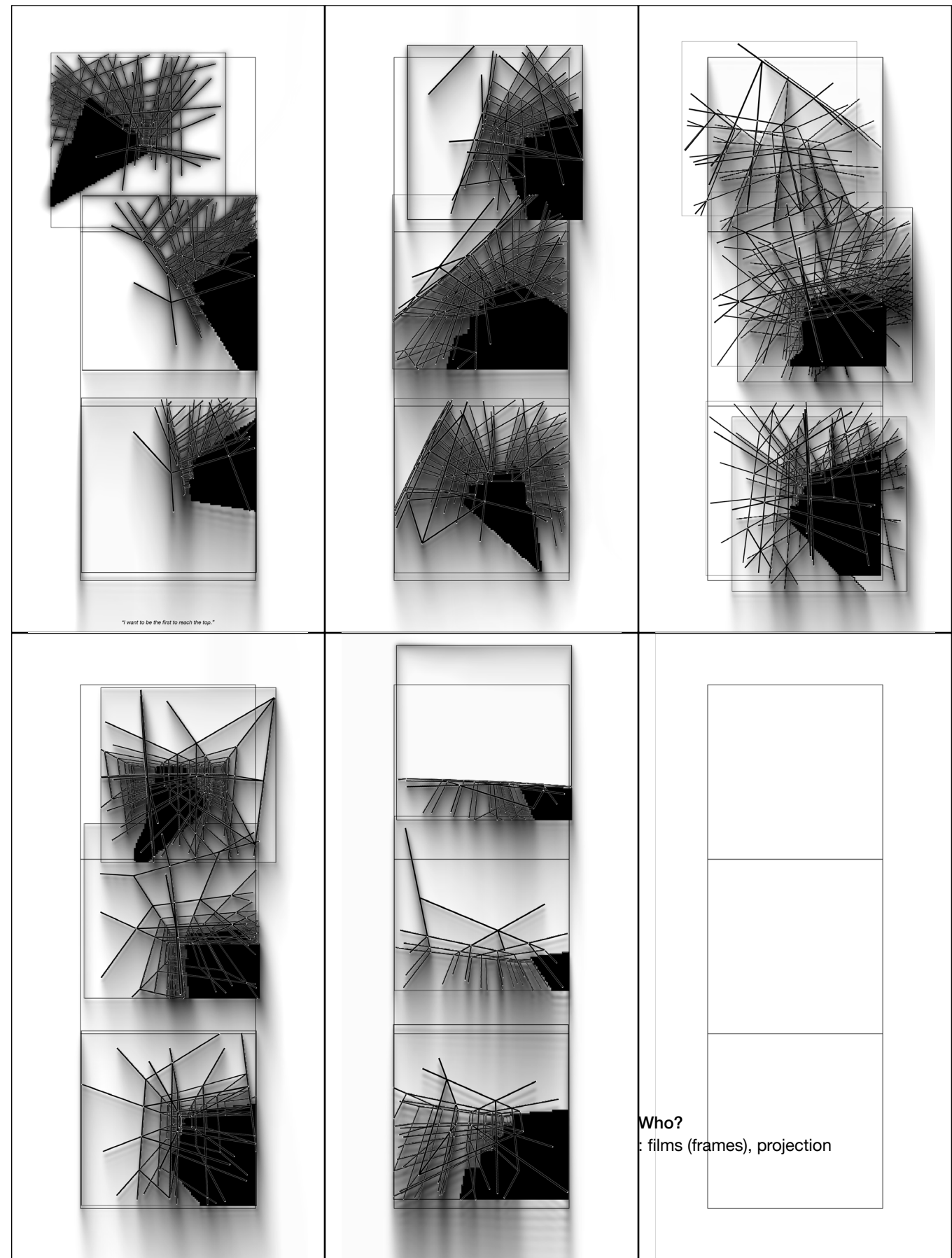
Who?
: films (frames), projection



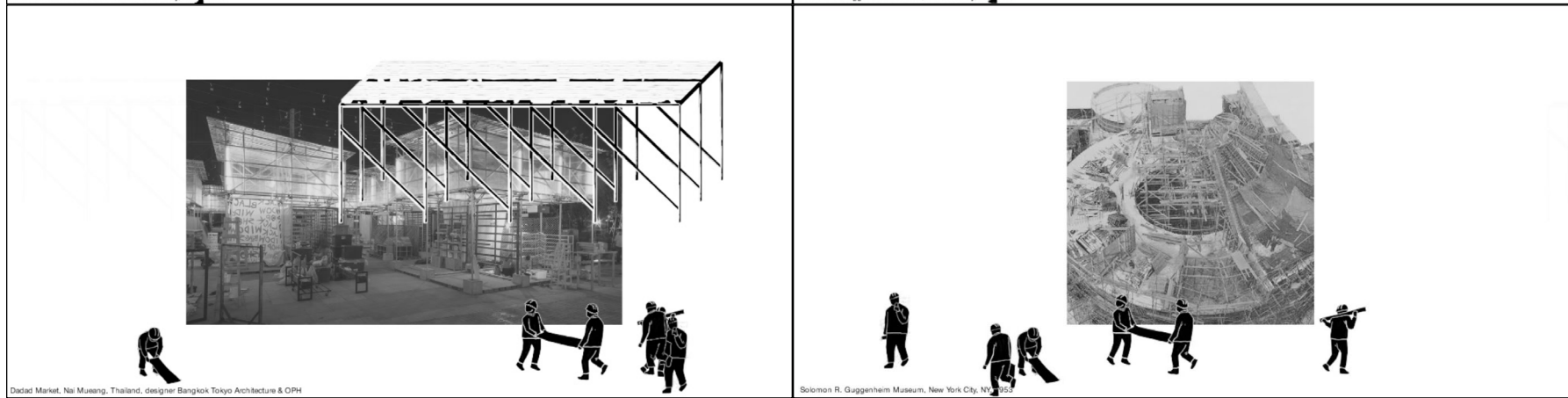
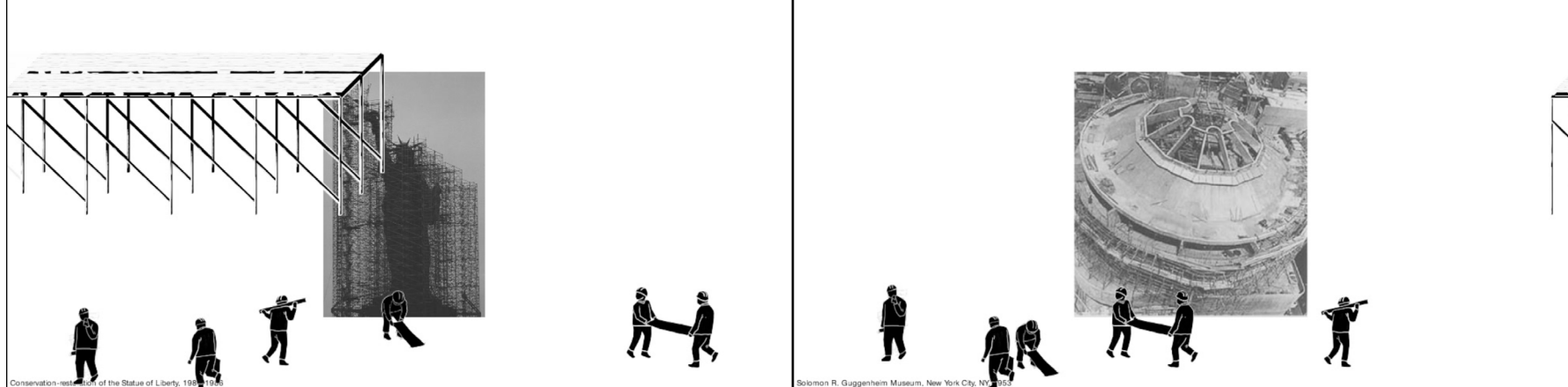
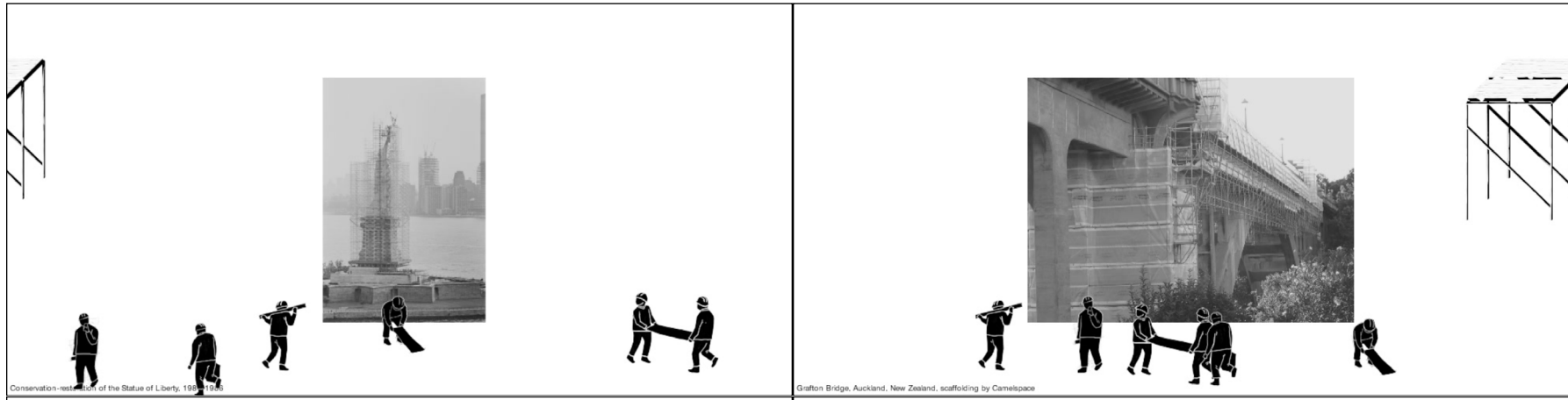
Who?
: films (frames), projection



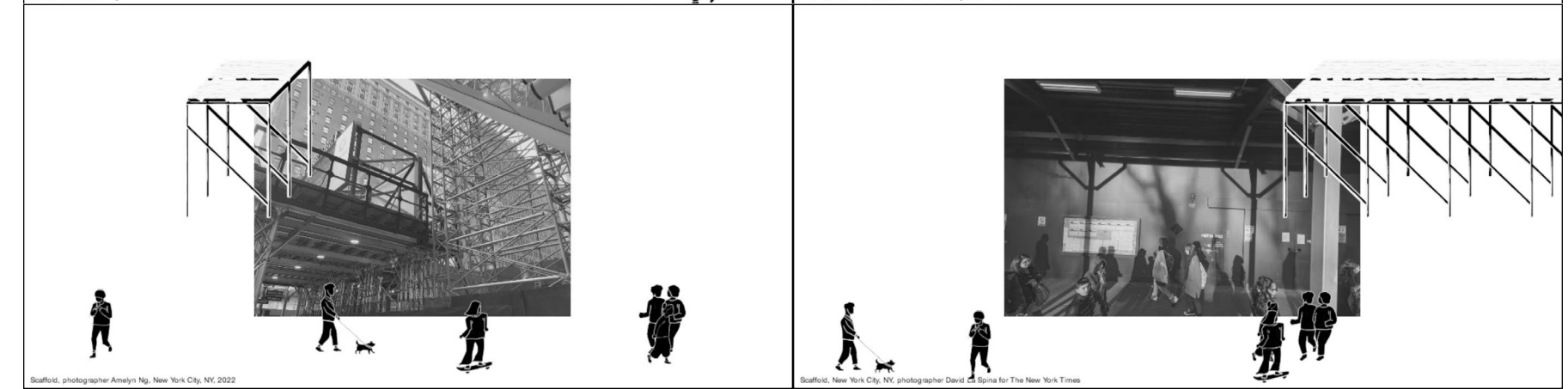
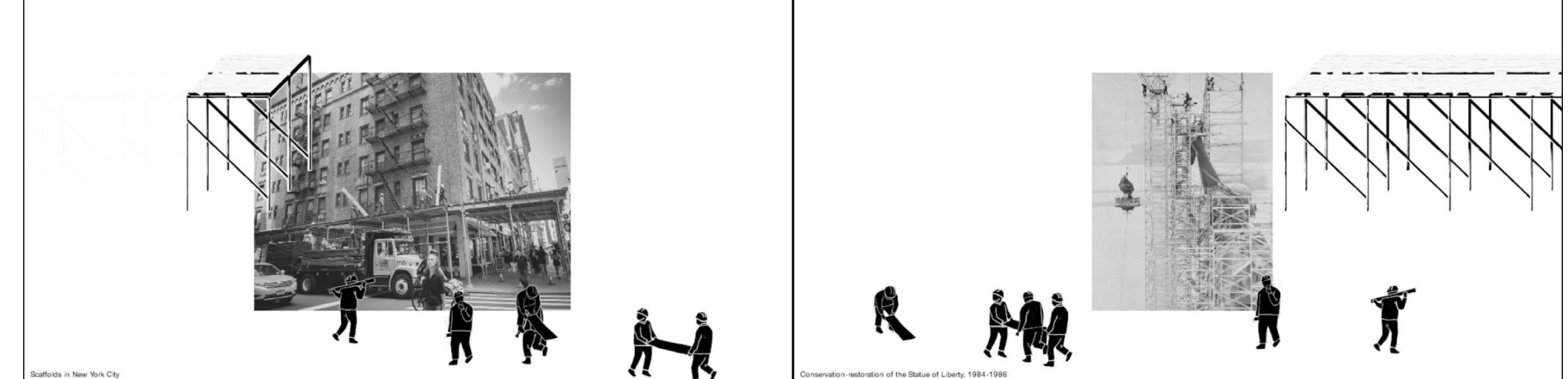
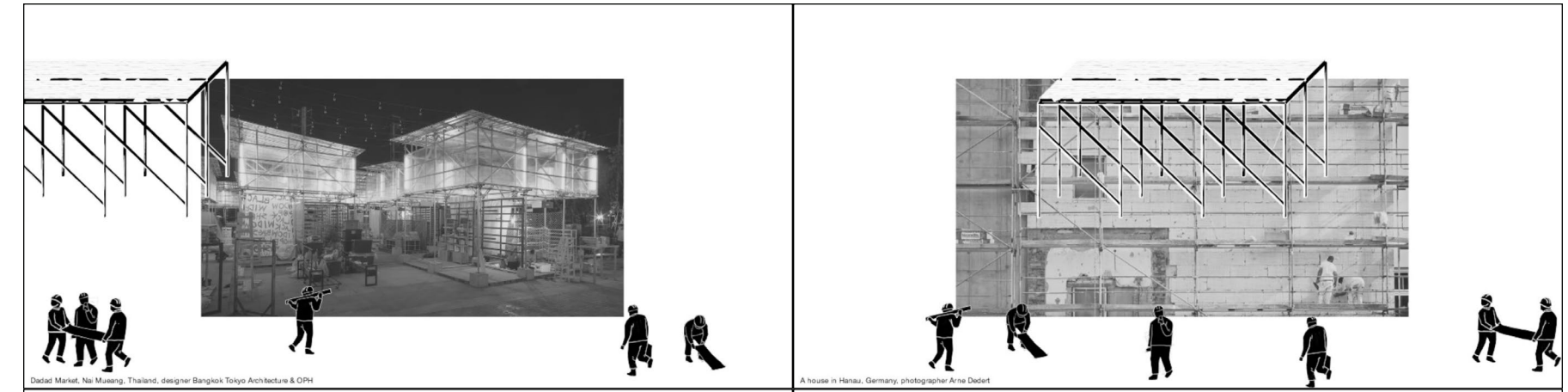
Who?
: films (frames), projection



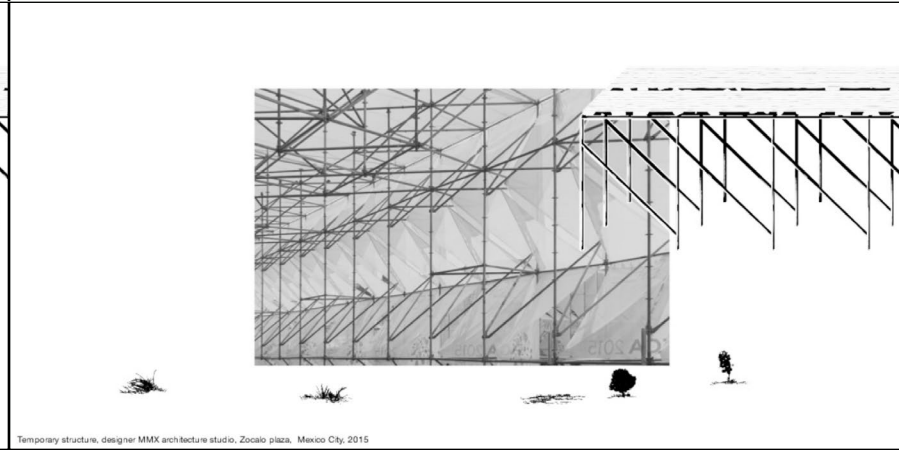
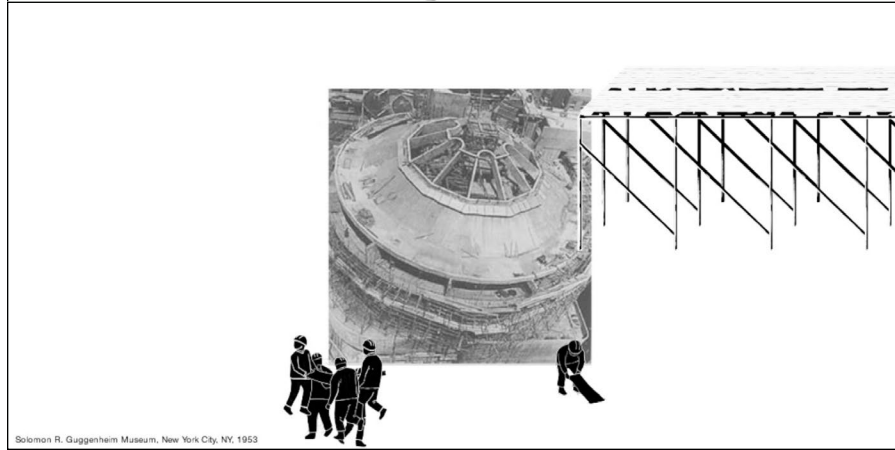
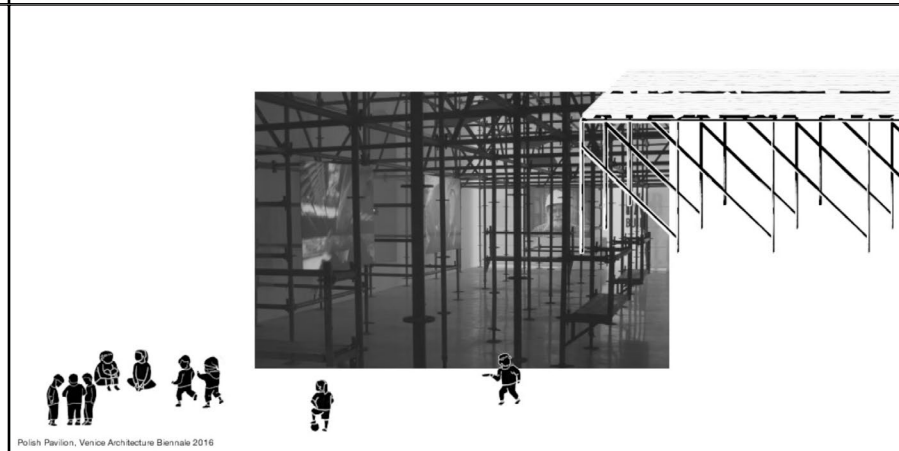
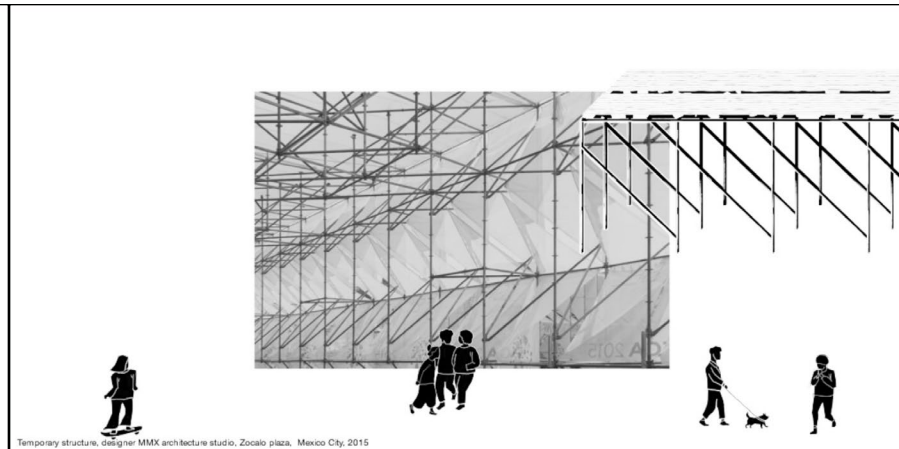
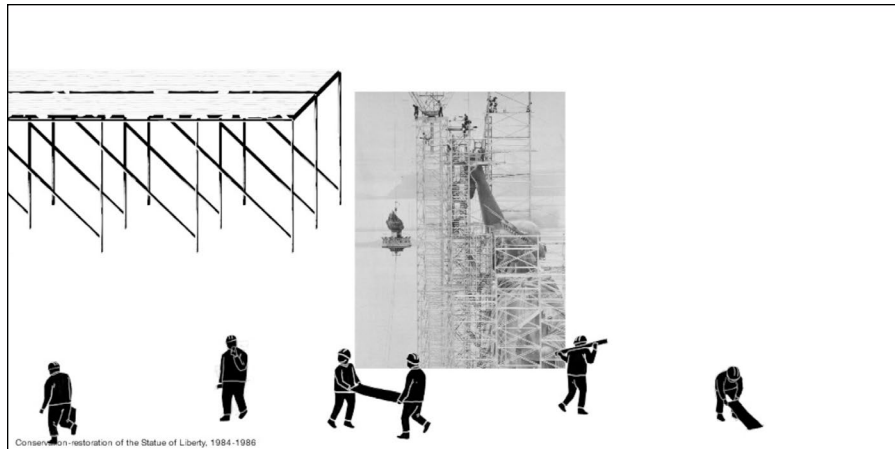
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: films (frames), projection



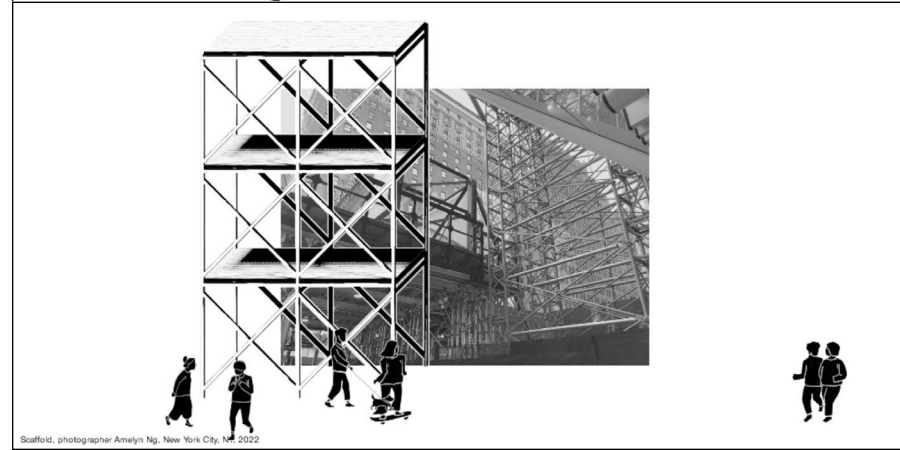
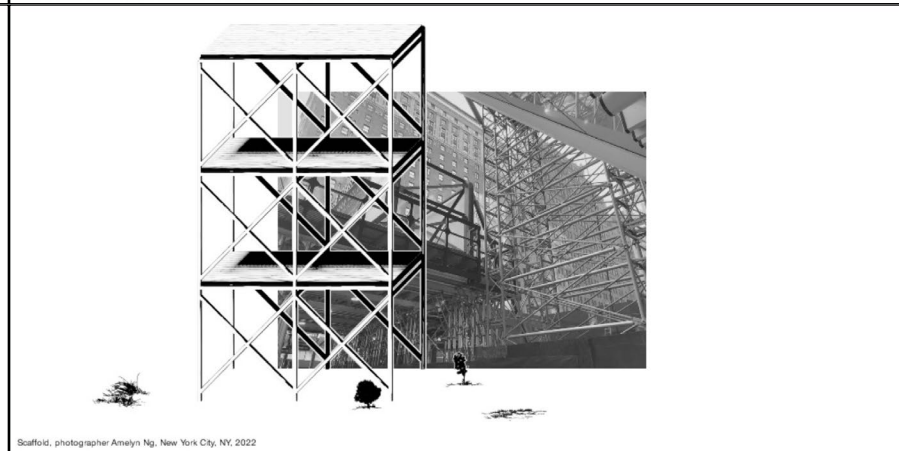
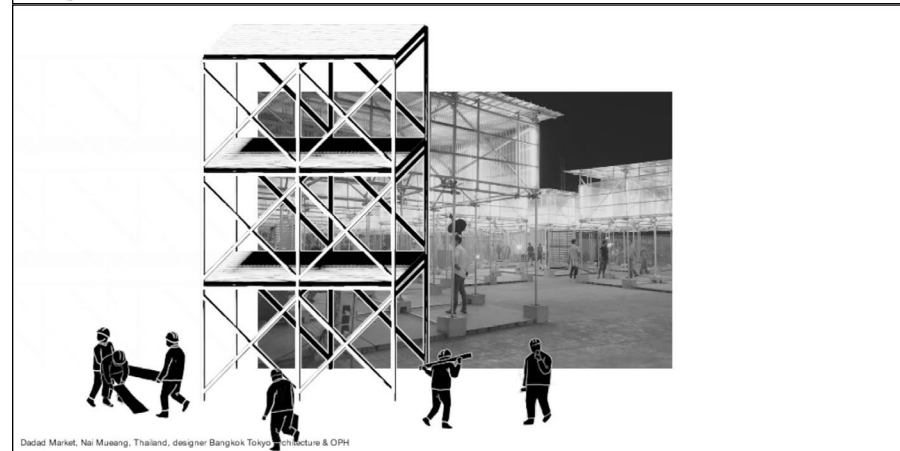
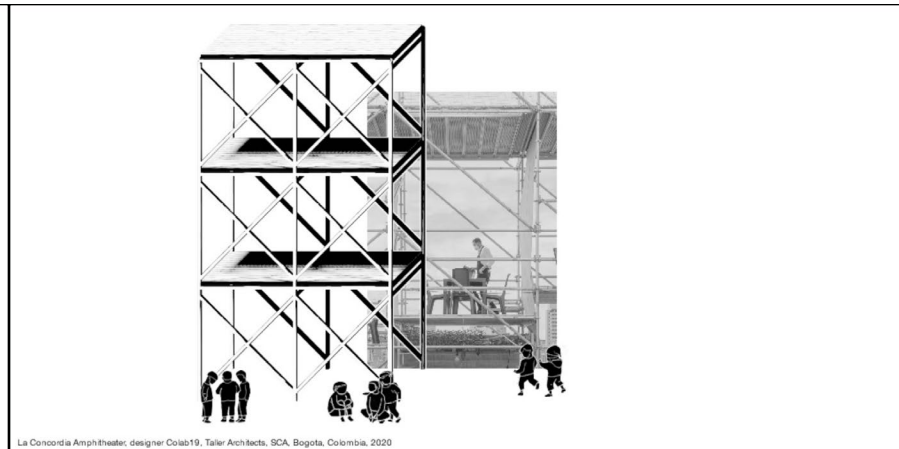
Tempo
: films (frames), projection



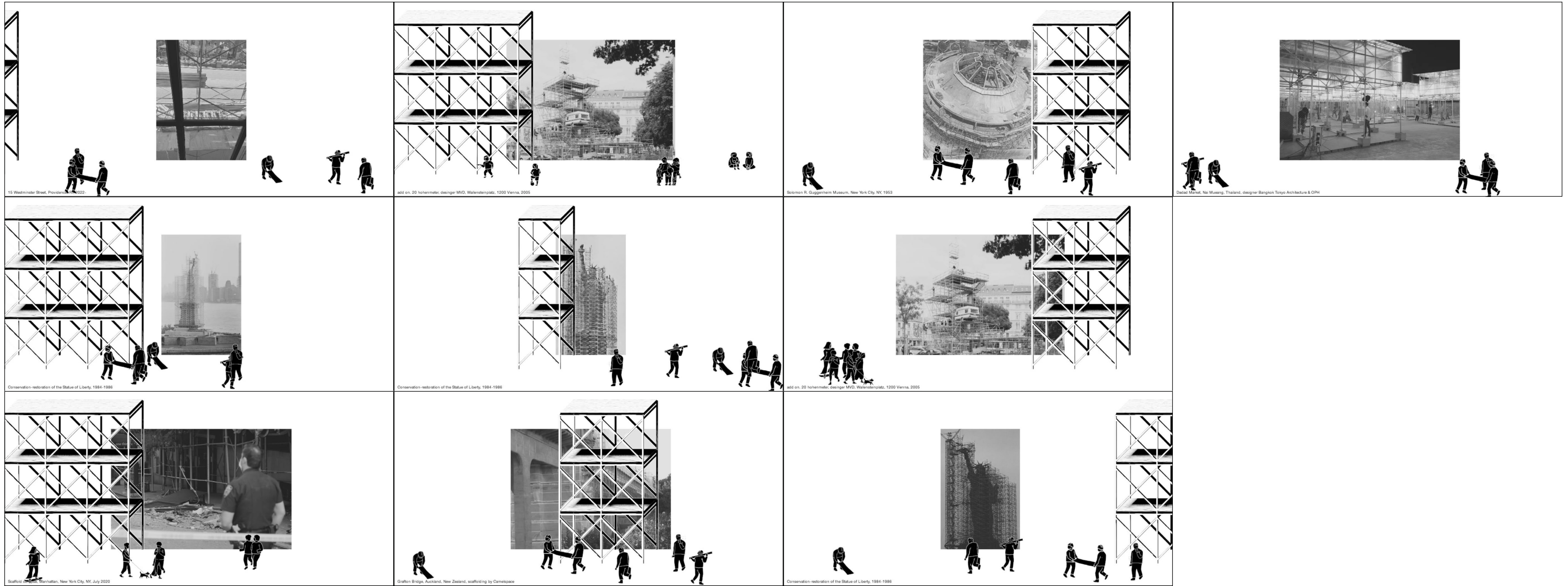
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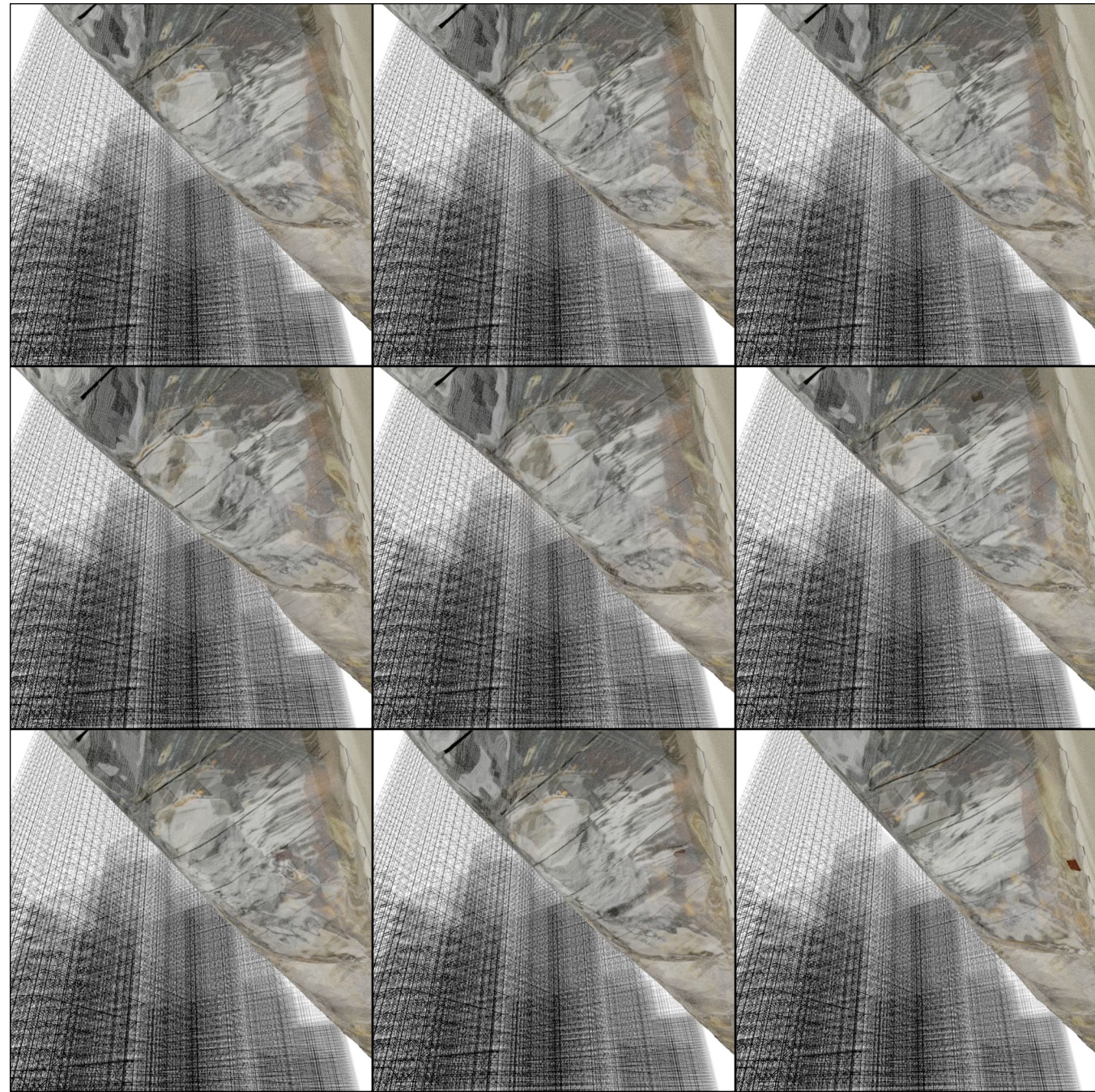


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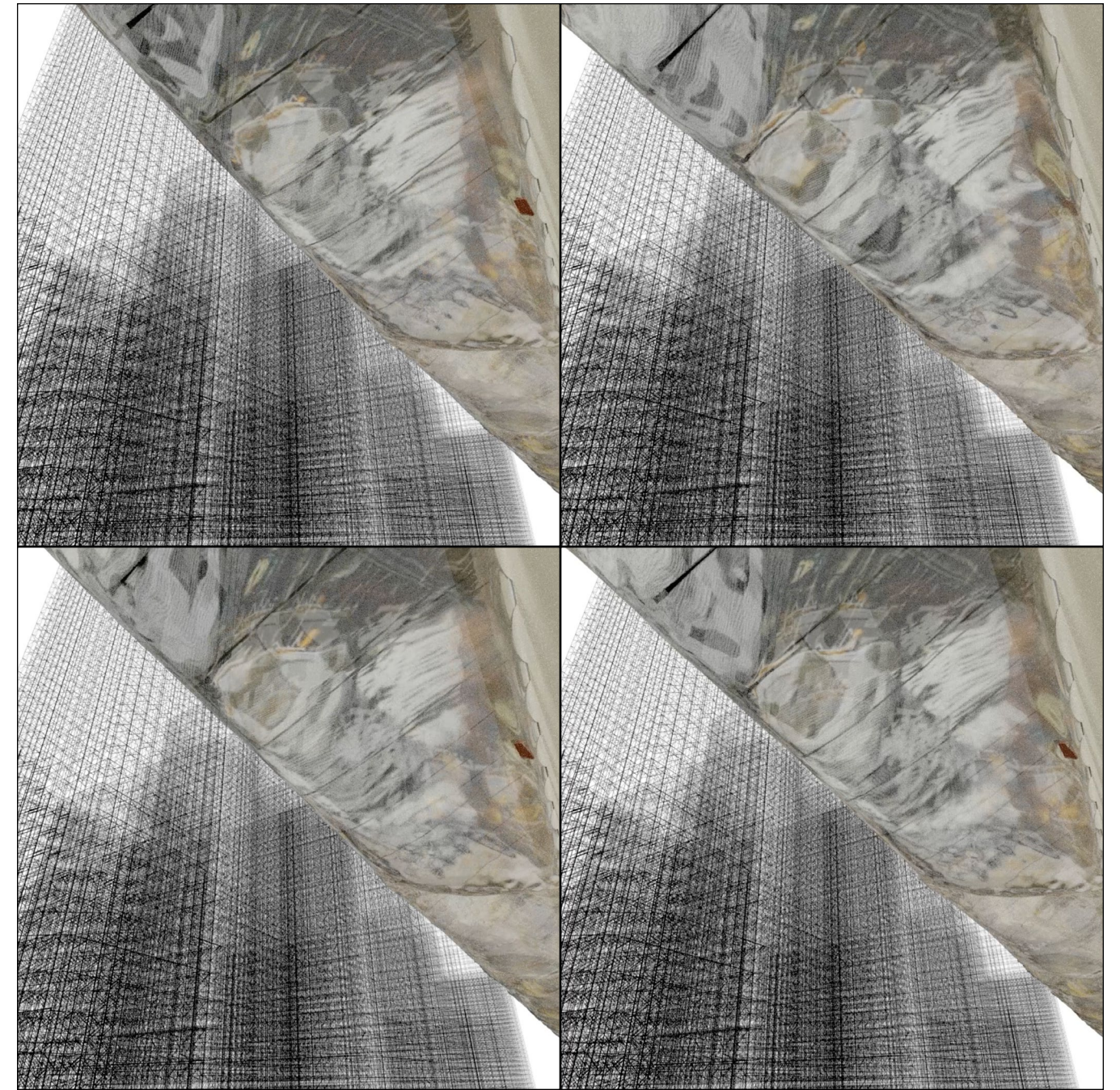


Tempo
: films (frames), projection

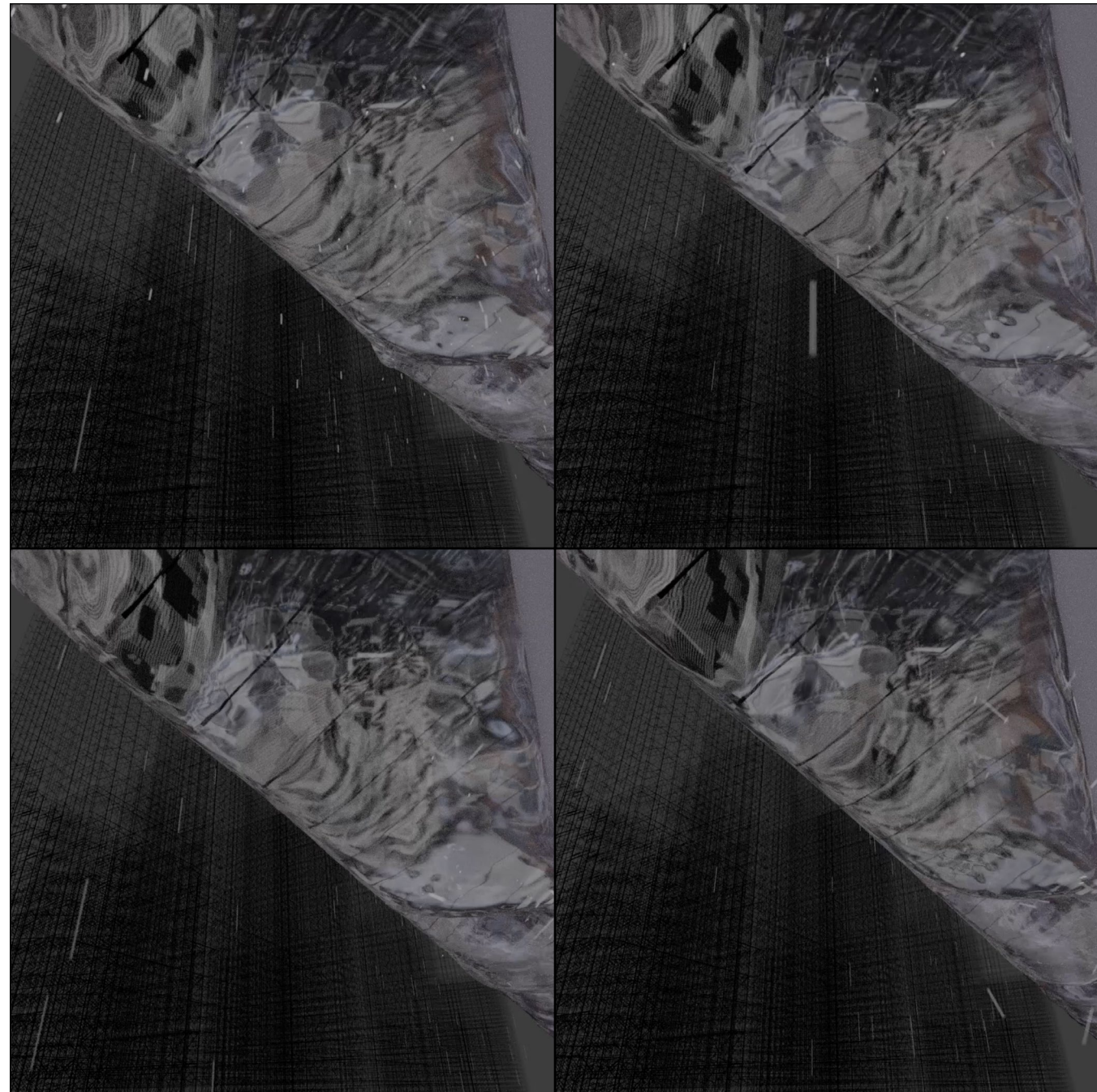
Tempo
: films (frames), projection



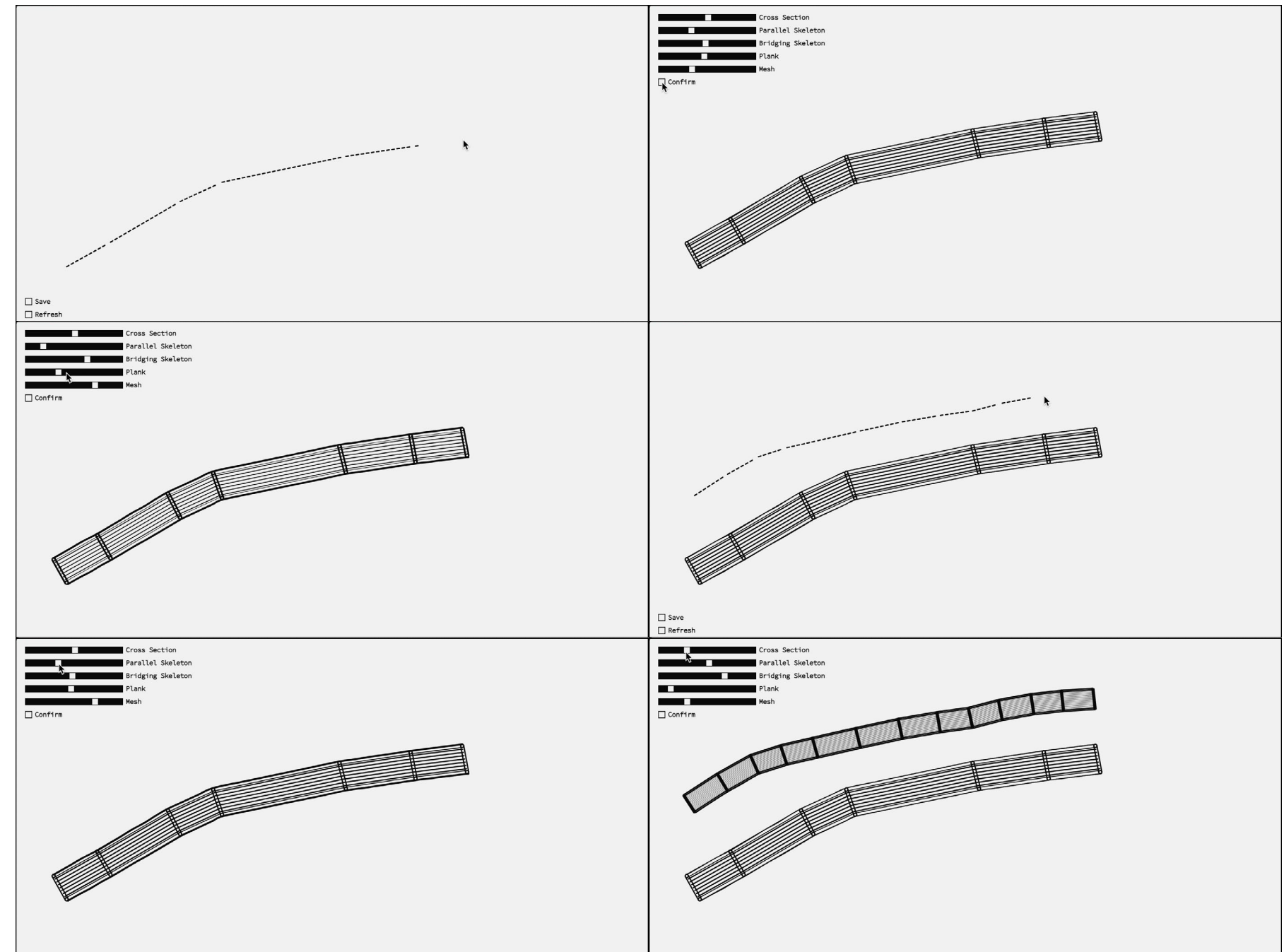
Pneumatic Scaffolds
: films (frames), projection



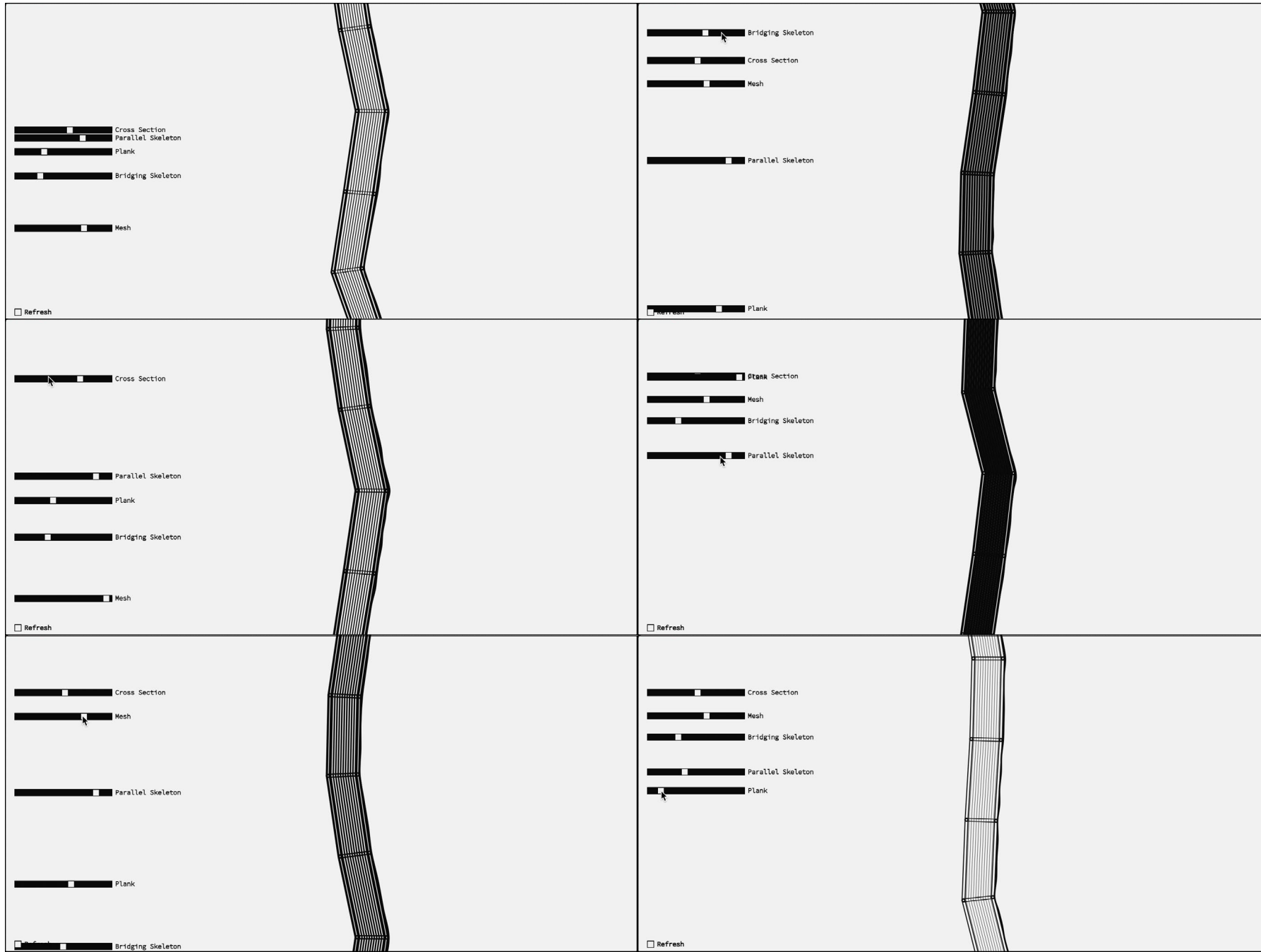
Pneumatic Scaffolds
: films (frames), projection



Pneumatic Scaffolds
: films (frames), projection

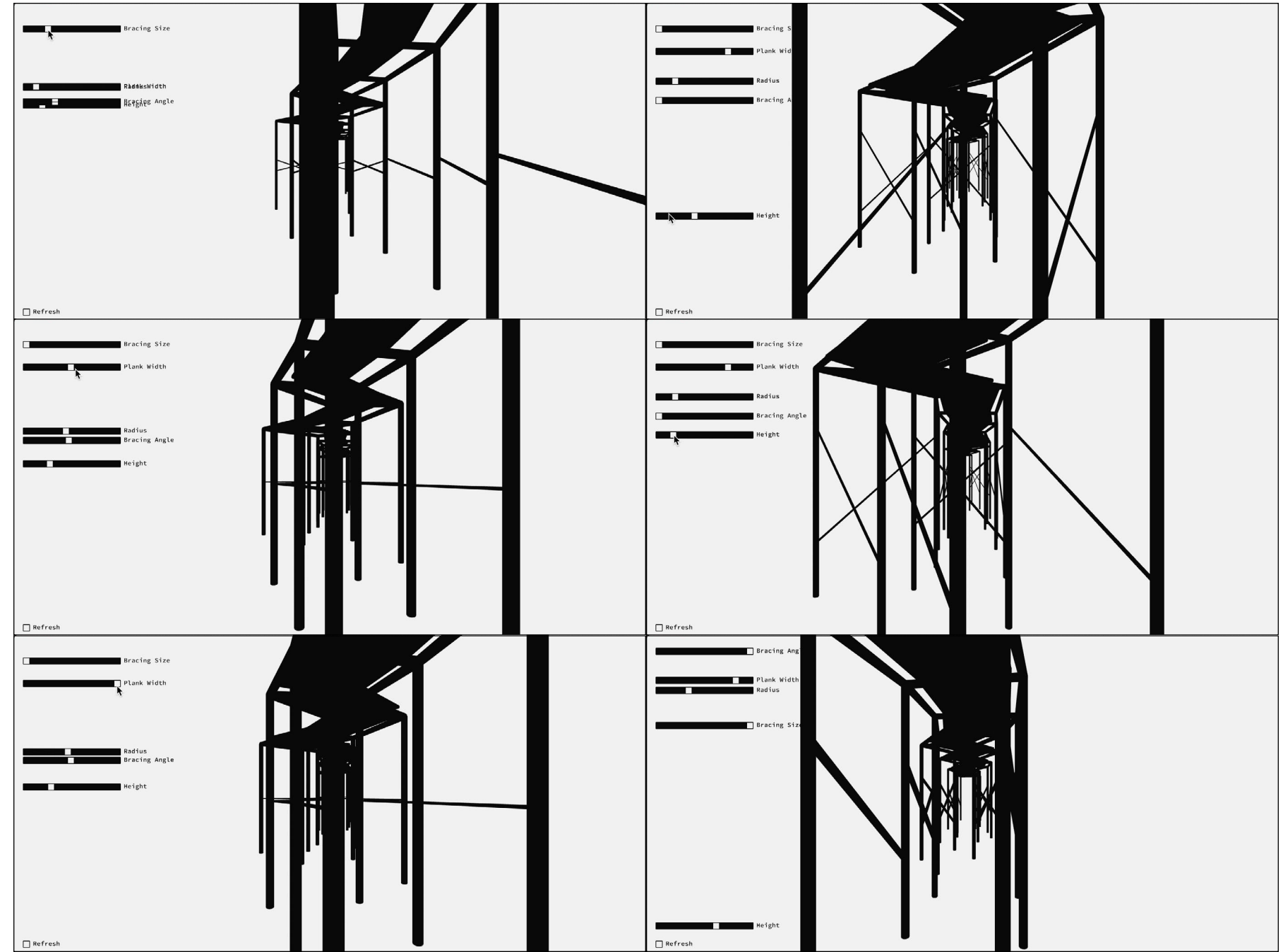


Line Weight Conventions
: interactive browser-based program (screenshots)



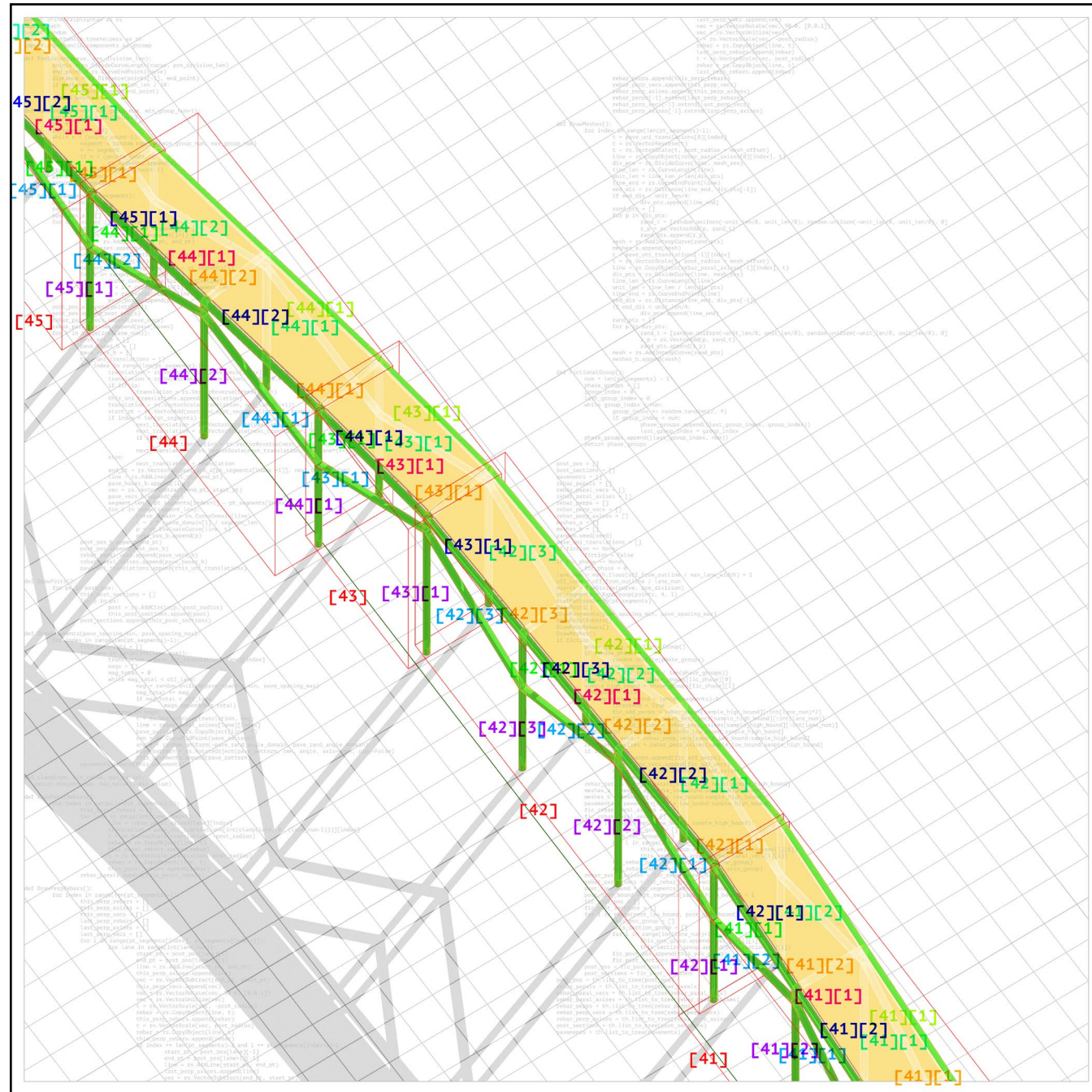
Interfaces and Interaction Modalities

: interactive browser-based program (screenshots)

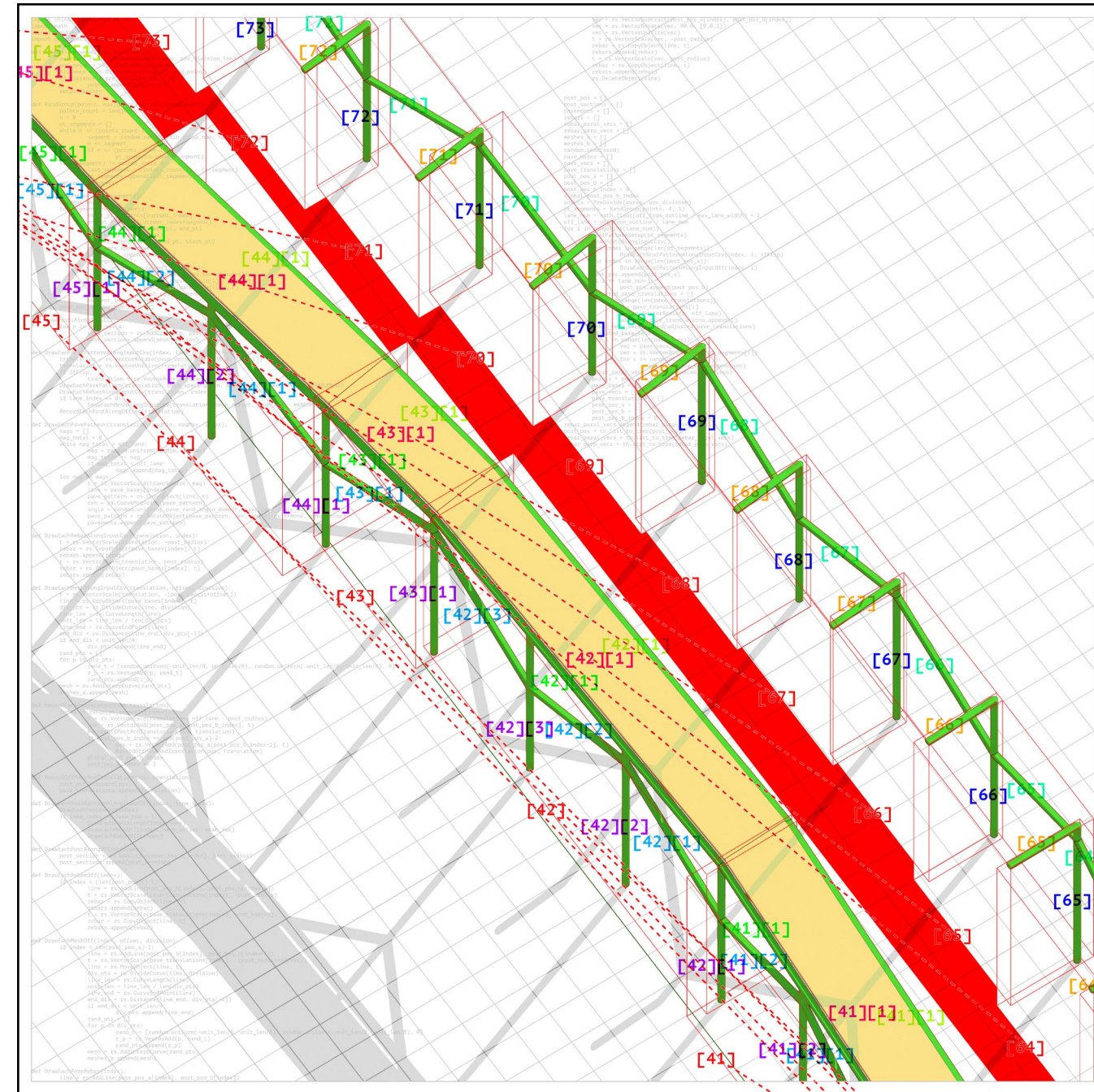


Interfaces and Interaction Modalities

: interactive browser-based program (screenshots)



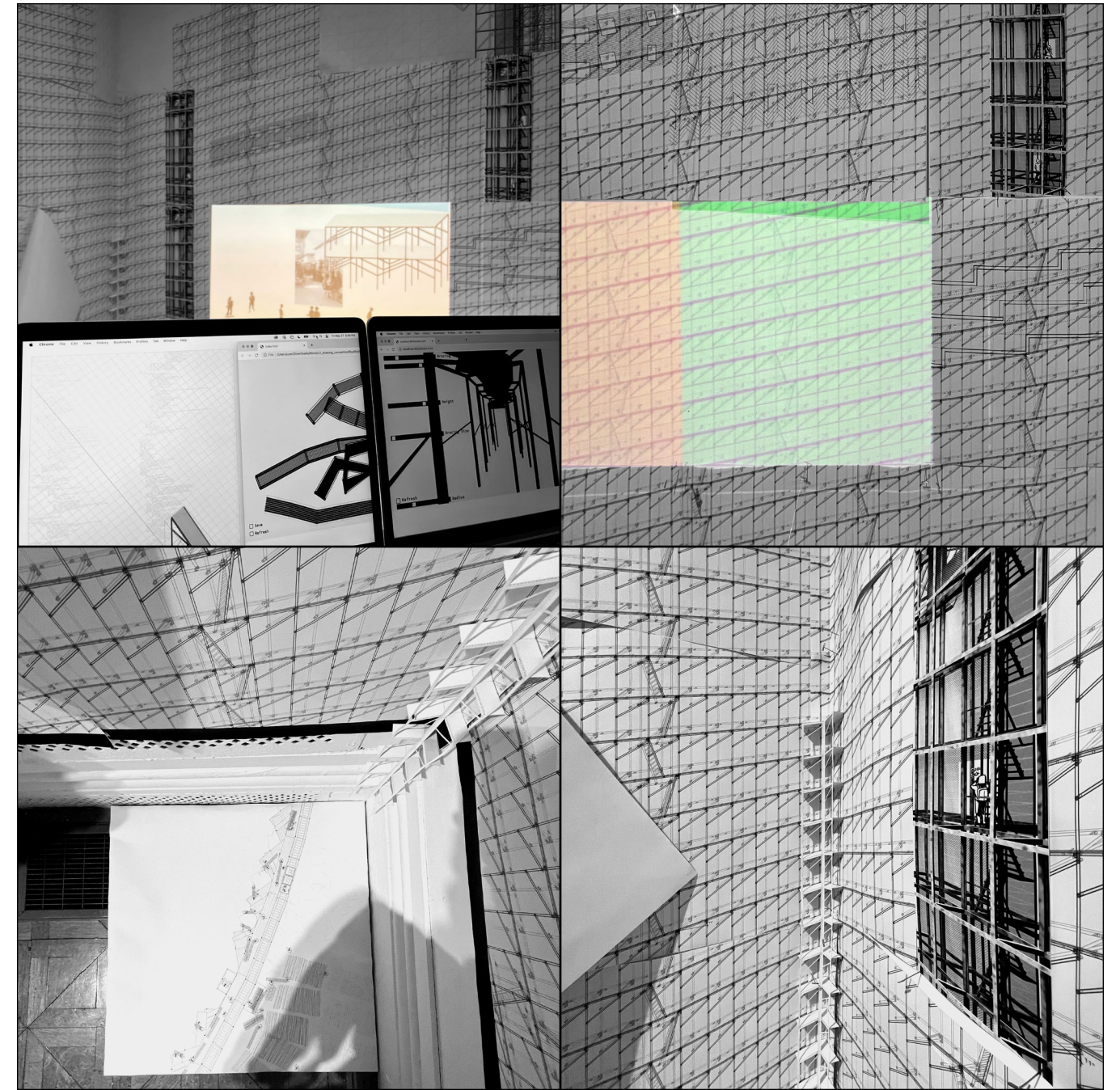
Code is a Scaffold
: drawings, digital wallpaper



Code is a Scaffold
: drawings, digital wallpaper



: thesis review installation



: thesis review installation

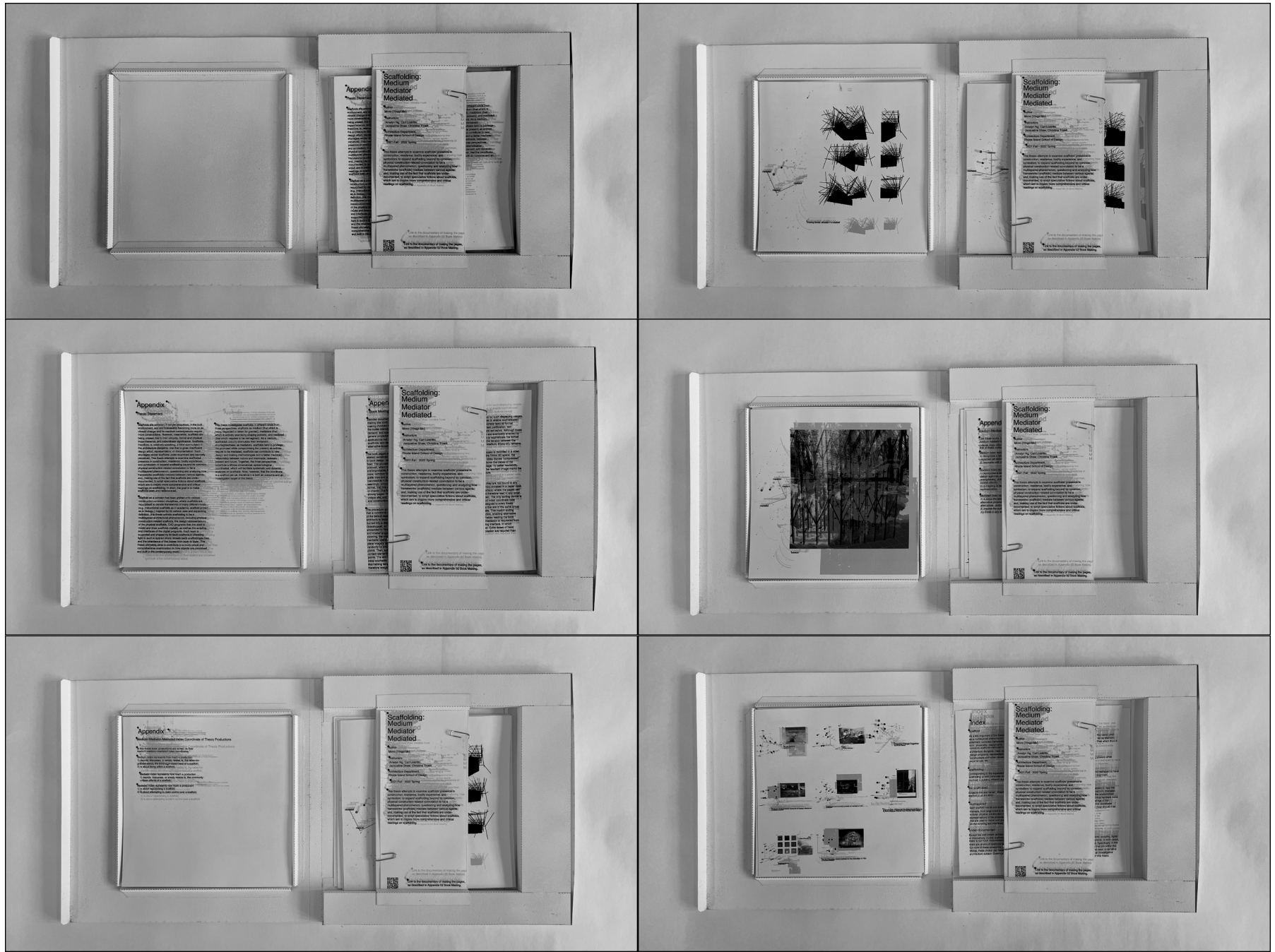
Making Book Prototype

- During the interval between the research and production phases of the thesis, a physical book prototype was proposed and developed. Even though many experiments that were involved in making the physical prototype do not continue in this final thesis book, the making process of the prototype is itself an exercise, a performance that embodies the scaffold-awareness, the subject matter of the thesis project. It involved repurposing a tool and mediating between the tool's intended functions and unusual, hacked uses: setting up general rules and applying the rules in unique, nonreplicable situations, which is not unlike the application of scaffolds in the built environment. It was also featured decisions that would encourage speculation and alternative experiences.
- The book pages are not formatted based on certain page templates, as commonly exercised in book designs. Instead, only the page-layout procedure is 'formatted'. The procedure delightedly involves chances and randomness, which makes each page uniquely improvised and improbable, if not impossible, to be replicated. What's more, common formatting devices and techniques such as guides and justification are deliberately made inaccessible in the procedure, which leads to an impression of 'unformatted-ness'. In a sense, this procedure is anti-format. Yet, this does not make the book pages unrelated or chaotic. The same making procedure prescribes similarity and commonality among pages. The intention is to regard each page as a unique site, and the procedure the scaffolding manual: the end constructions are unique but similar.
- The procedure goes like this: Rhino 3D, a CAD program that is commonly used in modeling and drawing, is misused as a formatting interface via scripts made in Grasshopper, a node-based scripting program embedded in Rhino 3D. On initiating a new page, the page contents are placed at random positions. The author then formats the contents via panning, rotating, and zooming, the most basic, commonly used operations in the 3D modeling space. Because of the lack of assistive formatting tools, while the author is attempting to establish orders and formality, randomness and misalignment are inevitable.

More specifically, since Rhino 3D is not designed for such displaying usages, it does not have handy tools to enable sophisticated control over textual displays. Simple textual formatting functions like word wrapping, text justification, text column-ization, spacing setting, etc. are not inherent in the program. While establishing rules, only certain basic textual formatting functions are eventually enabled by codes. By remaining uncontrollable, the tension between the mediator, the author, and the medium, the digital program, also remains.

These pages are not bound in any way. Instead, all pages are simply encased in a paper case. The case is also a reading interface, where the pages can be dislocated, rearranged, and therefore read in any order. Pages numbers are not included. The only organizing device is the medium-mediator-mediated index coordinate (see appendix 03 and 04) that is assigned to every thesis production pieces. This implicit organizing mechanism makes order obscure, enabling alternative reading experiences. It also makes reading the book another thesis performance: mediation is requested from readers to deal with the reading interface, in which unbound pages tend to scatter. Extra doses of hand manipulation, care, and speculation are required than reading a regular book.

Every page's making process in Rhino 3D is recorded in a video clip. Each video is processed to have all video frames 'compressed' into one still image, one that shows the traces of the mediatory operations in the previous stage.



Thesis Book Prototype

Index

Scaffolds

In this thesis, scaffolds are registered as active agents and generative interfaces. Scaffolds are studied as a poly-dimensional group of frameworks, tool, and agreements, ranging from scaffolds in the built environment, architectural drawing conventions, CAD program interfaces and interaction modalities, and codes behind the digital programs.

Scaffolding

A verb, connoting behaviors and activities involved in building scaffolds of different kinds.

Medium

That which is being neglected and unquestioned.

Mediator

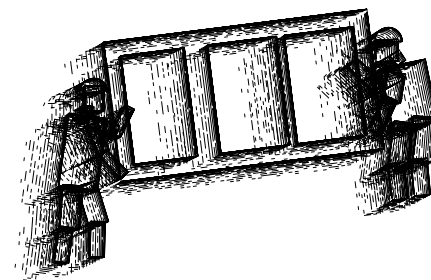
That which is actively exercising shaping powers.

Mediated

That which requires to be reimagined.

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