

These Lines Are Material

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Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of Master of Architecture in Architecture.

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 Vulcan
 Speak-easy
 Foundry

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Alexandria, Virginia.



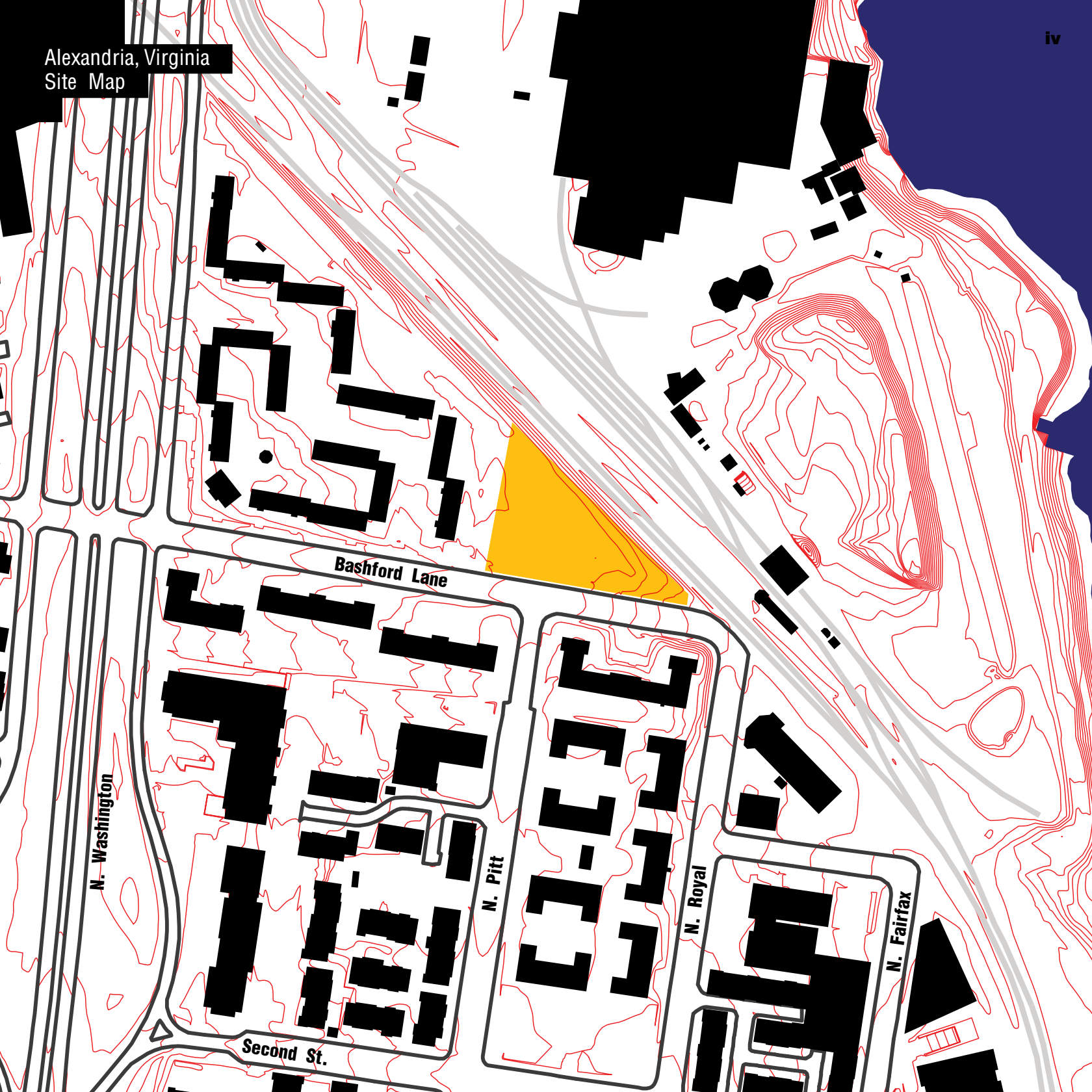
these lines are material. ⁱⁱⁱ

Abstract

Bacchus, Vulcan and Metis walk into a bar . . .

The following dialogues took place beginning in January of this year. In a series of investigations through drawing, physical constructs and research, the project began to take shape. With the help of Bacchus, Vulcan and Metis, the building was given a body of its own. Ideas of the way a building ages, as well as the way the parts of the building relate to the whole, are the basis of the thesis. The building is a sort of beast with two heads: the foundry, and the speak-easy [with cunning navigating the straits].

a thesis book by matthew valentine.



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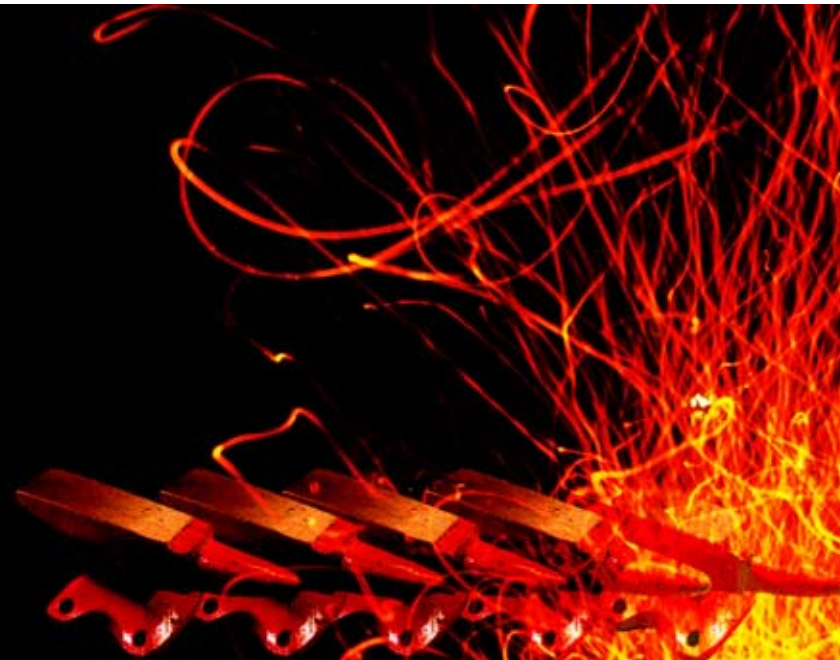
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The thesis student is expected to wear a sort of tricorne hat: on one point, the program; on another, the site; and on the third, the thesis question itself. My project began in Spring of 2008, and while I was struggling to find a site and program, I knew that I wanted to study the nature of weathering in architecture. As such, I made a list of programs in the categories of things which had changed [as, those which could be read as anachronisms in today's society], things which had not changed [as, constants such as the irrefutability of mathematics], and things which should not change [as, particular machining processes which rely on fixed apparatus].

Once I had narrowed down the list, I came up with a foundry and speak-easy. The foundry is an incredibly public space, used by artisans or machinists to generate metal objects. The process of casting is an alchemical one, in which a metal ingot is transformed through fire and the ingenuity of the craftsman.

A speak-easy is a sort of surreptitious social club that served alcohol. They flourished during the era of Prohibition, a period during which alcohol was not commercially available, as it was deemed an evil to both the self and society; owners and clients had to operate with a certain level of cunning. Despite being an oddity in today's society, the city of Alexandria hosts at least one speak-easy, named PX.



The site for the project was required to be both industrial [to accommodate the foundry] and have a level of social interaction [to support the speak-easy]. Originally, some sites in Washington were considered, but a local alternative was found.

The site is located in Alexandria, Virginia, at the end of North Pitt. This is just south of the Mirant Potomac River Generating Plant, which has been in service since 1949. The plant relies on coal and oil for operation, and for transporting these goods a railroad track runs between it and the site for the project. Despite being so close to a power plant, a number of mid- to high-end residential complexes have sprung up in the area, to the west and south of the site. In addition, a number of office buildings and business storefronts are located to the east and south. The Potomac River is directly east of the site. An auto-body repair shop, currently on the site, will be removed.



View of site North to West [Through East]



View from site West to East [Through North]



View of site South-East to North [Through South-West]



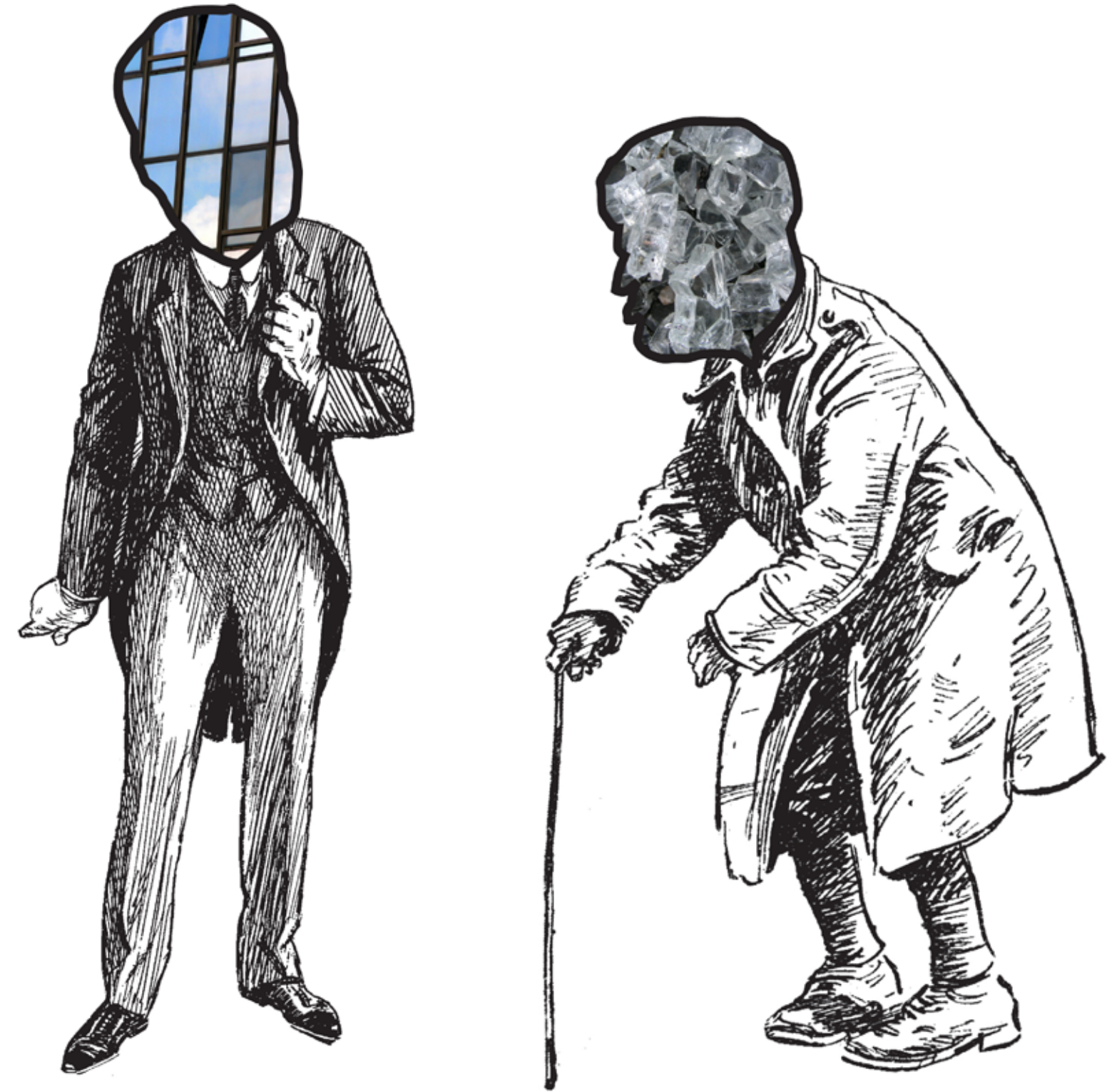
From the beginning, I wanted to focus on the effect of time in architecture. I thought the most obvious extension of this idea was the aging of materials. I wondered if it was possible for a building to be designed which aged well over the course of its lifetime. It has been common for the building to be associated with a lifespan in architectural thought; in his treatise, Filarete likens the building to a child, born of the pregnant architect:

The building is conceived in this manner. Since no one can conceive by himself without a woman, by another simile, the building cannot be conceived by one man alone. As it cannot be done without a woman, so he who wishes to build needs an architect. He conceives it with him and then the architect carries it. When the architect has given birth, he becomes the mother of the building. Before the architect gives birth, he should dream about his conception, think about it, and turn it over in his mind in many ways for seven to nine months, just as a woman carries her child in her body for seven to nine months.

Filarete II., 7v-8r

However, as time went on, my thesis developed an appendage. This was the growing desire to relate the part to the whole. Throughout the design process, I would draw parts of the building; later, I made the parts to fit together. However, material investigations continued to be vital to my project, as they continued alongside investigations made through drawing.

Filarete, Treatise on Architecture, 1965
Yale University Press, New Haven, CT



Characters

To help describe the design and story of the building, I used three characters from Greek and Roman mythology. These characters helped influence the design of the building through their physical attributes, as well as those things that they represent. The three characters are Vulcan, Bacchus, and Metis, and will also be used to organize the thesis book.

Vulcan

The first character, Vulcan, is the god of the forge. Vulcan was so ugly as a child that his own mother threw him bodily out of heaven, breaking his legs; he was raised by Achilles mother, and taught to use the forge. Because of his broken legs, he is usually depicted in paintings as reclining. As the only god in Roman or Greek mythology to be considered truly ugly, Vulcan was given a unique standing among the other gods. Because he limps on broken legs, he must traverse the site on a series of ramps. In addition, since his work is sober, the building rests on his foundations. His portion of the building is concrete and steel, to accommodate his work. Recalling Vulcan, the first section of the book is devoted to the serious play of making drawings.

Bacchus

The second character, Bacchus, is the god of wine and merriment. The followers of Bacchus tended to have drunken feasts and orgies to celebrate the god. He was associated with transparency, since people speak more freely after having had a few drinks. However, he was also associated with violence, since he whipped people into such a frenzy that they would literally tear each other apart. His portion of the building is made of wood, and a series of grape vines on top of the building are accessible through him. This second section of the thesis book is devoted to the more playful work of material experimentation.

Metis

The third character, Metis, was the goddess of cunning wisdom. She was not a true goddess in the sense of the word, since she did not have followers [she was an abstract thought and did not represent something corporeal, so she could not have devotees]. However, she was important enough that Zeus saw her as a threat and swallowed her, so that he could have cunning himself. Metis is both present and invisible in the building. She does not have a specific area designated to her; however, each of the details in the building was designed with cunning in mind. This final section of this book recalls Metis; it is the one in which both drawing and material experimentation come together.





Francois Boucher
Vulcan Presenting Venus with Arms for Aeneas
1757

{ Vulcan }

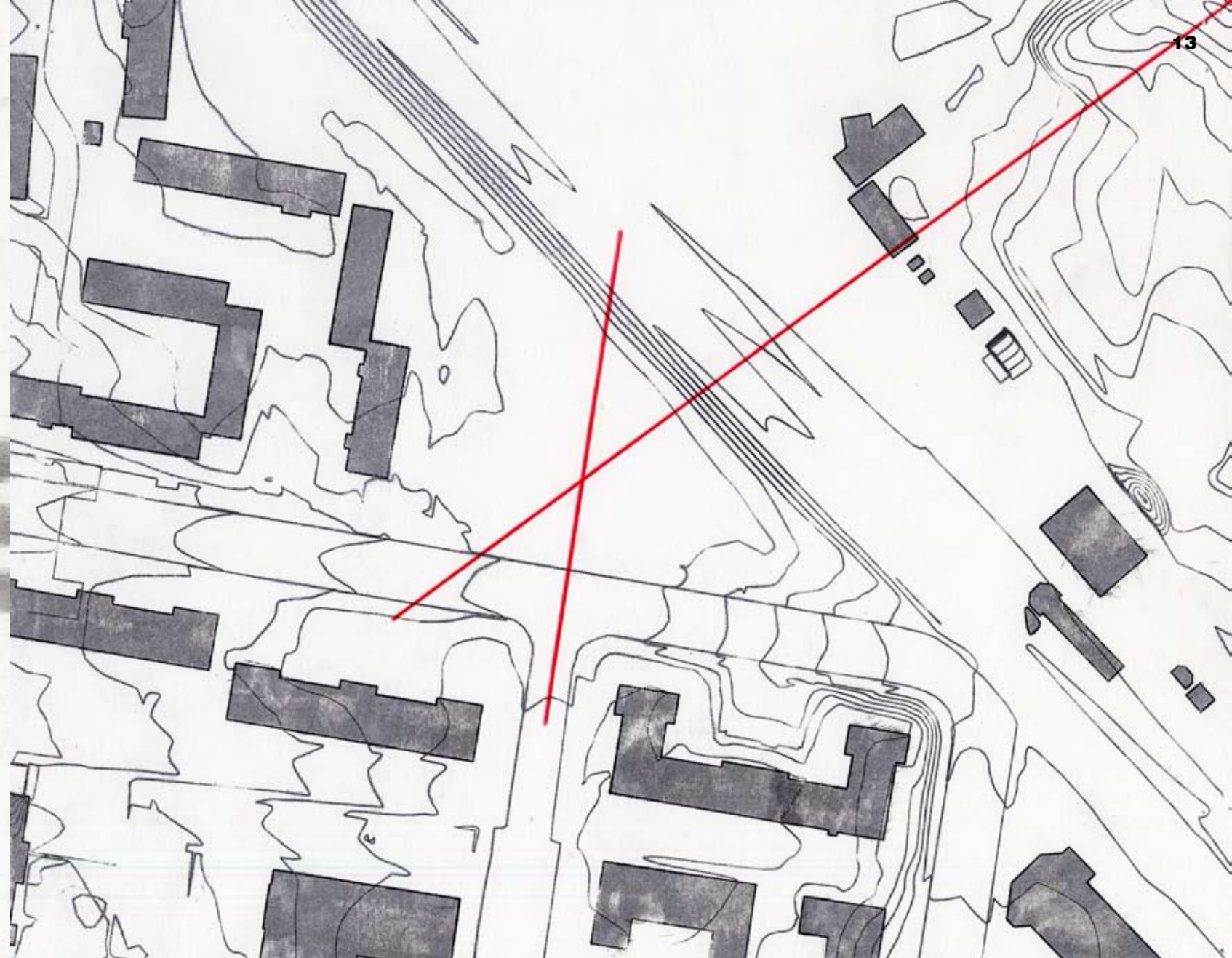




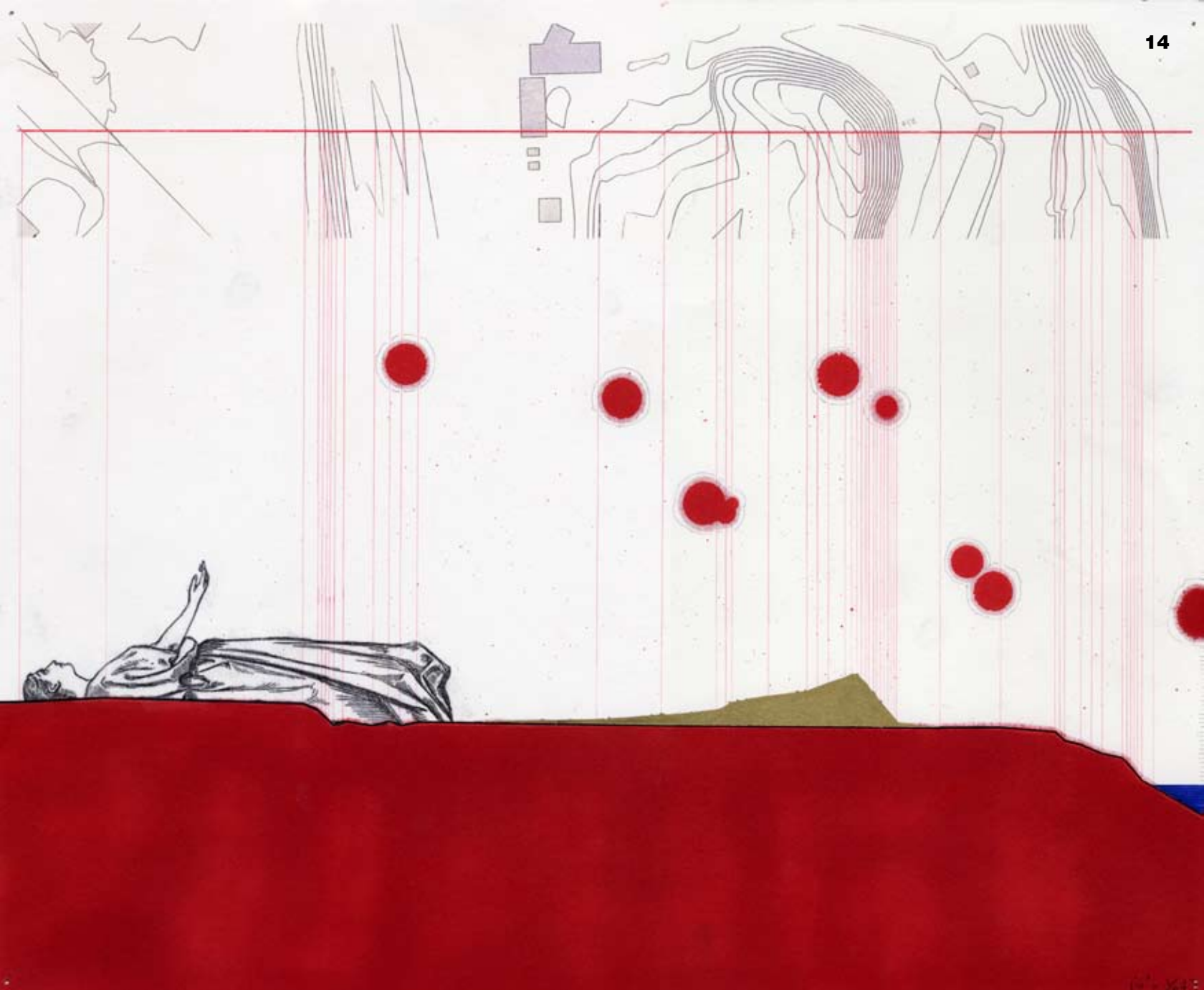
Coke [left] burns at a specific temperature to ensure raw metal melts evenly.
Slag [right] is unusable metallic left-over from a pour.



Material Timeline
Early study of the lifespan of five given materials.

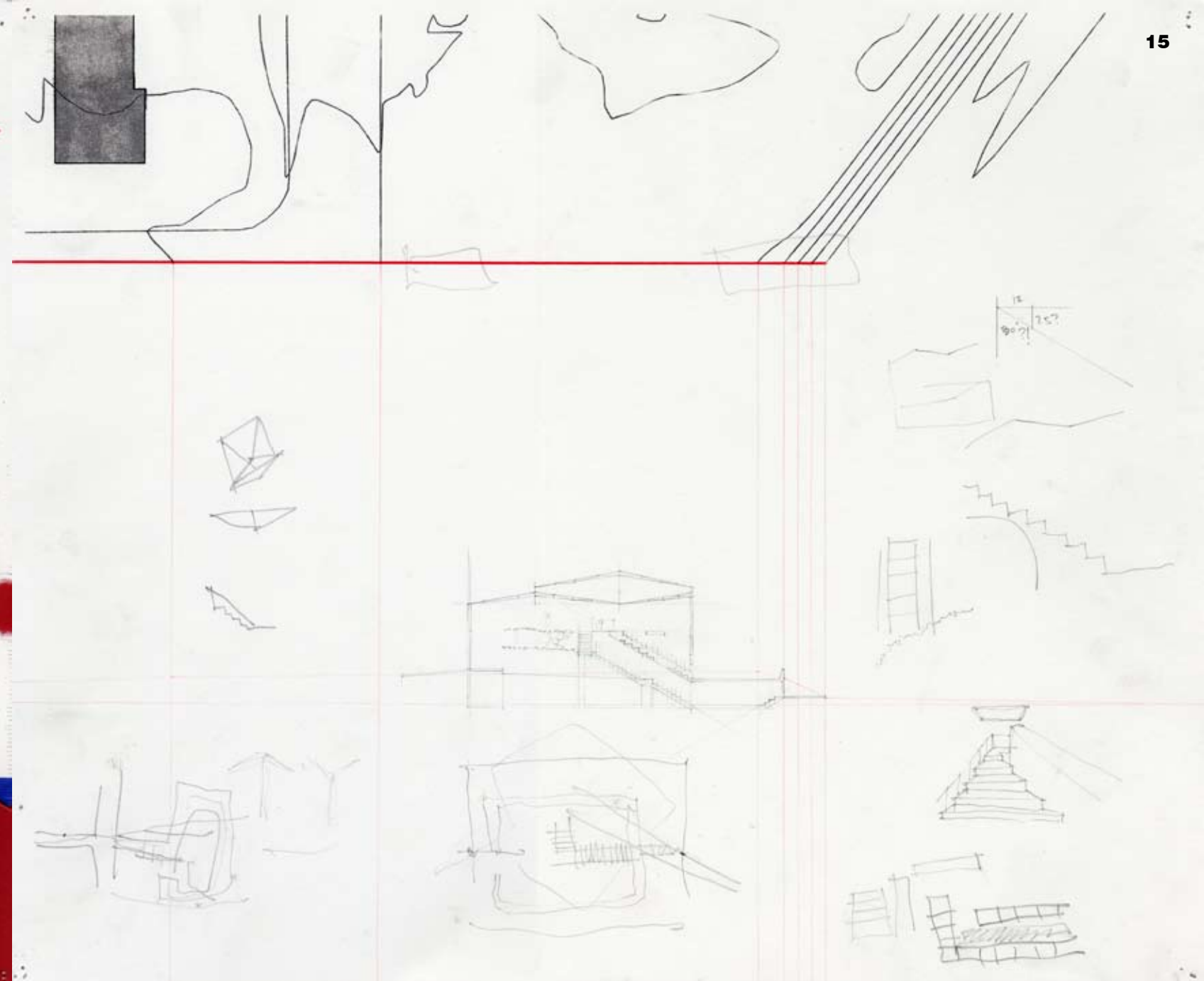


Marking Where to Cut the Earth
Sections are surgery.



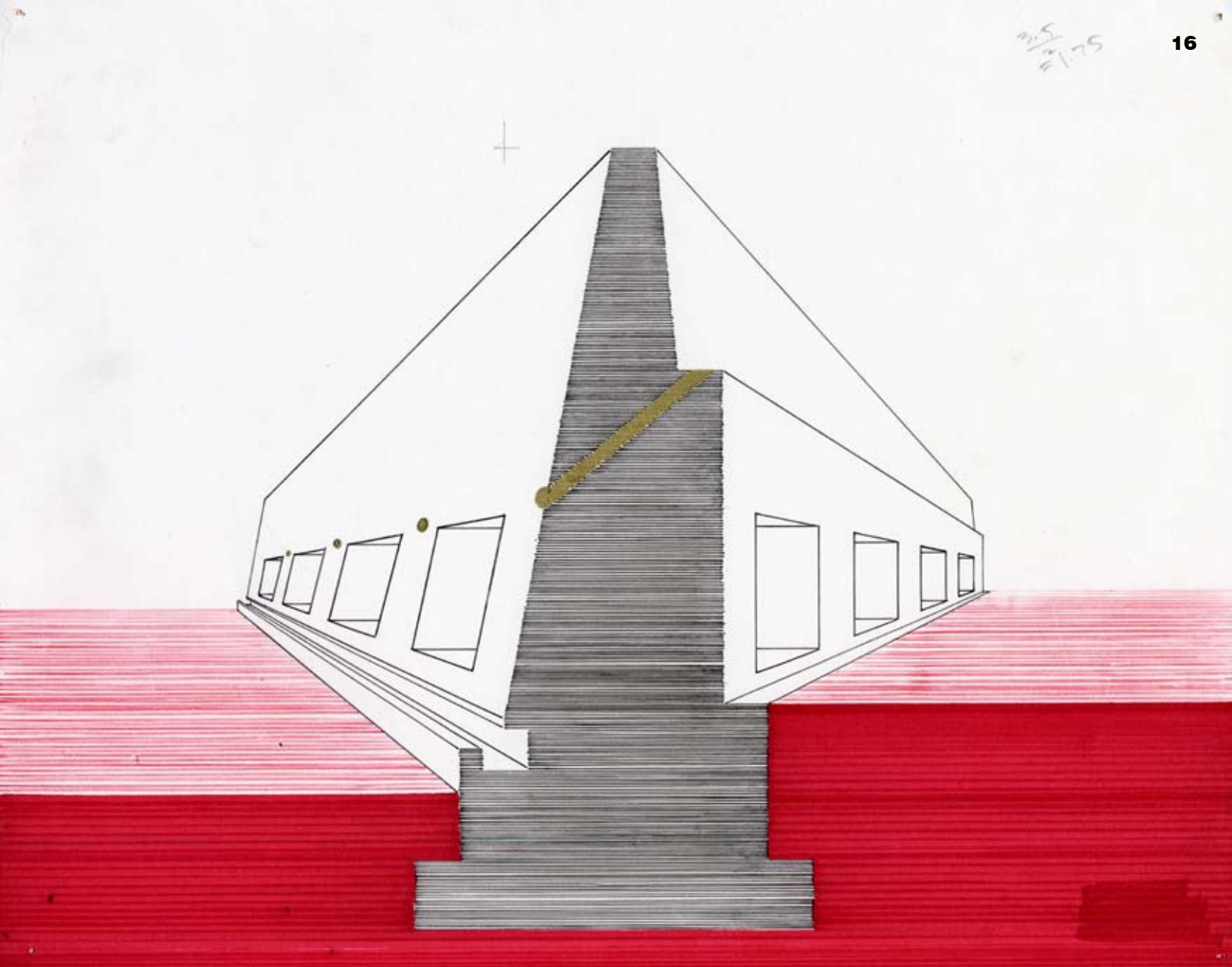
Site Section South-West to North-East

Complete with a pile of gold for burning.
Metis expectantly waits for the building.

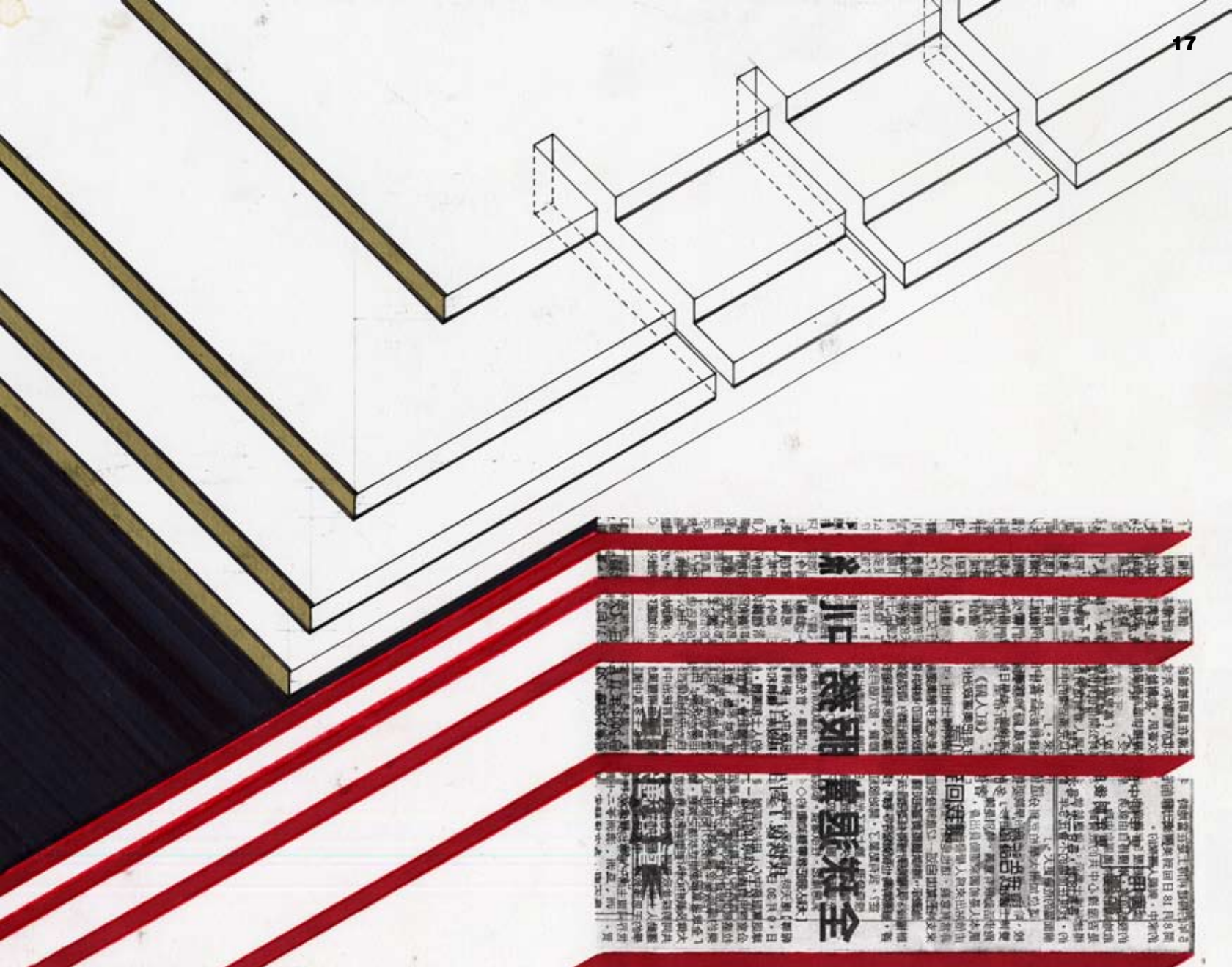


Section with Bacchus Stair

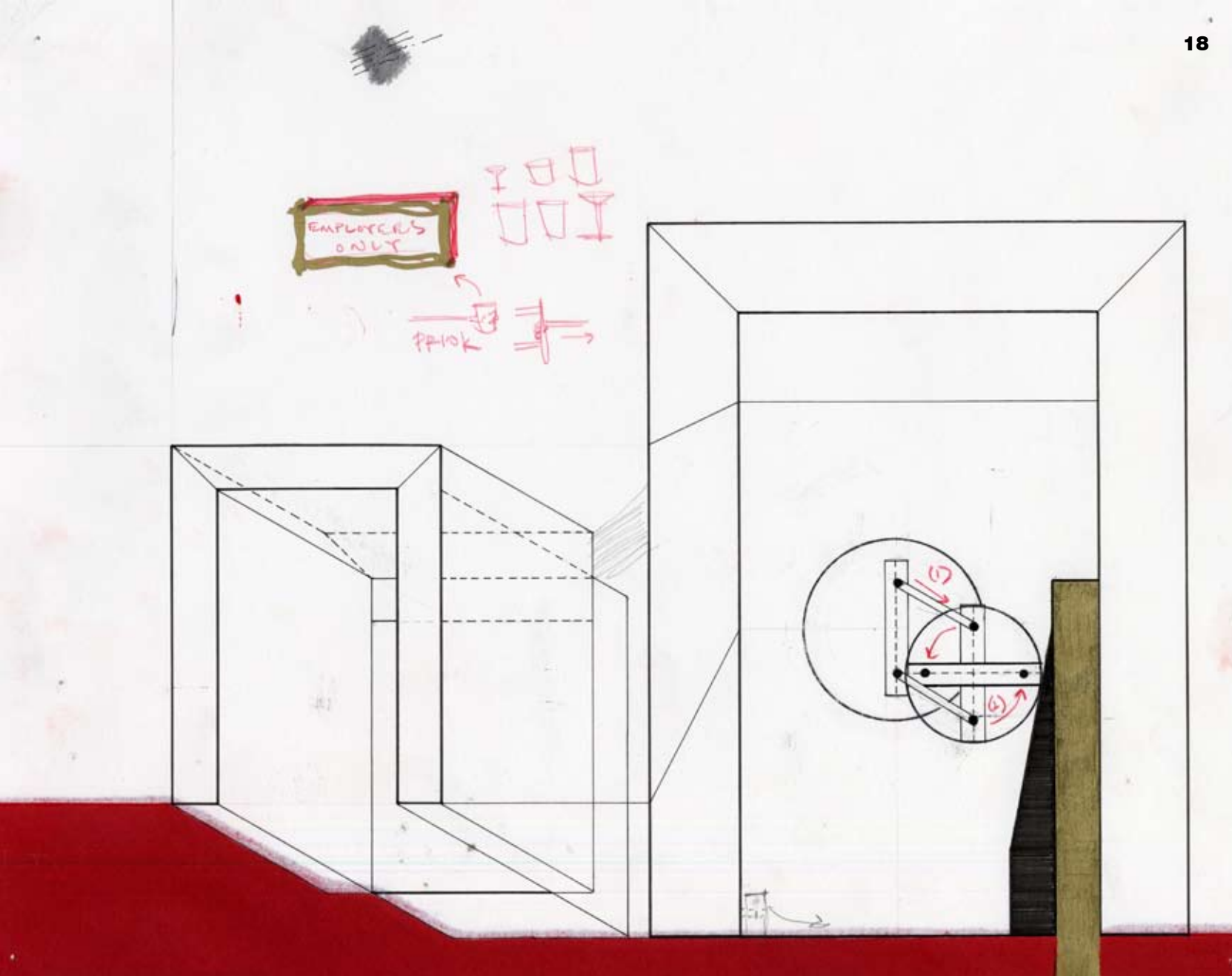
Attempt to reconcile stairs and trusses.
Early view on continuous ramp through the foundry.



Liquid-Passing Section
Modeled after a concrete experiment [see pp. 52-53].

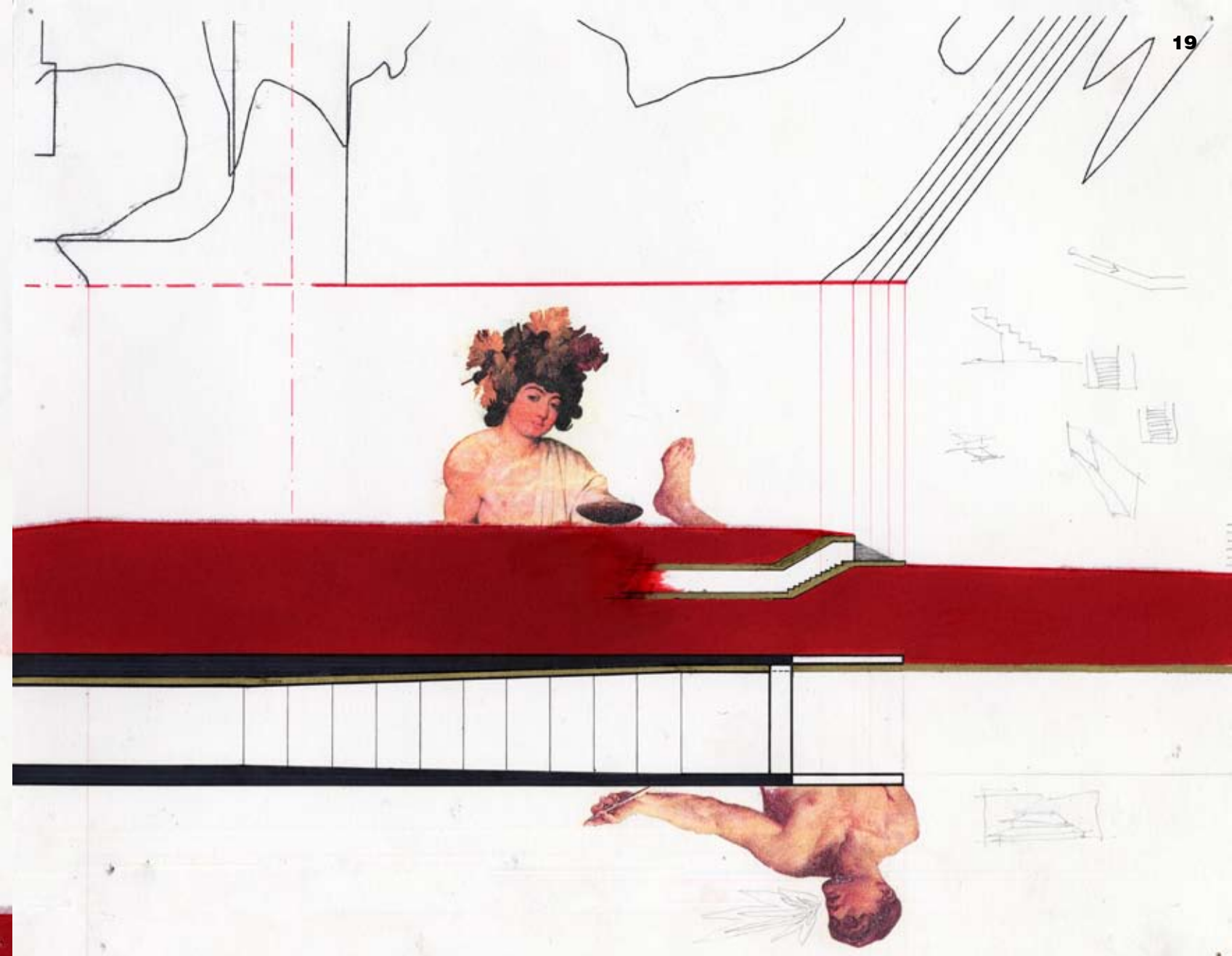


Stair Section
Early section of a potential stair.
At this point, all of the characters are foreign.



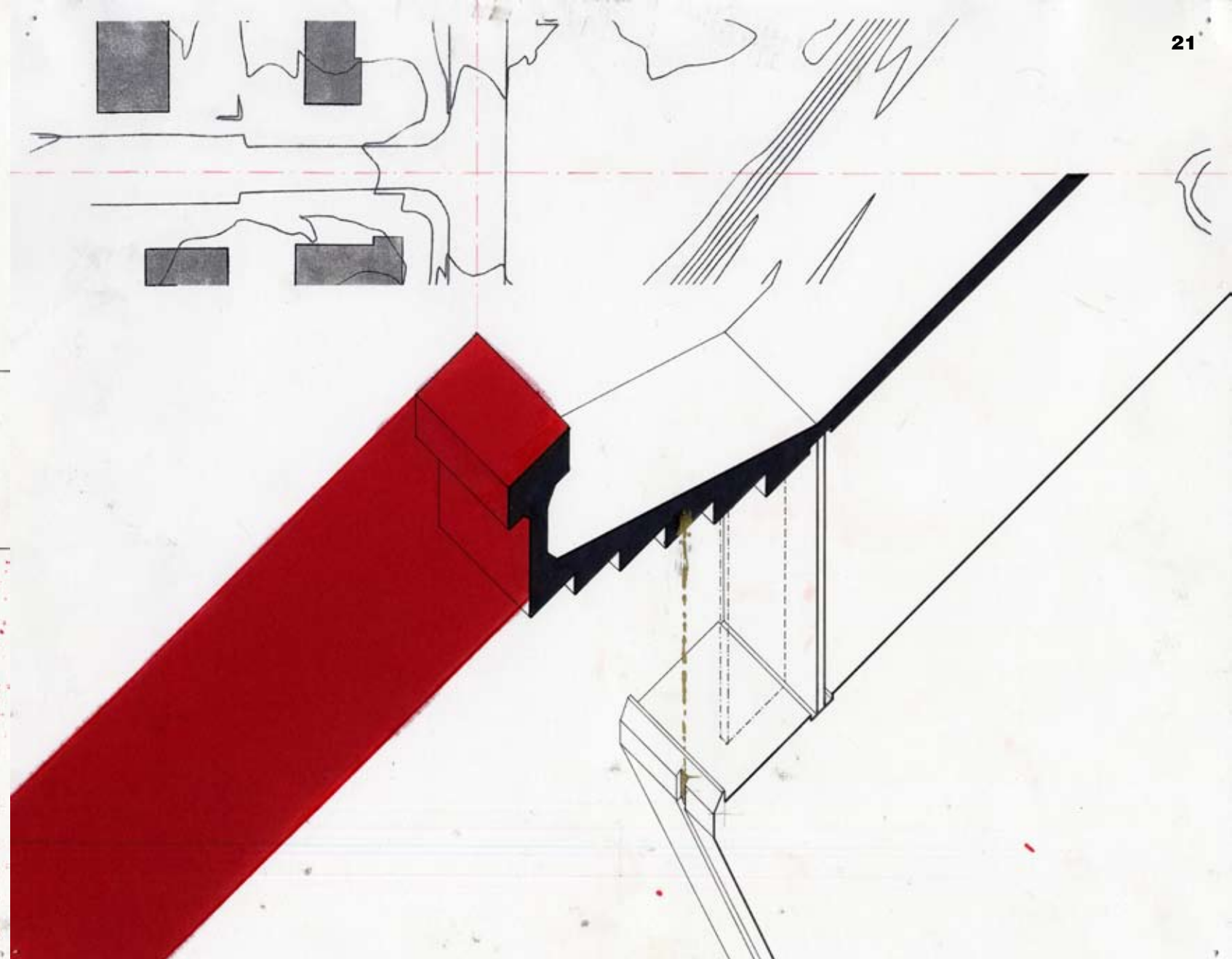
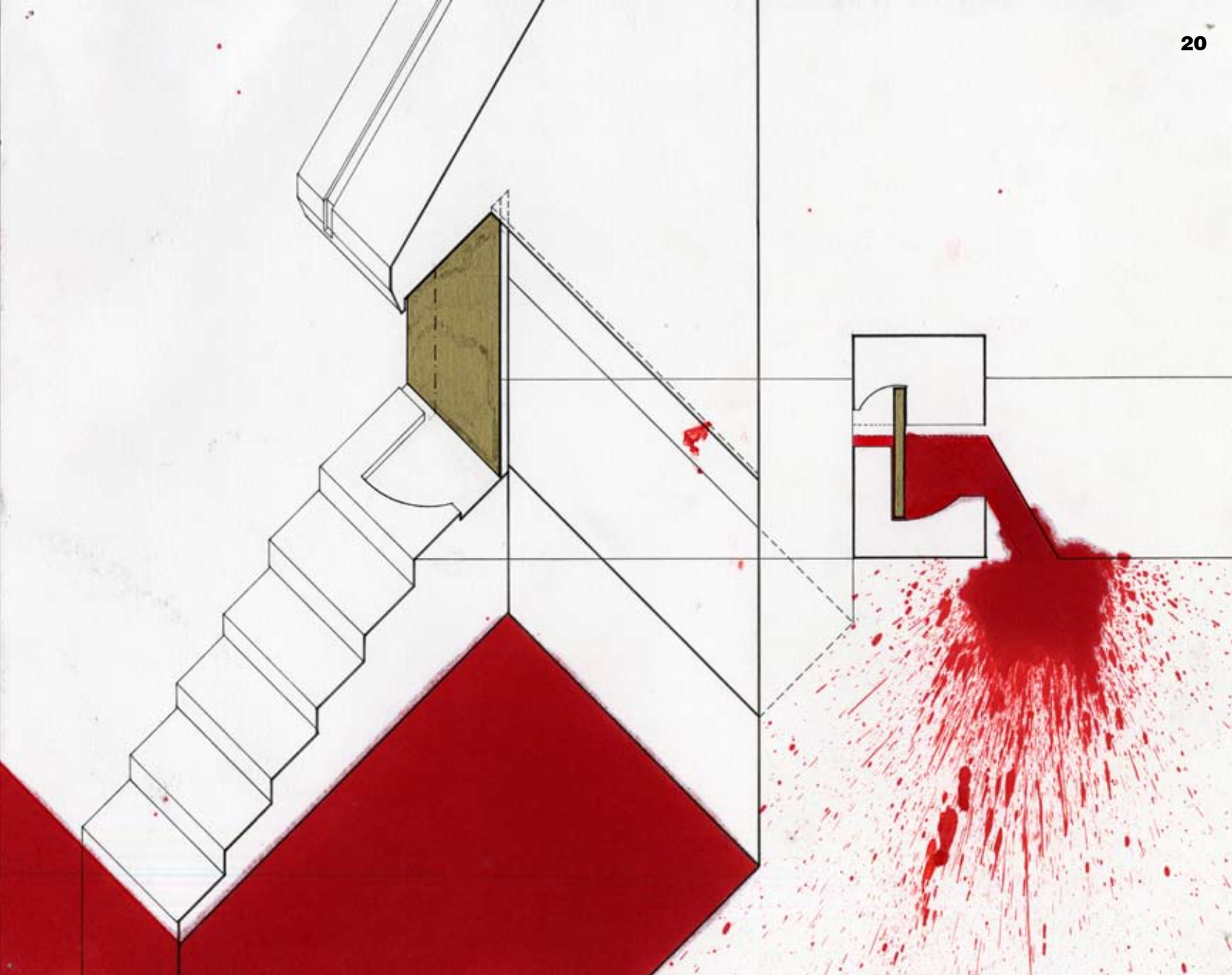
Door for Bacchus [1 of 2]

A door designed for the secret entrance to speak-easy.
The primary entrance for Bacchus.



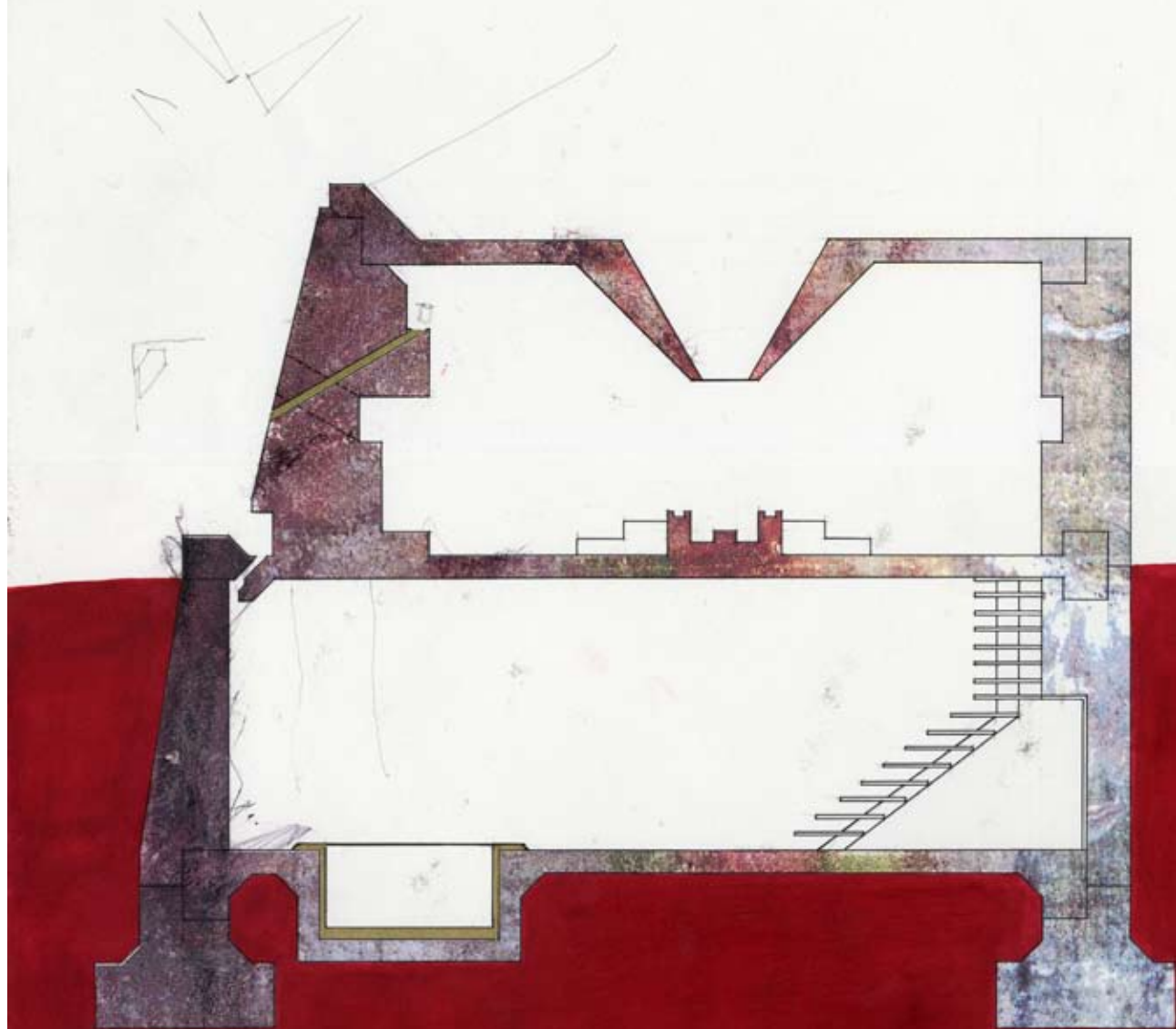
Door for Bacchus [2 of 2]

Stairway leads through the slope of the hill at the north end of the site.

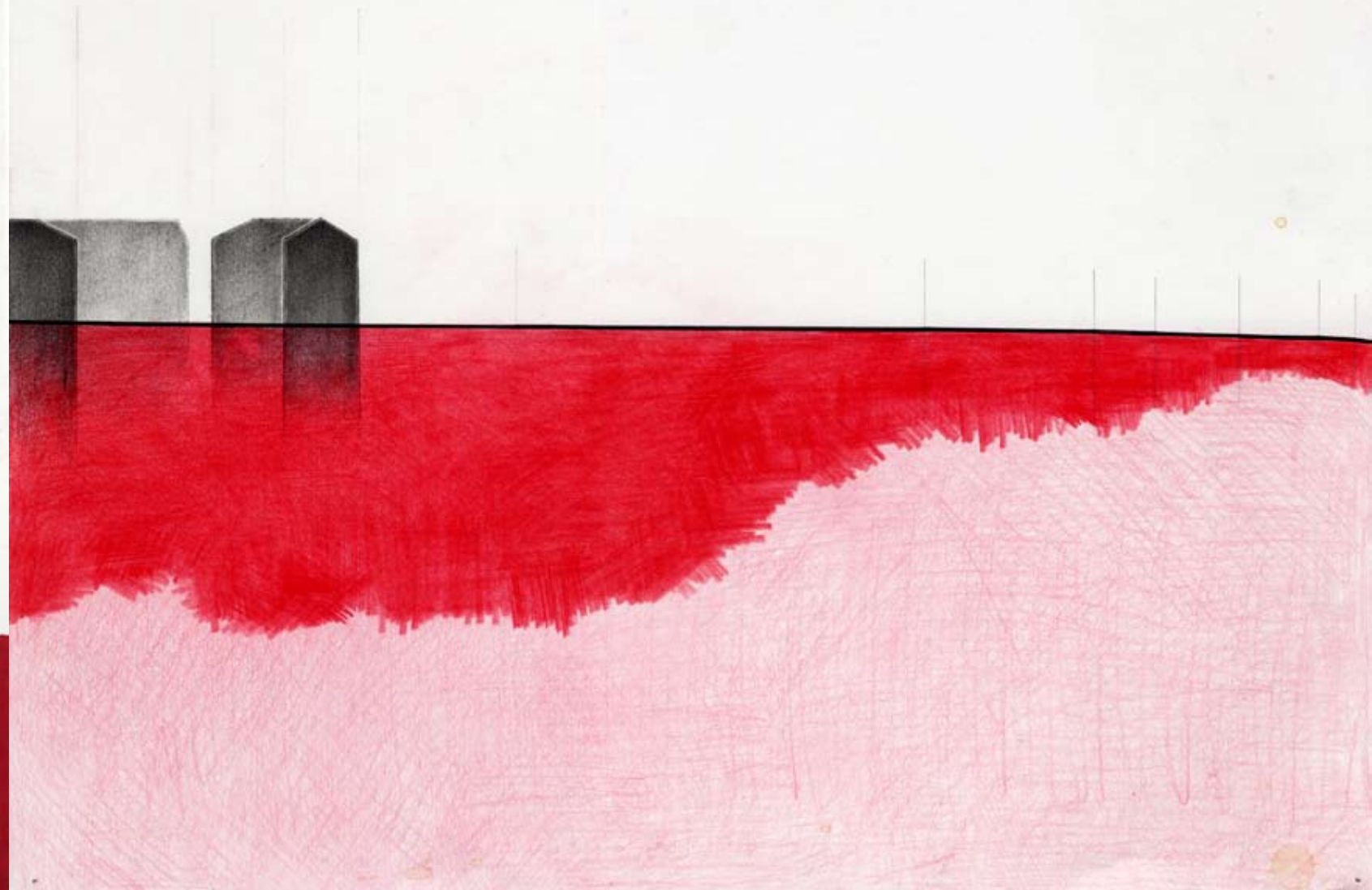


Vulcan Door [1 of 2]
 Front entrance to the foundry.
 The door traces itself onto the ground.

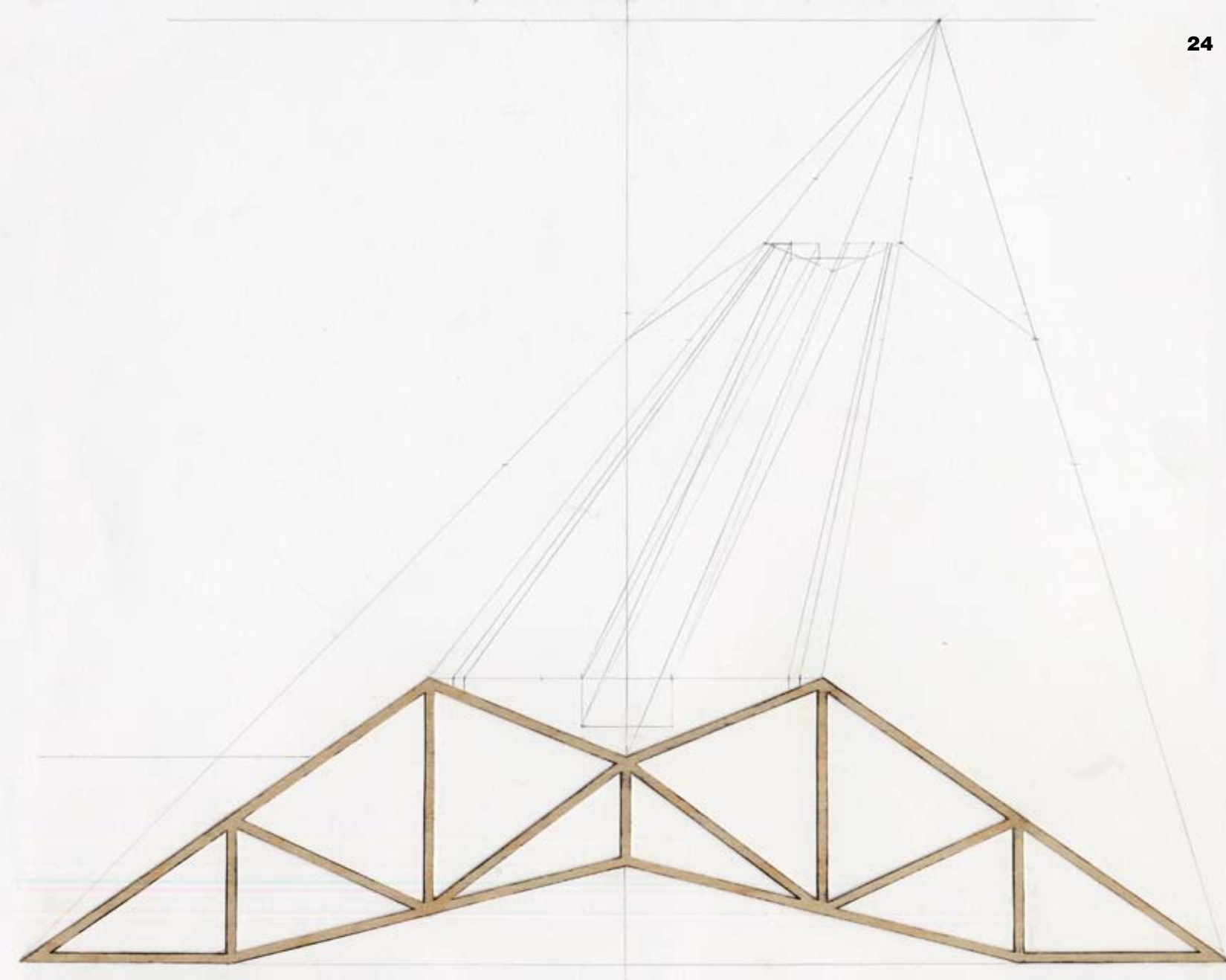
Vulcan Door [2 of 2]
 Worms eye view from below, with up-side down.



Large Liquid Section
 Section defined by the path liquids take to reach the earth.
 All water wants to reach the ocean. -Jaan

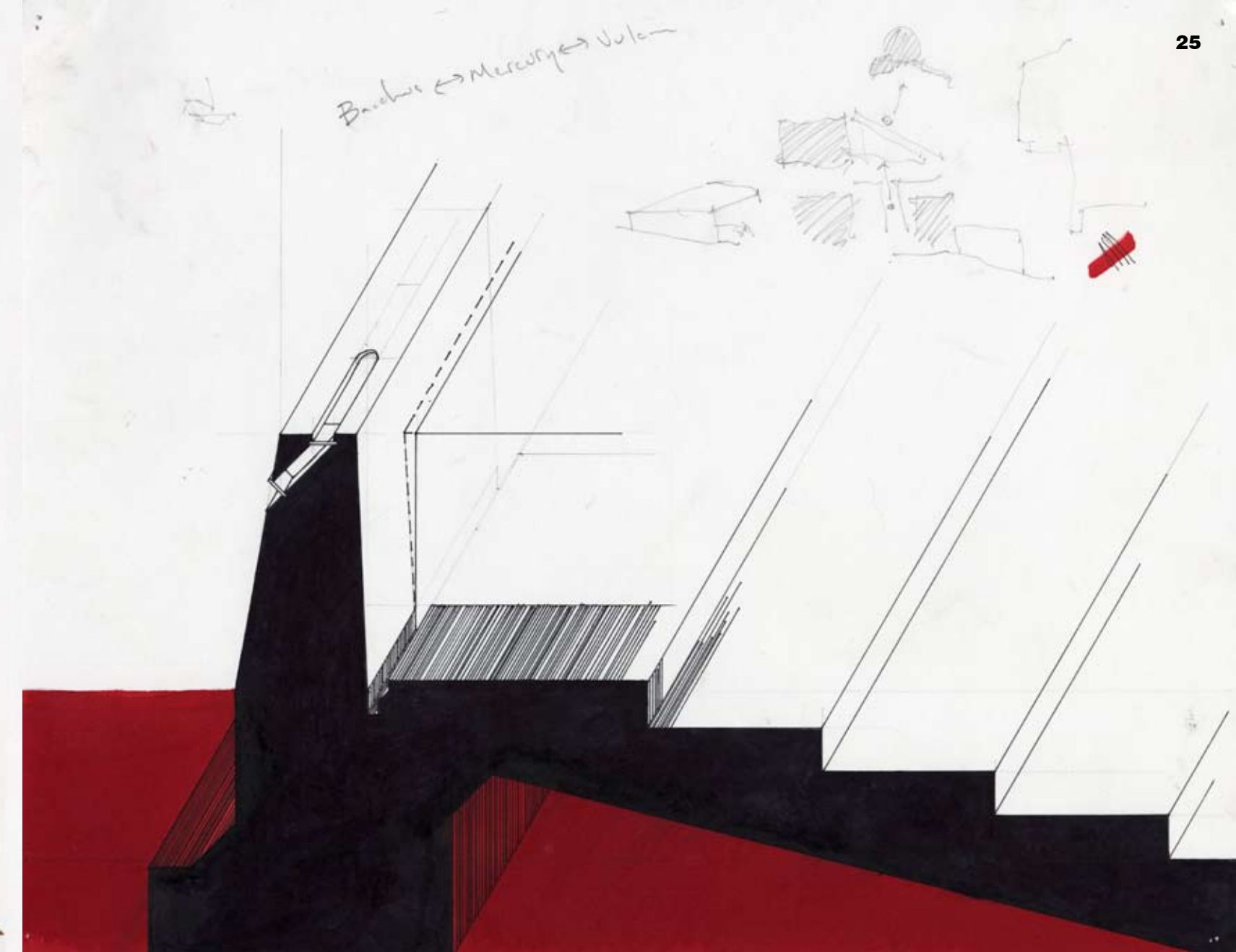


Site Section East to West
 Thinking of the site as a pseudo-blank slate.



Truss Section

Given enough time, the truss can become inhabited.
Defines space above, below and among itself.

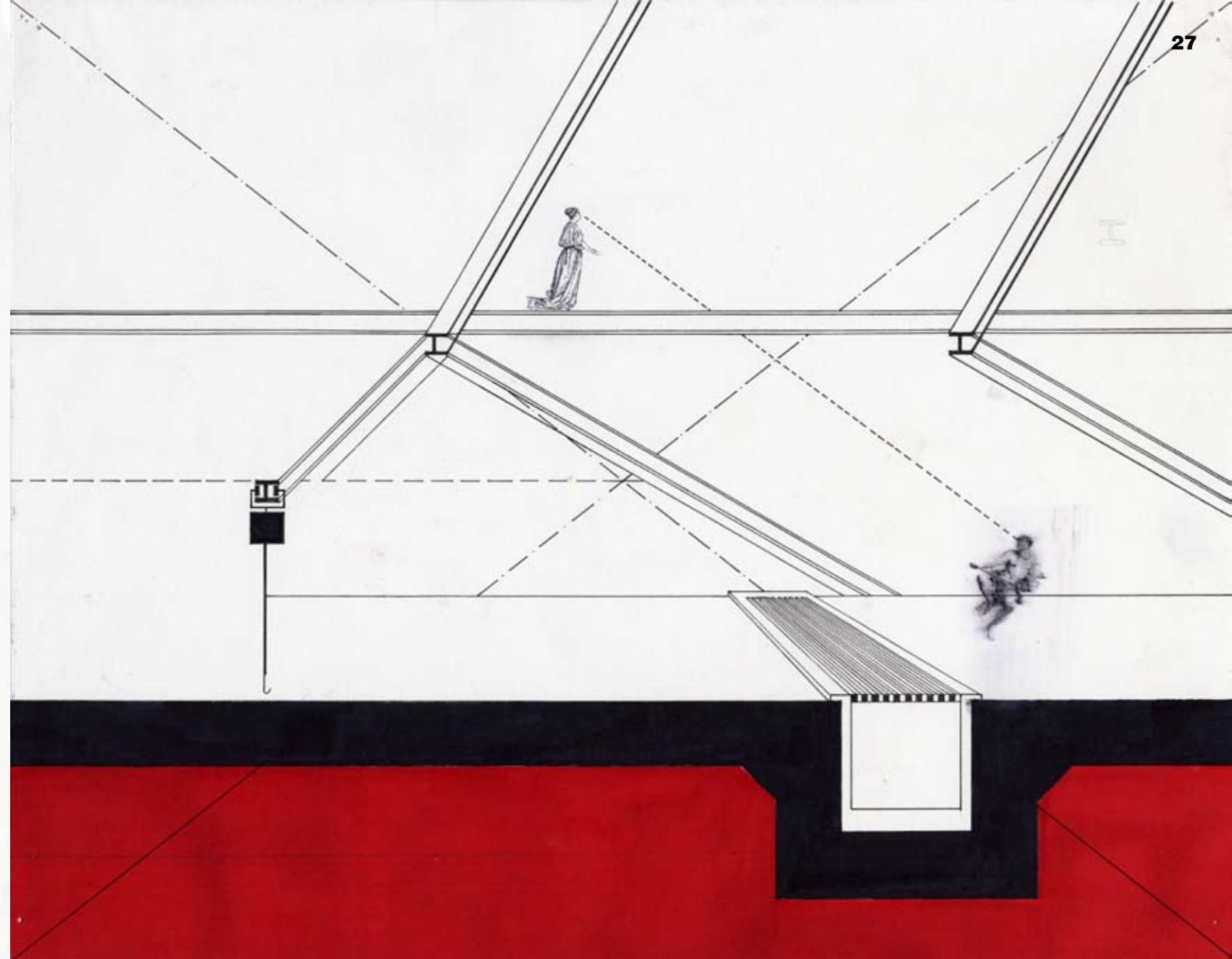


Seat for Bacchus

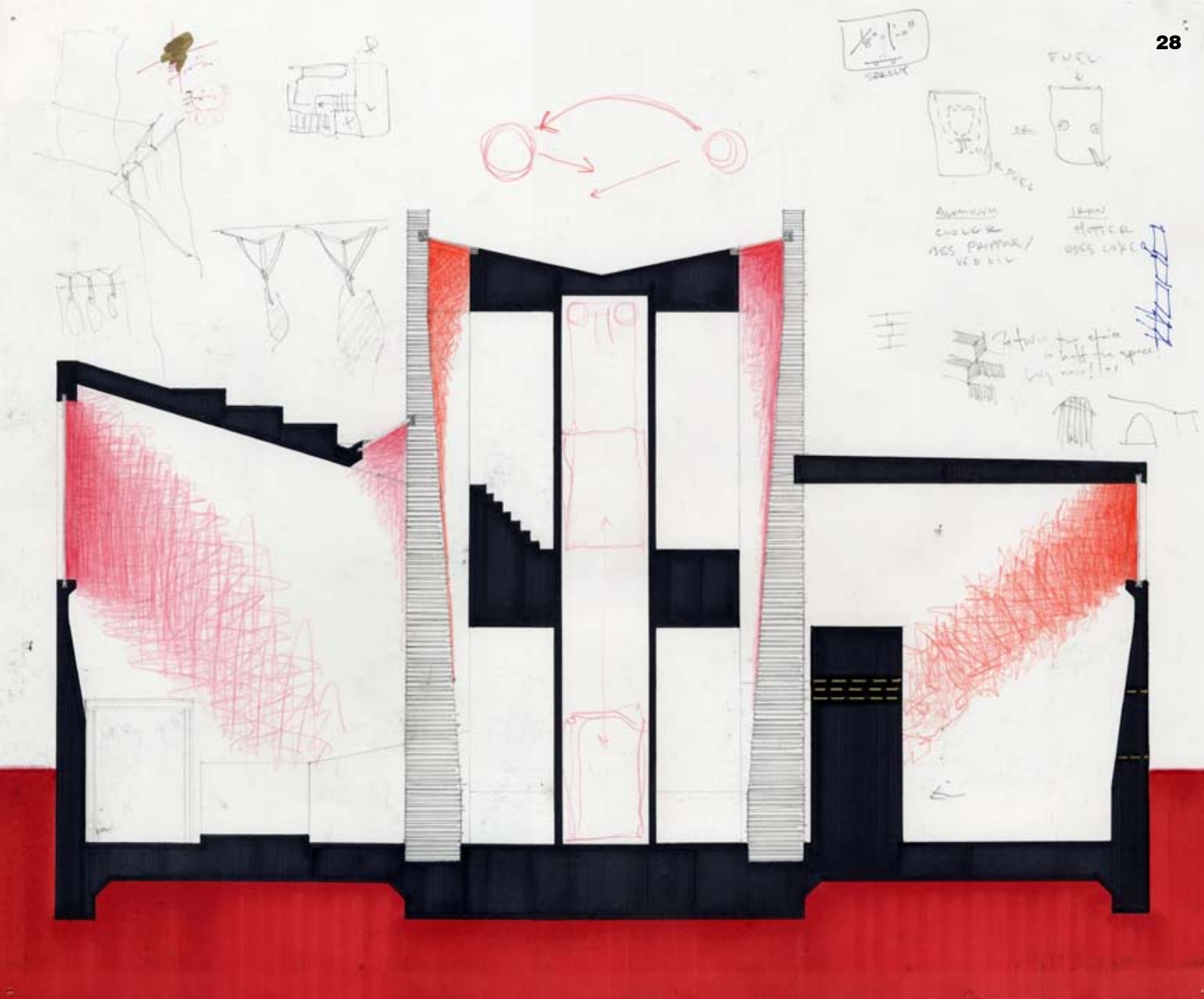
Early throne designed for Bacchus.
As the master of ceremonies, his seat is above all others.
His presence is made known on the wall.



Facewheel Implied Space
Portion of a concurrent project.
Every face stares.

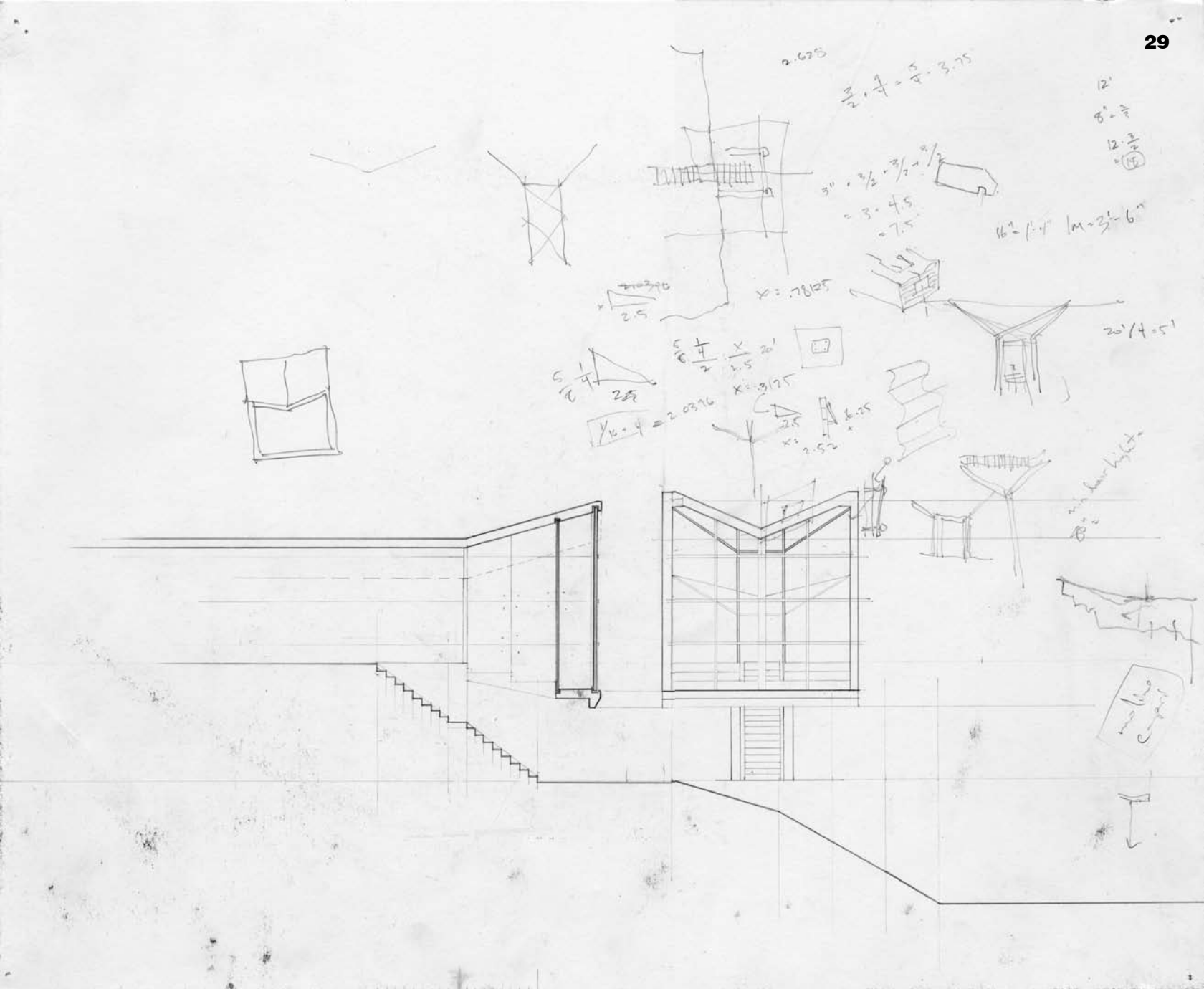


Section of a Foundry
Made after a visit to a local foundry in Maryland.
Metis and Vulcan share a moment among the cranes.



Early Cross-Section

Openings let light in depending on time of day.
In the morning, workers mix sand.
In the evening, metal casts are removed from their molds.

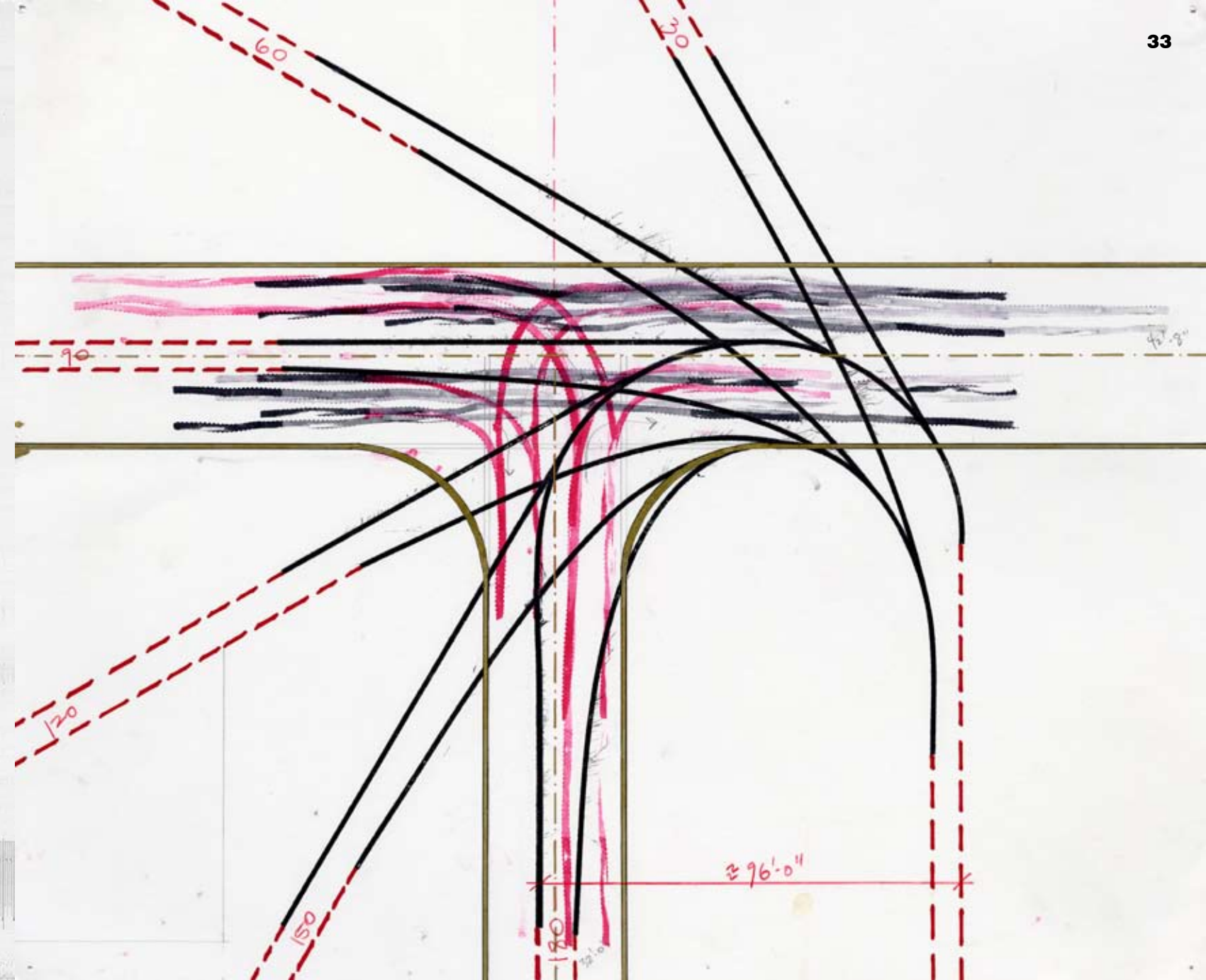
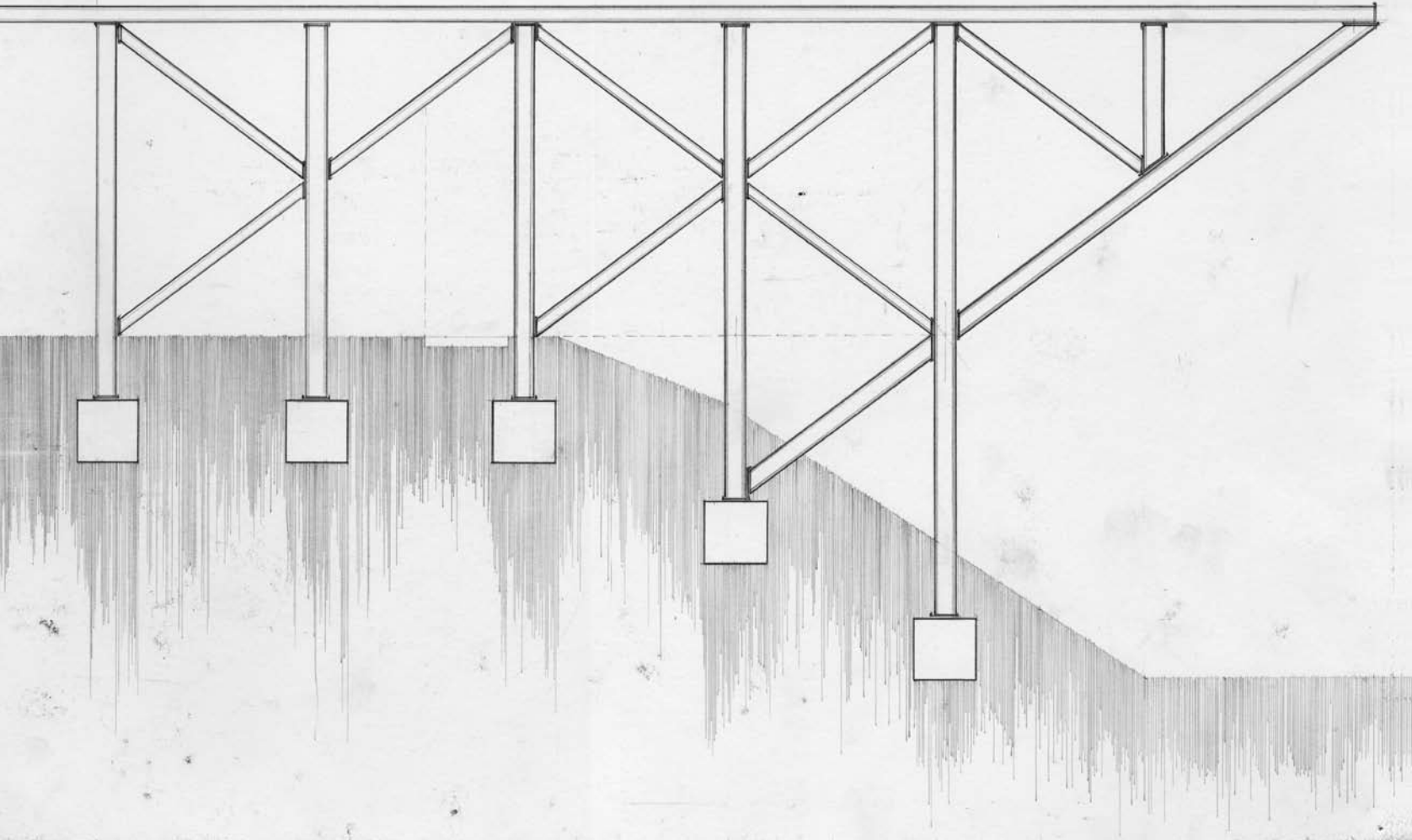


Early Drinking Section

Inverted trusses define the shape of the roof.
The box for drink seems to float in mid-air.



Early first floor plan.
Rough attempt to make the puzzle pieces fit.

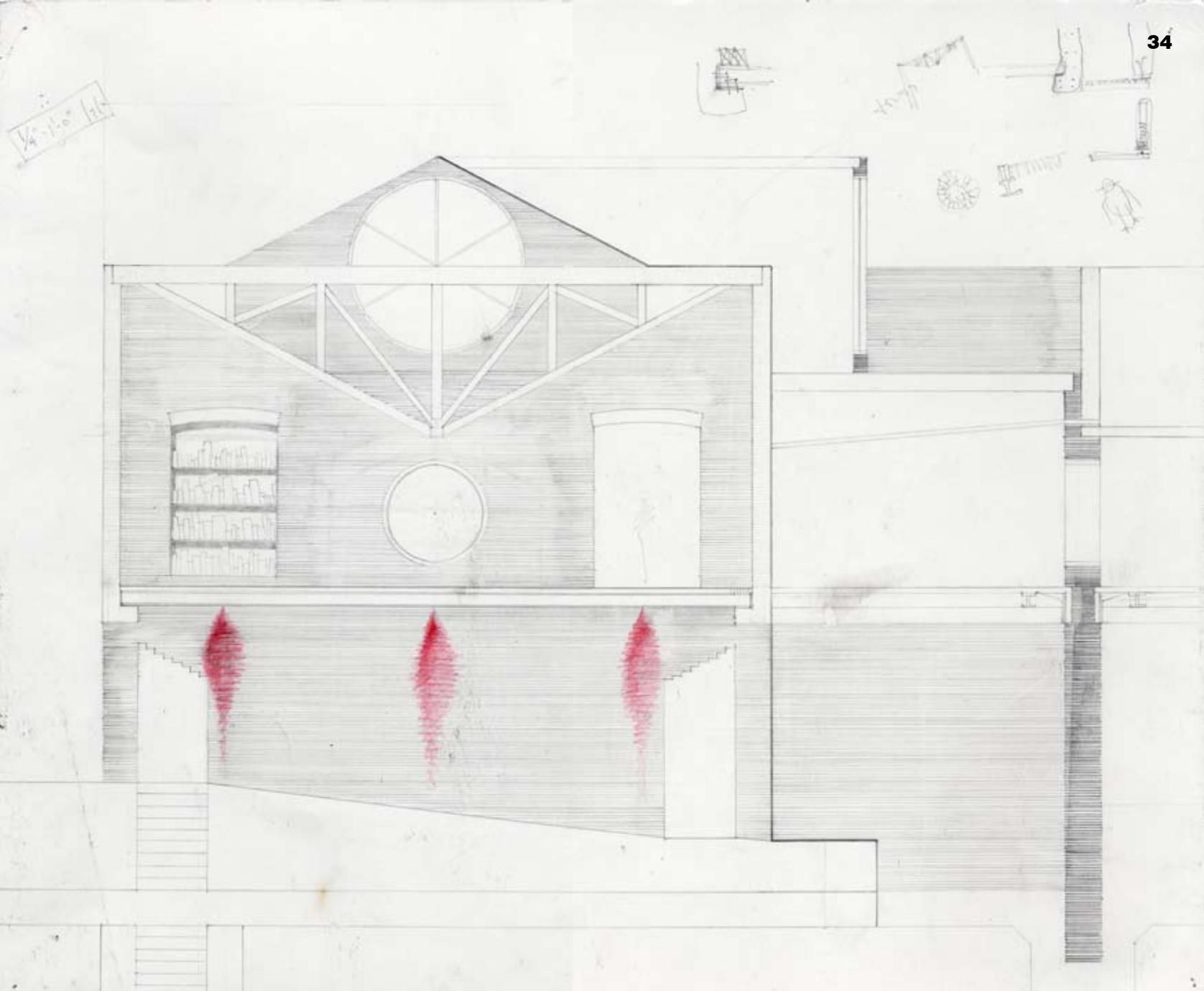


Truss to Railroad

Truss stretches out over the tracks to receive shipments by train. It dodges the bike path, to allow passers-by.

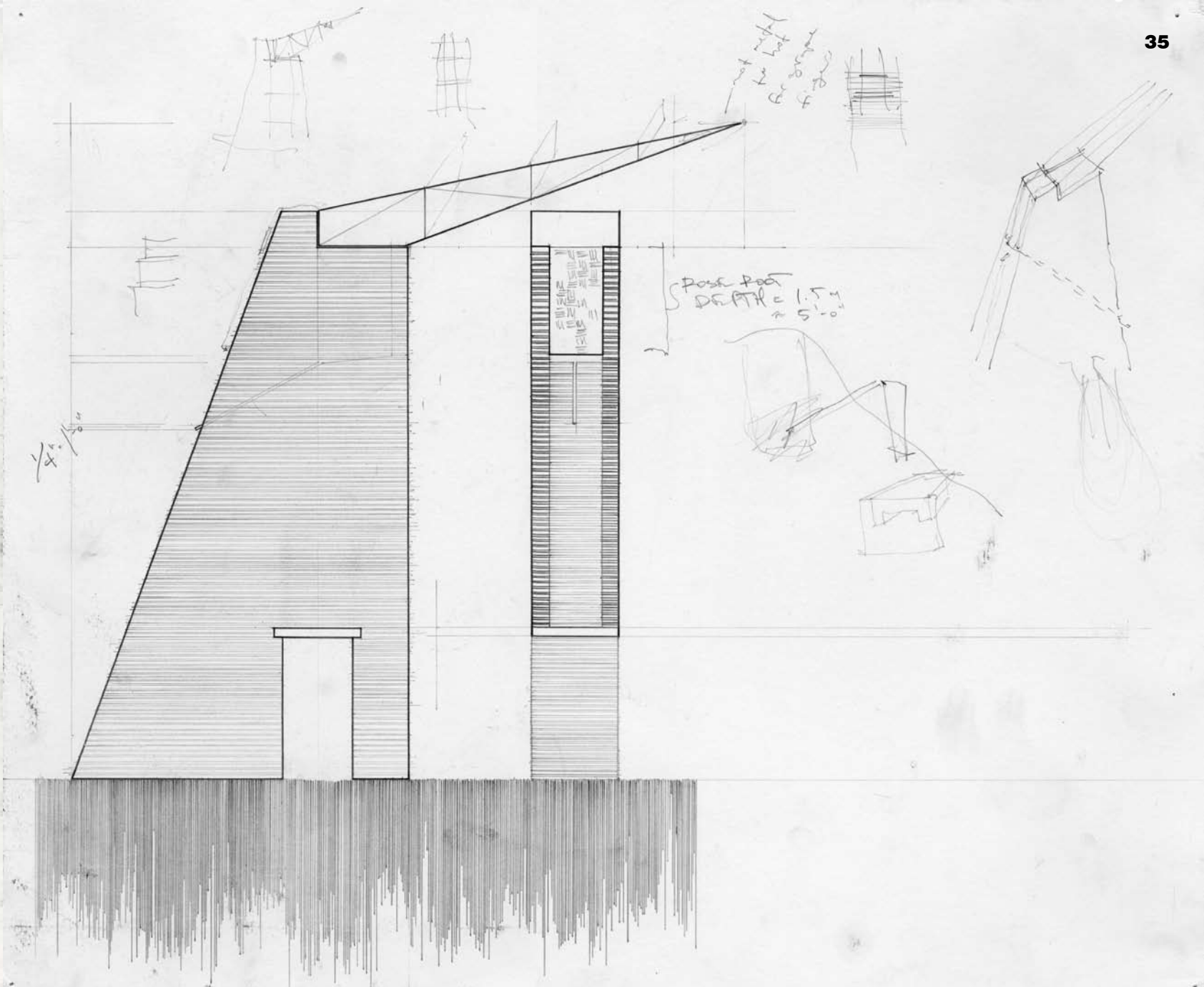
Turning Radii

How difficult is it to get an eighteen-wheeler onto the site?



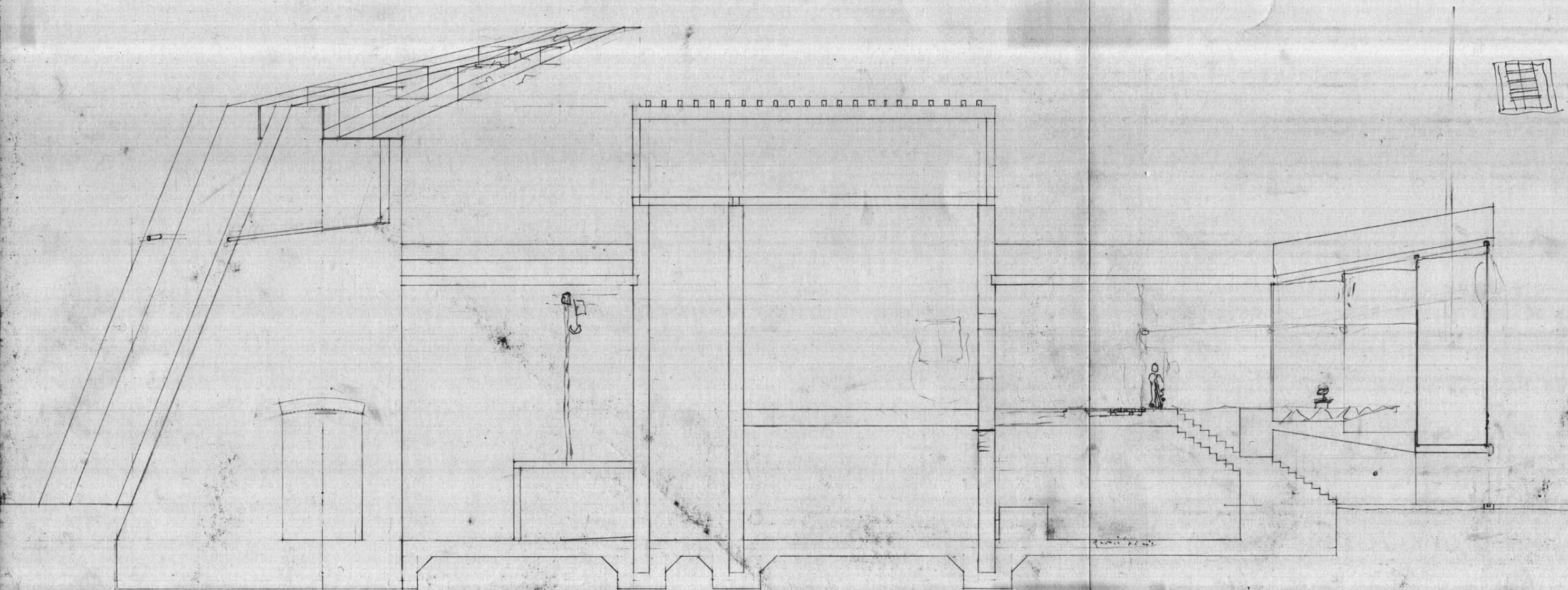
Brick Box Section Facing South

Two sections taken on-axis of the brick box.
Drinkers are made known to workers through their excess.



Brick Pier Section

Holds truss, which in turn supports grape vines.
Dirt hides within.

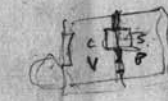


8' x 1'
6 1/2' = 4'



Rough longitudinal section.
All the pieces of an adolescent elephant.

B.
M.
V.





Michelangelo Caravaggio
Bacchus
 c.1597

{ *Bacchus* }



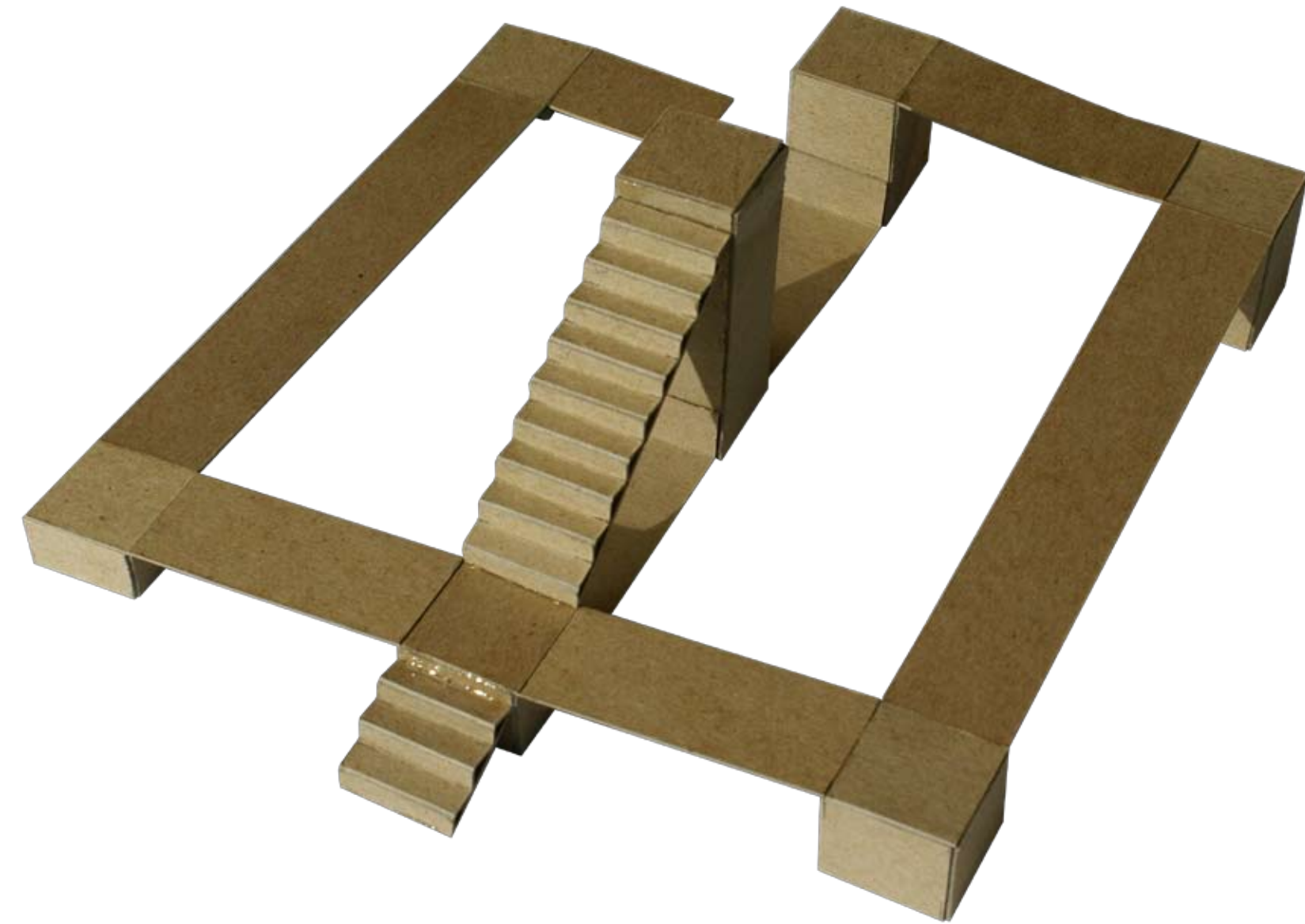
A pair of stainless steel triangles I designed and made for drafting.
[Left] triangle parallel to the street edge at site.
[Right] triangle parallel to the slope of the hill on the North end of site.

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Model of the ramp and stair intersecting.
Both Bacchus and Vulcan can comfortably move through site.



Cast concrete and steel sundial.
Grooves mark the hours.

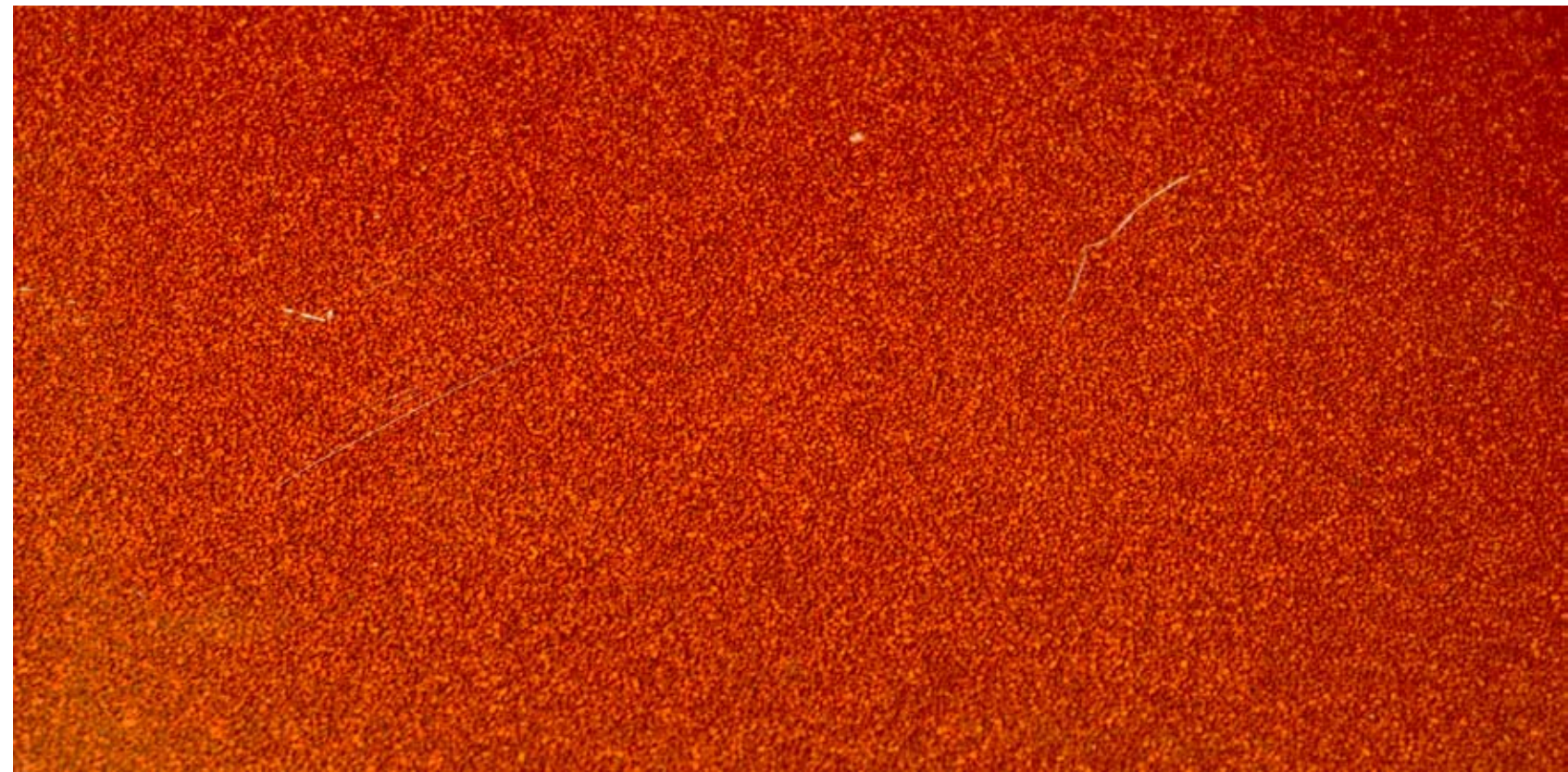
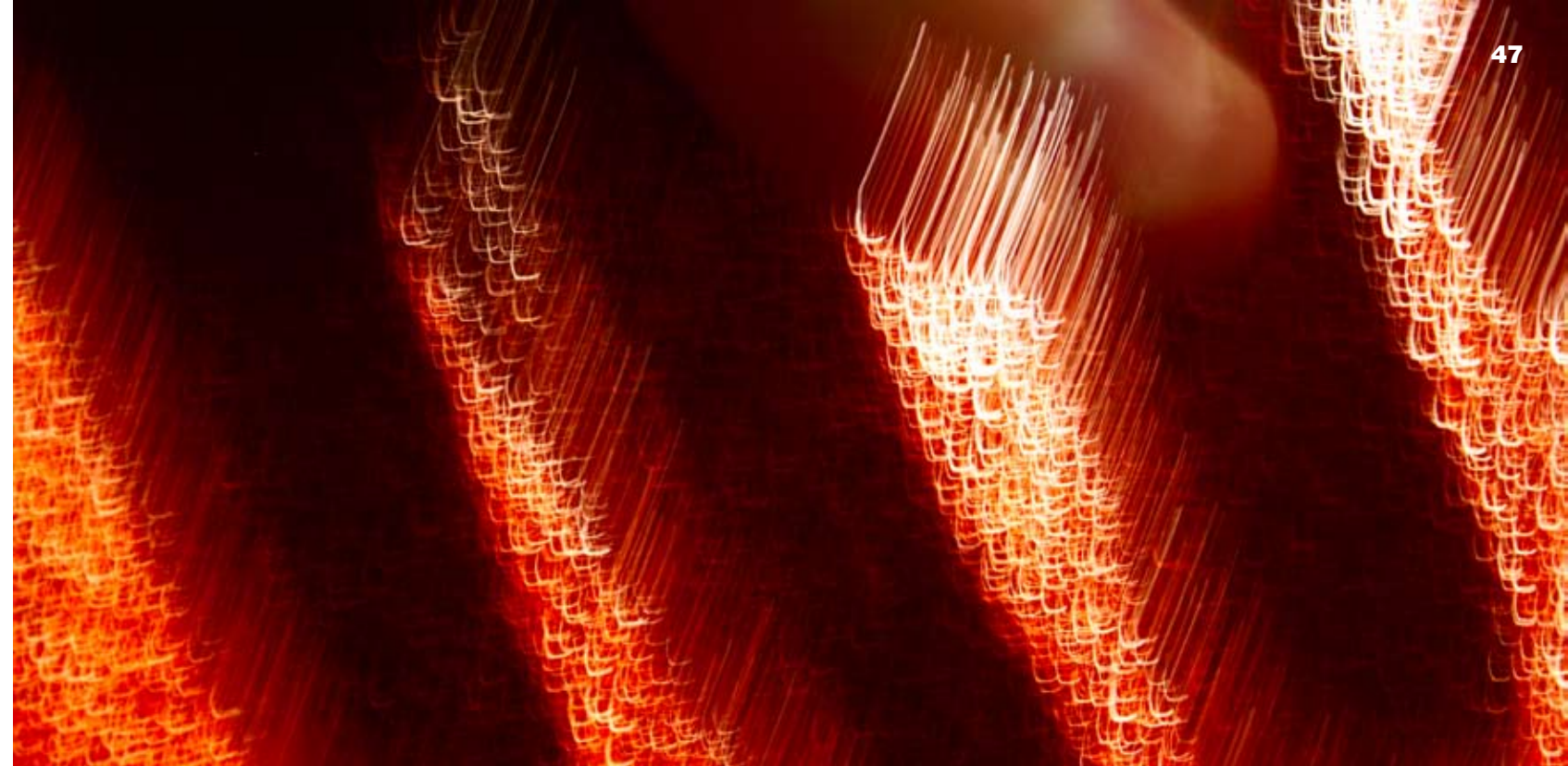


Cast resin cup for the speak-easy.
Bits of the foundry find ways to integrate themselves.



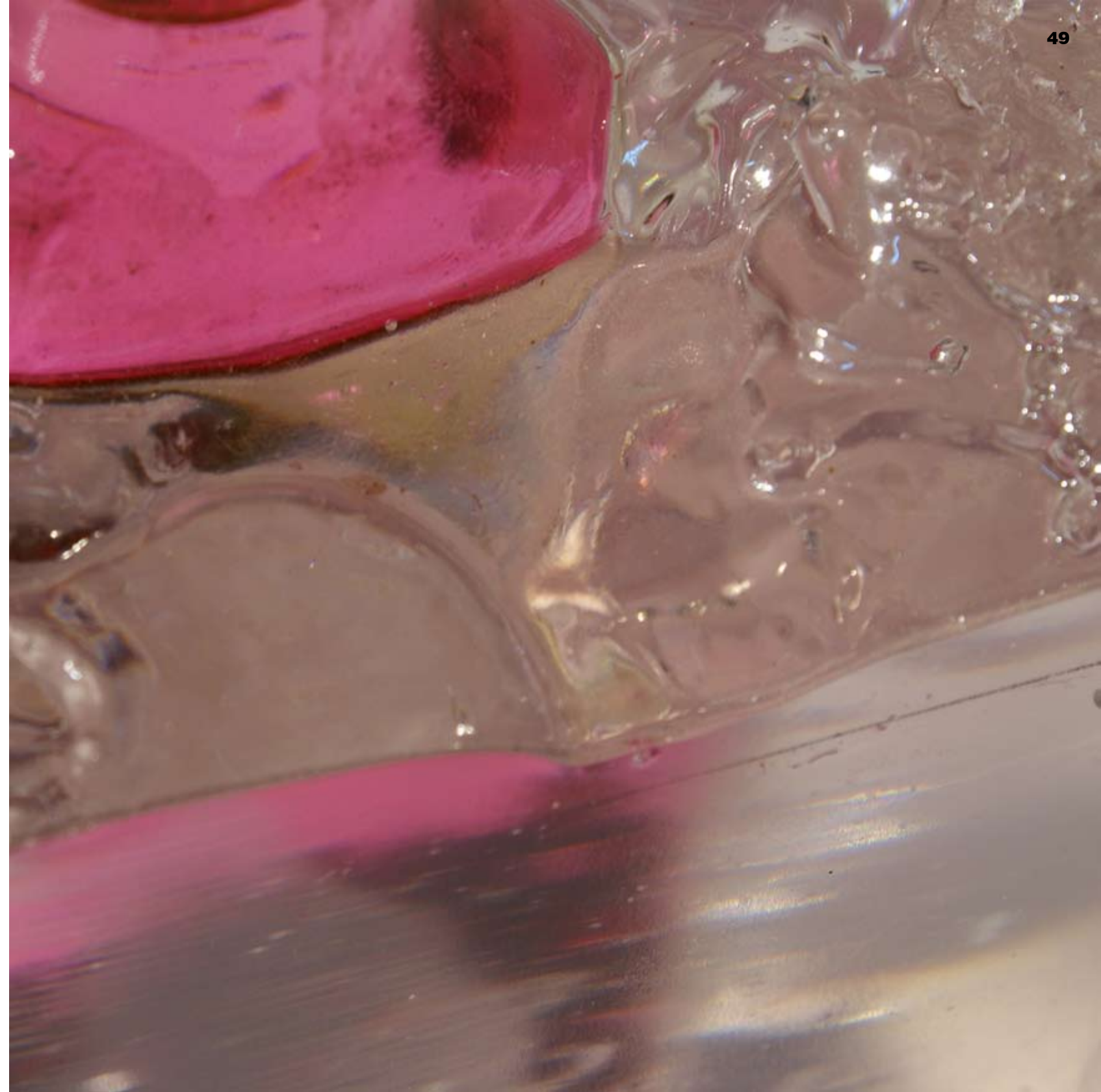


Dirt cube, made with dirt from the site.
A use for displaced earth as screening device.



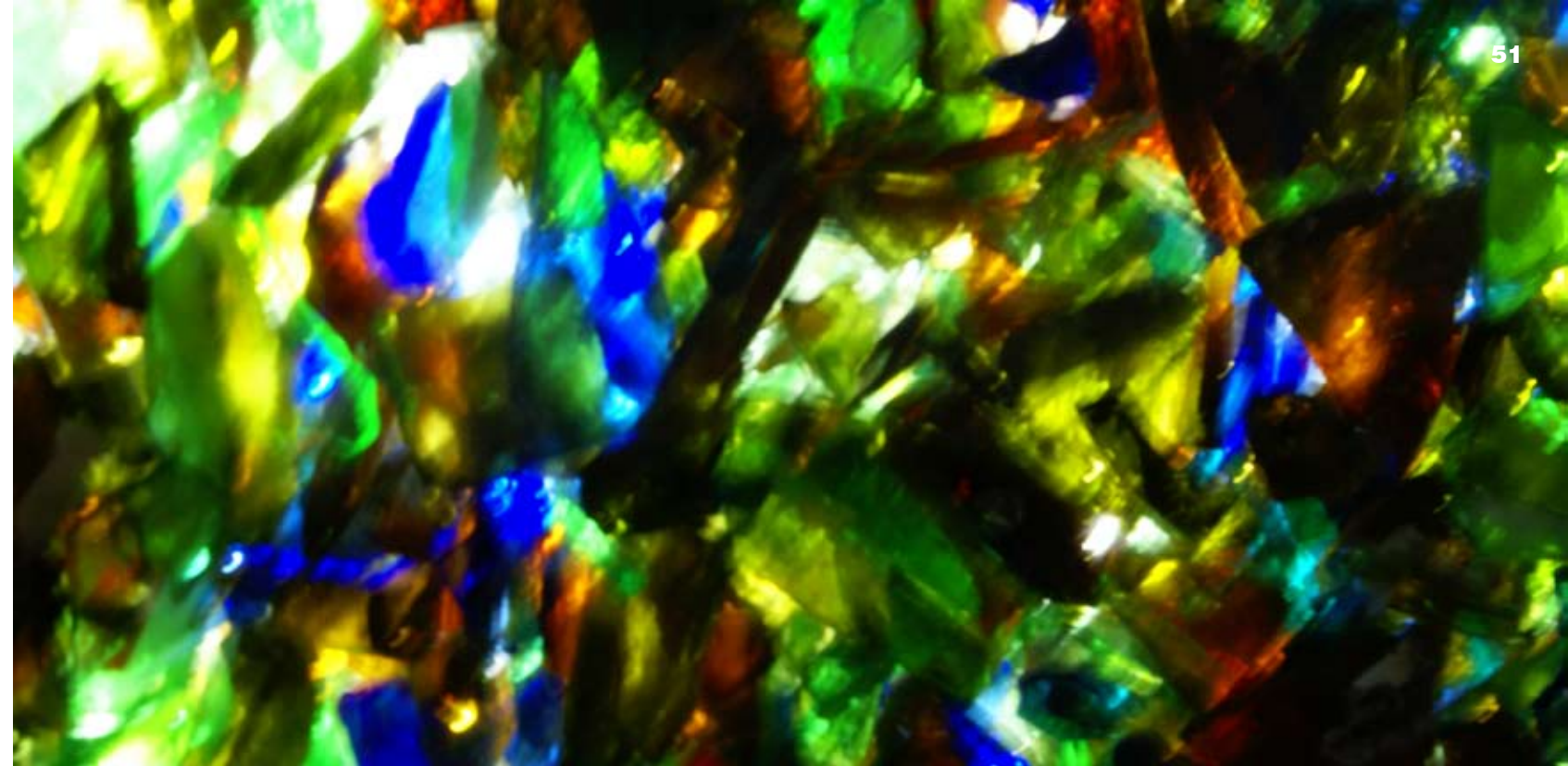


A bottle on ice.
Color from beads leaches off in high temperatures.





Crushed glass in a new glass block.
Recycled bottles made into usable light-catchers.





Old and new liquid sections.
Copper pipes allow liquid to run through the walls, showing evidence of use.





Aged copper on matboard.



Cup for the workers.
Spare lathes and metals are put to work.





Railroad plate.
Each part has to be integrated with one another, so that all are necessary and vital.

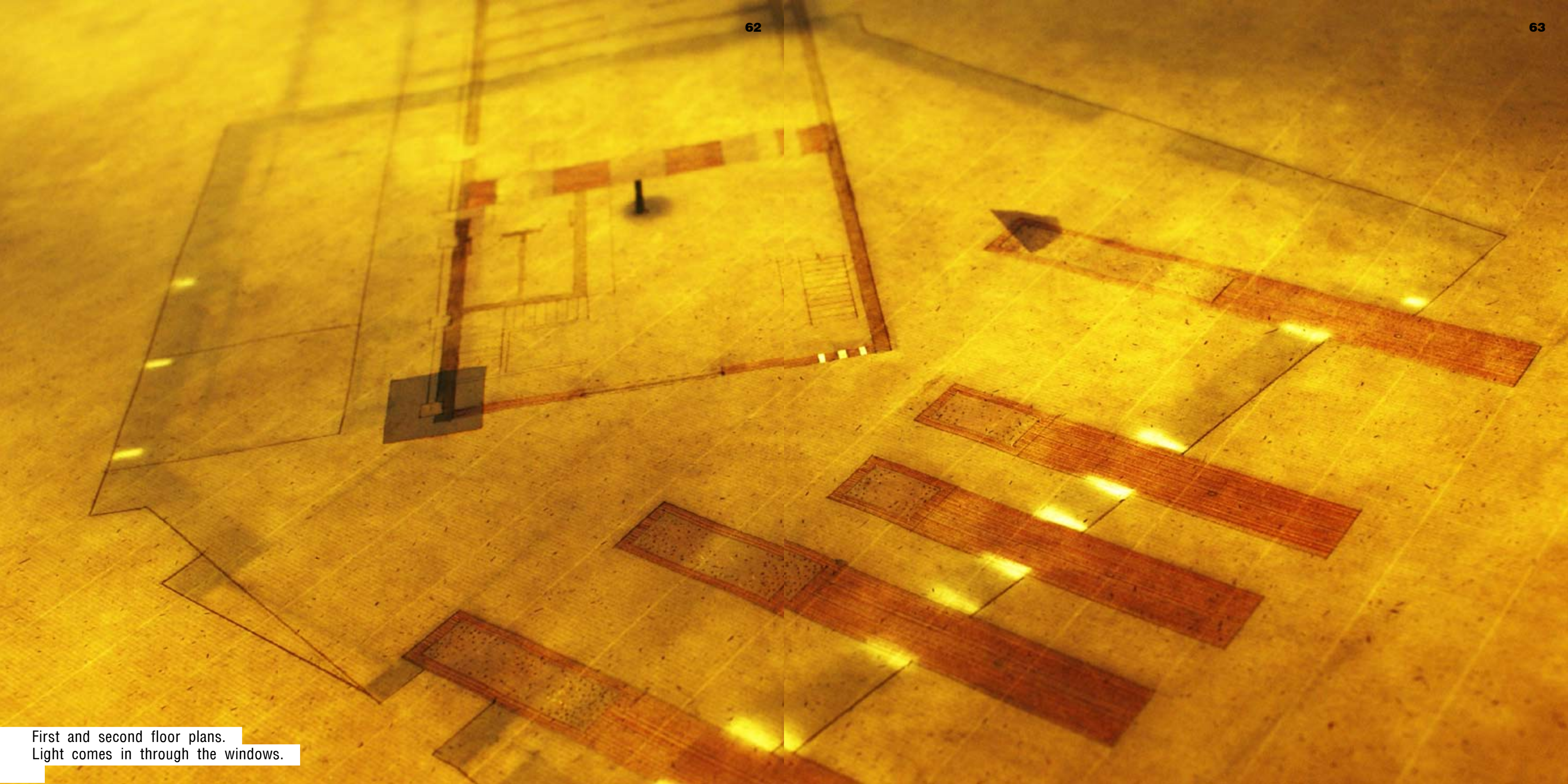




Artist Unknown, from *Rosamunda the Princess
Stratiotes and Metis by the river Permessus*
James Parker + Co., London, 1875

{ Metis }

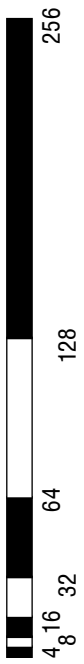




First and second floor plans.
Light comes in through the windows.



Small site plan.



Alexandria, the Site + the WAAC
Not to Scale

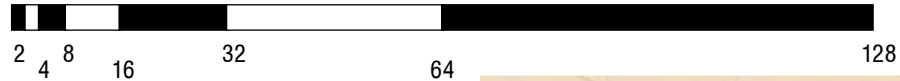




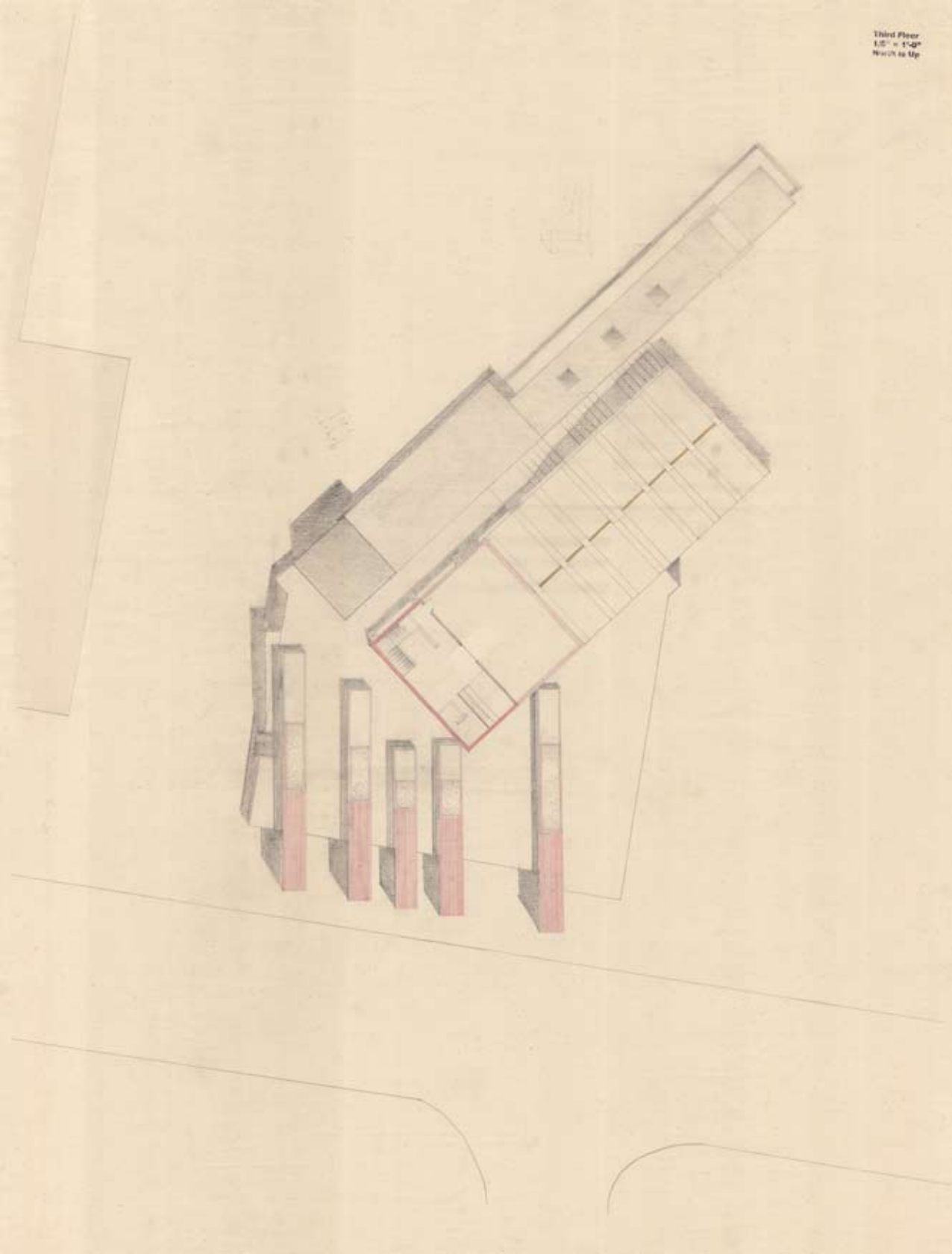
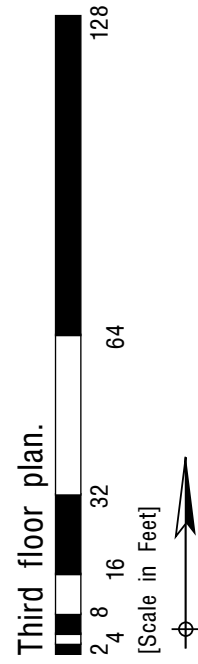
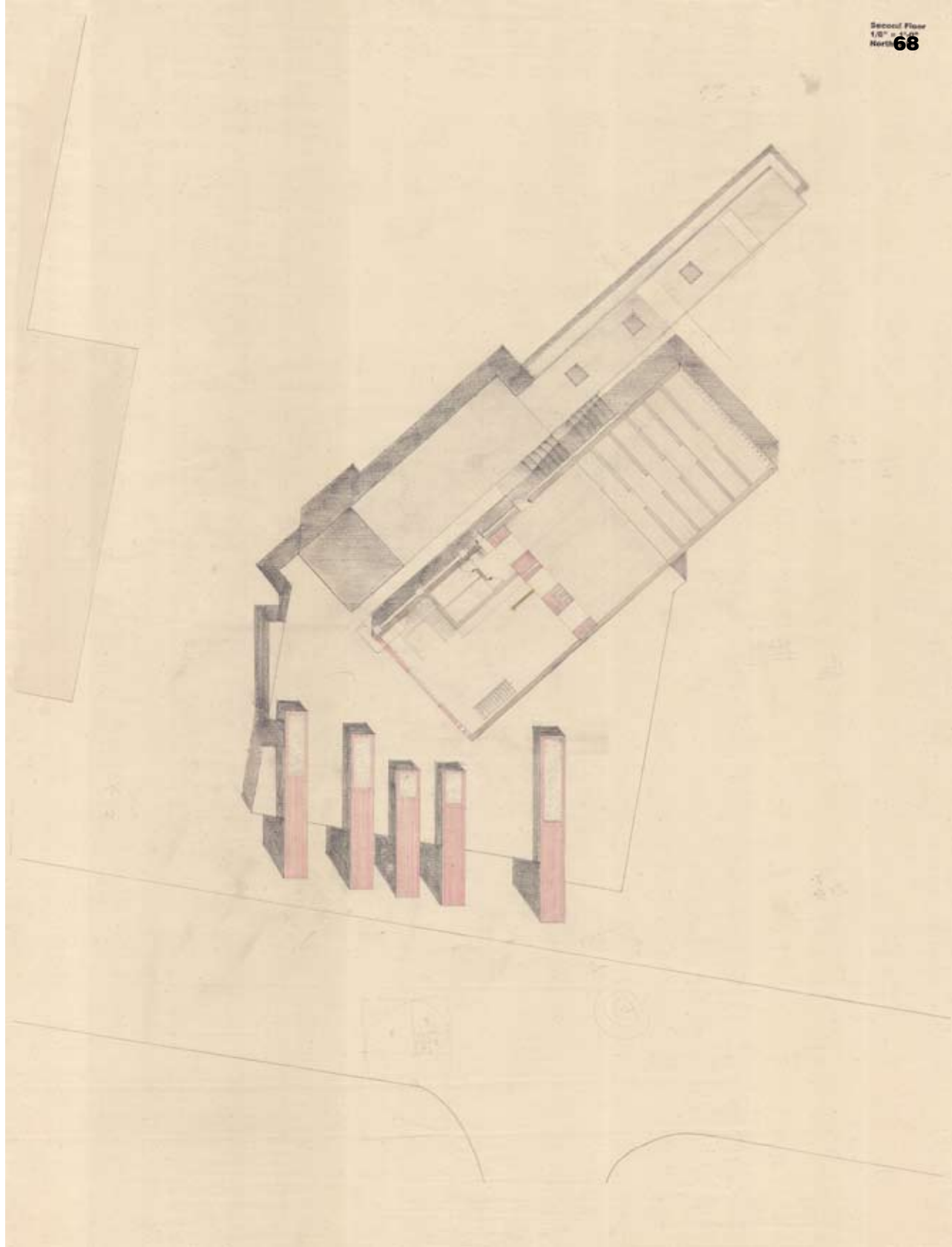
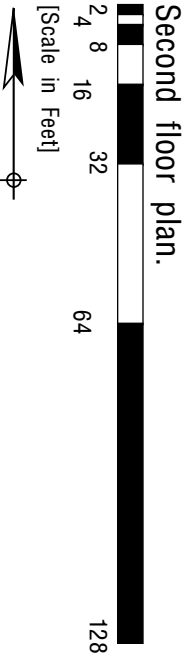
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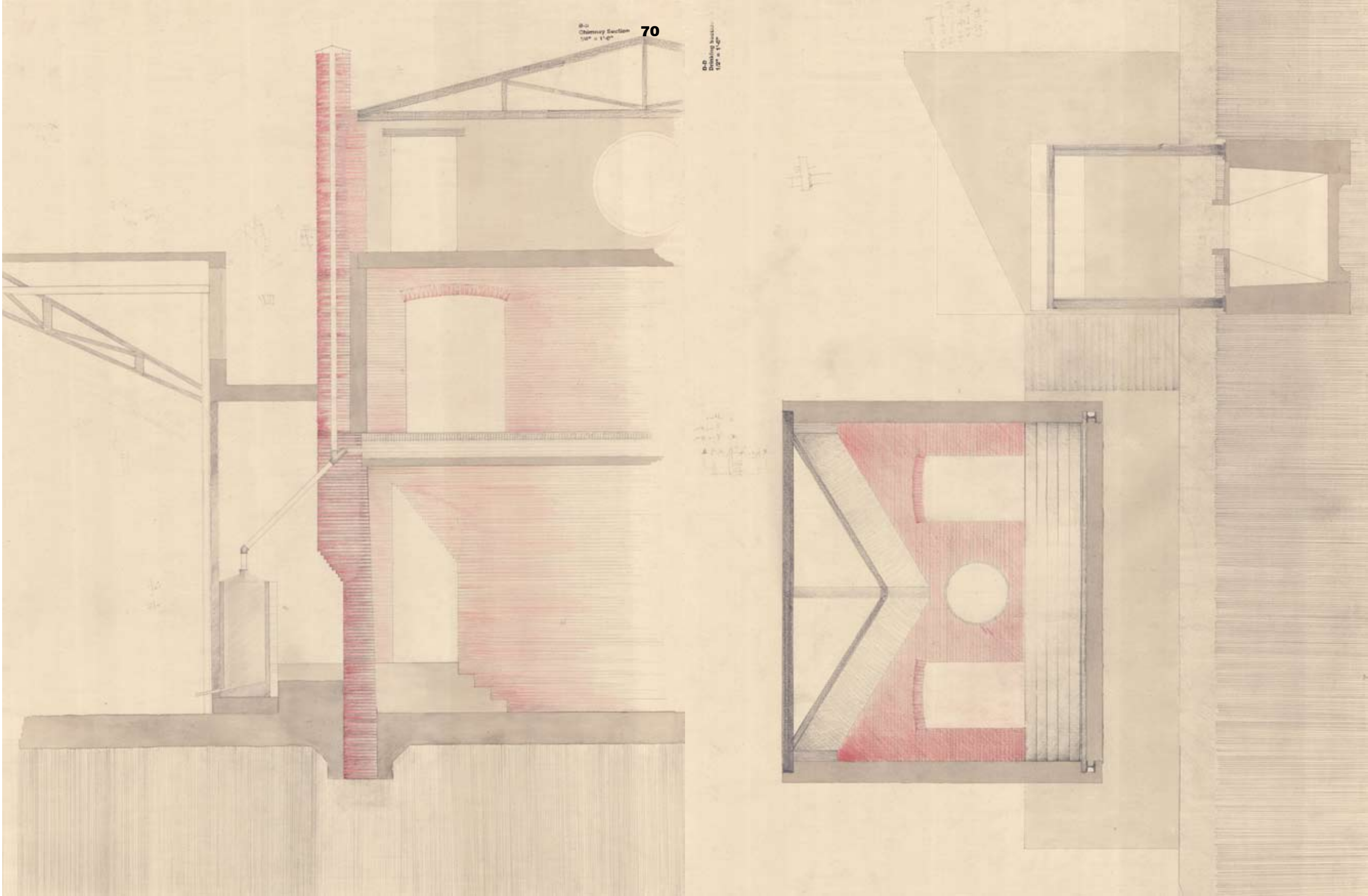
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First floor plan.

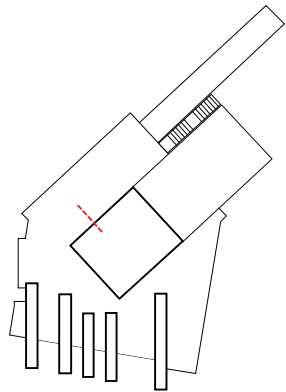


[Scale in Feet]

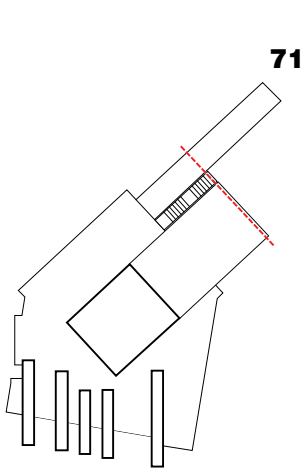


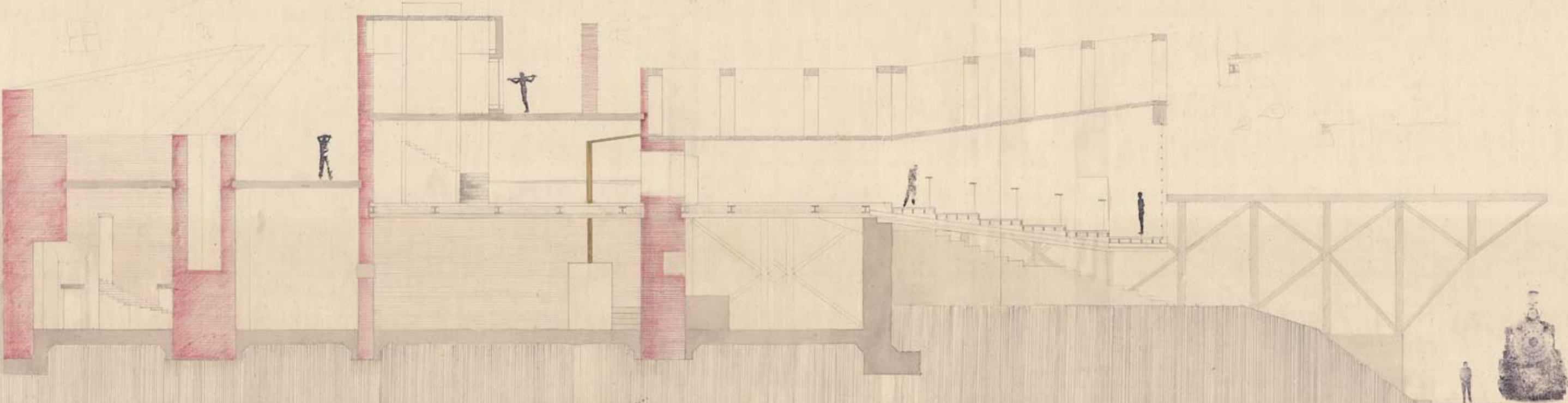
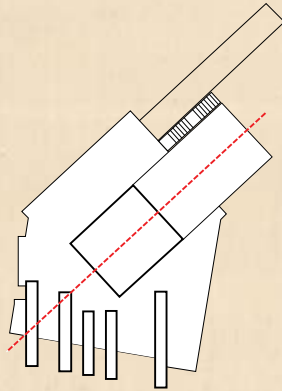


Chimney section.
[Scale in Feet]

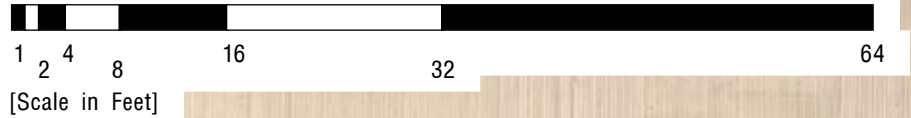


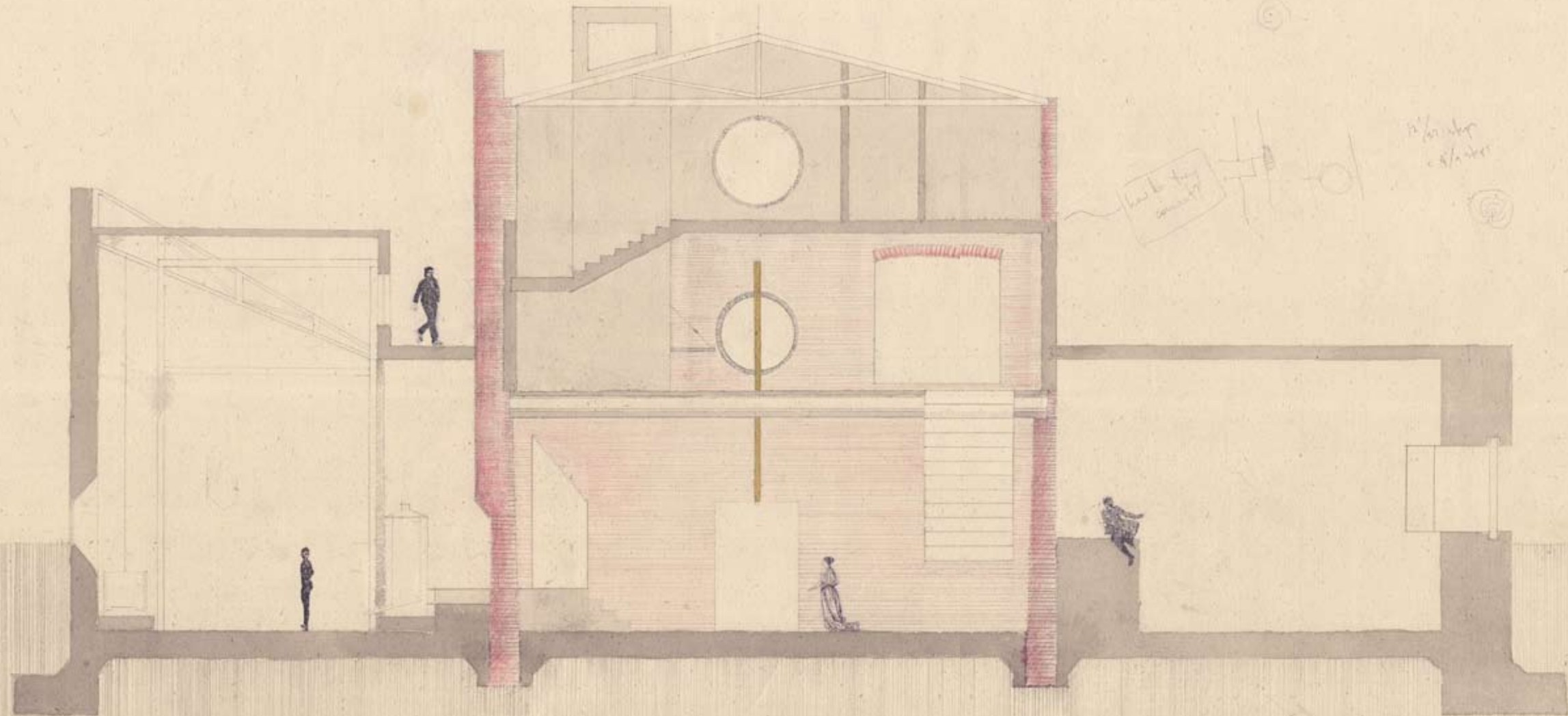
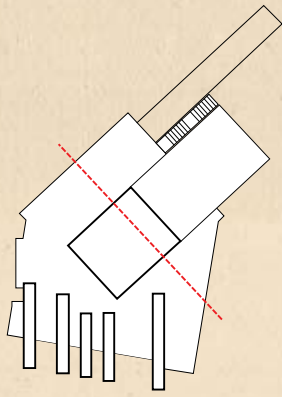
Drinking section.
[Scale in Feet]



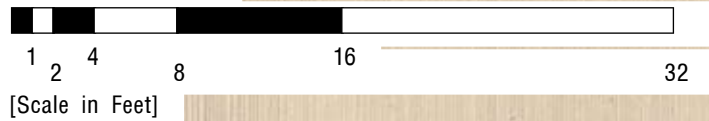


Longitudinal section.





Cross section.

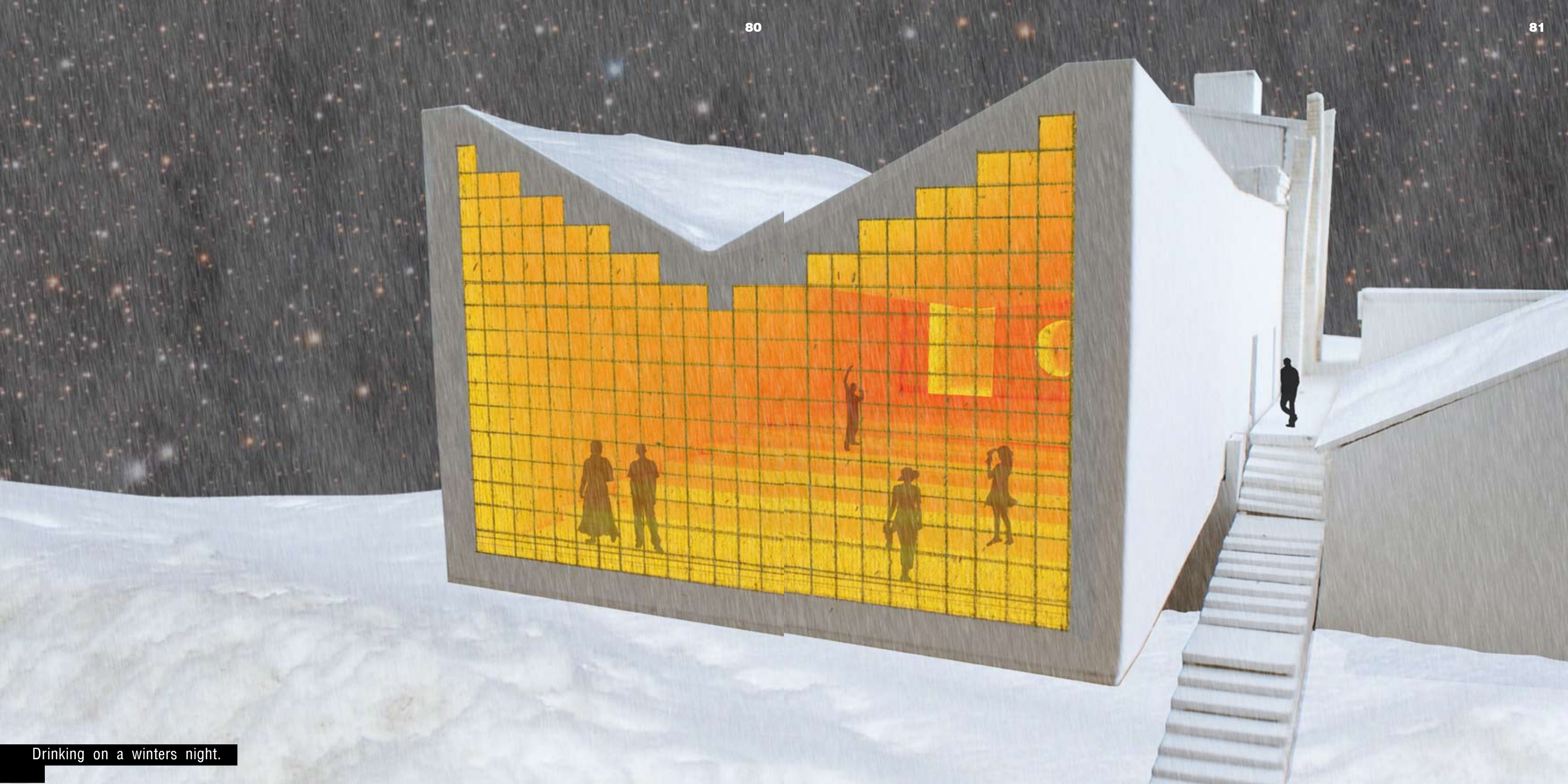




Strolling through the hedges.



Playing the train into the station.

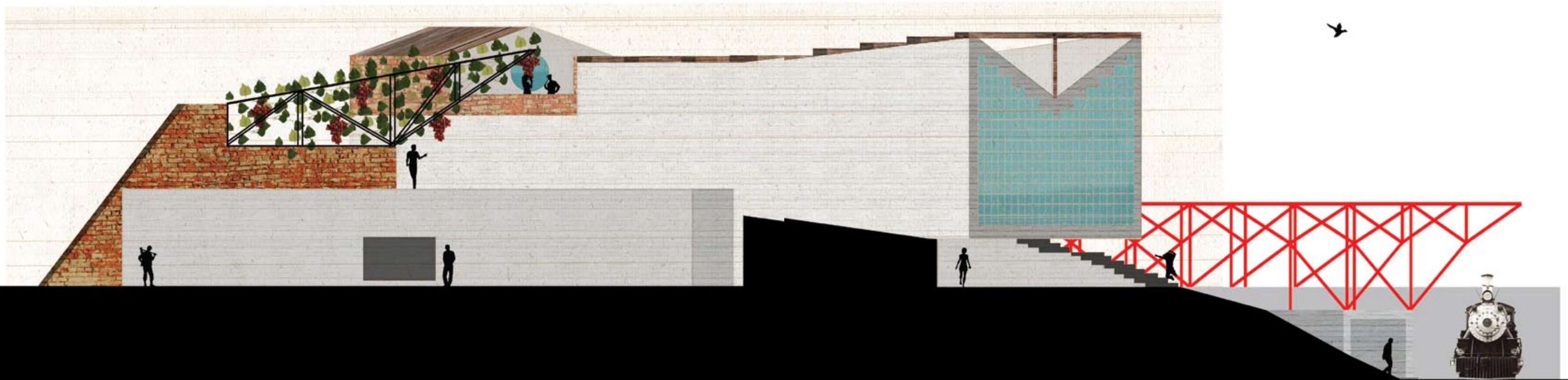




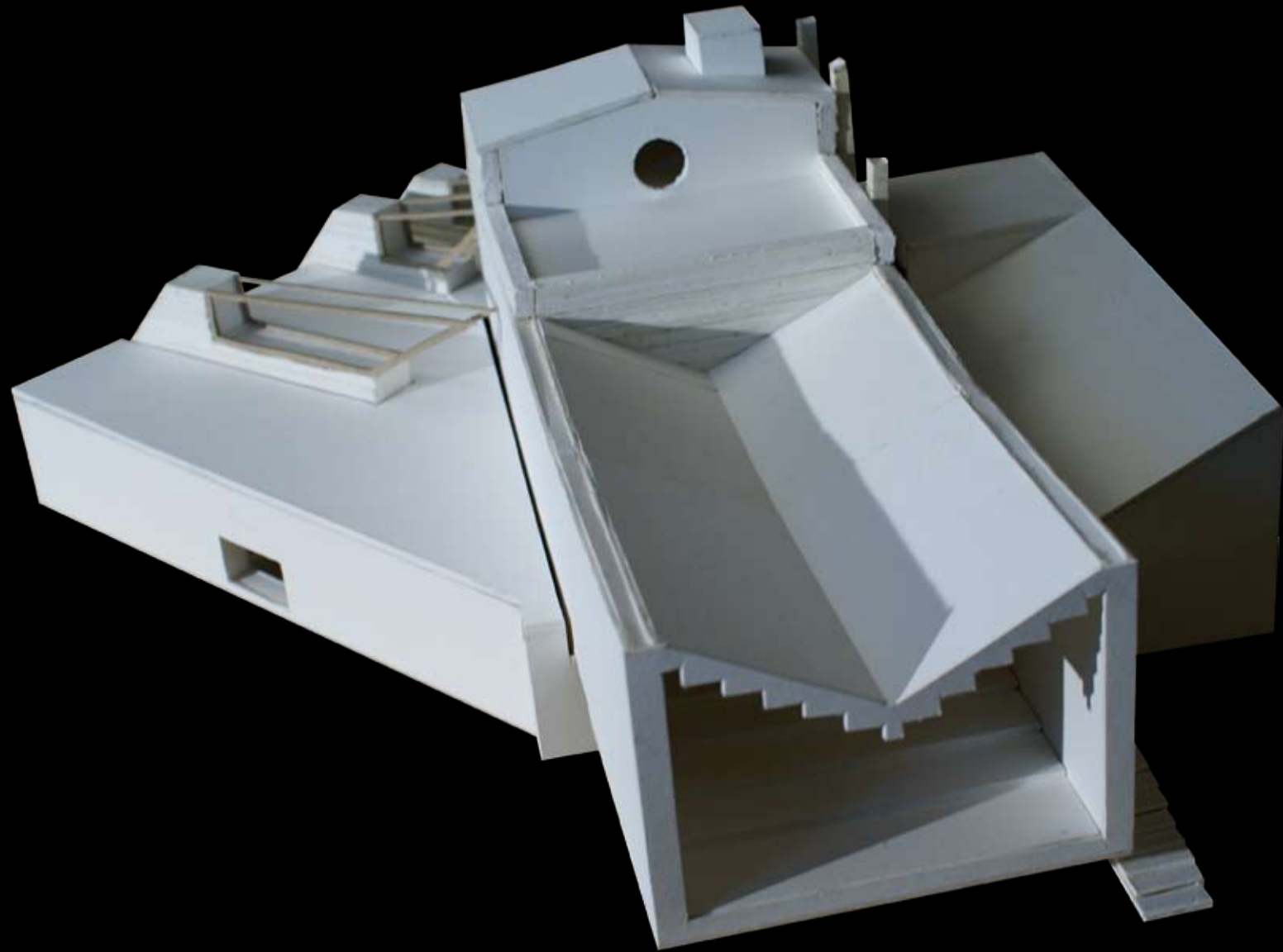
West elevation.



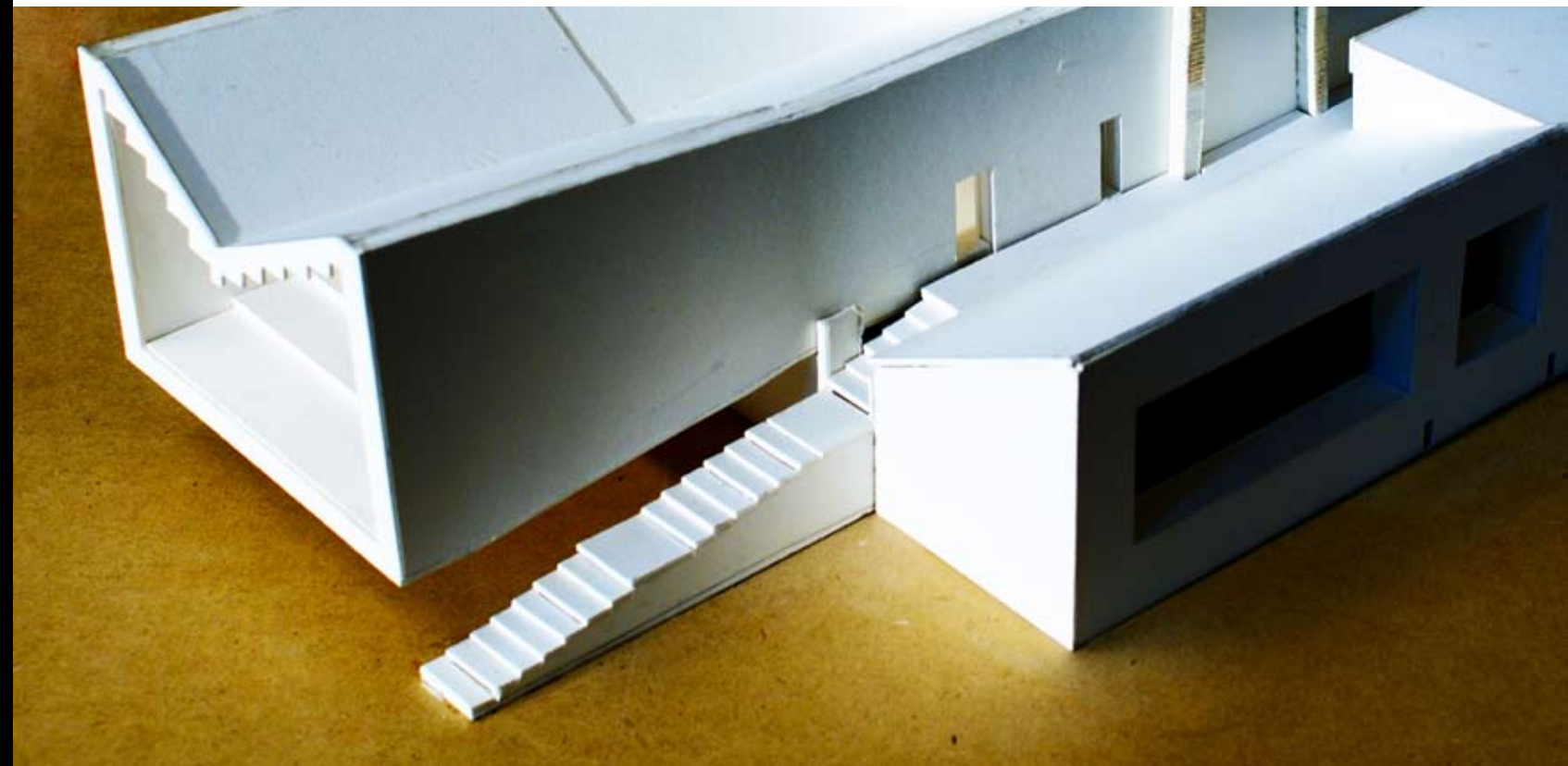
South elevation.

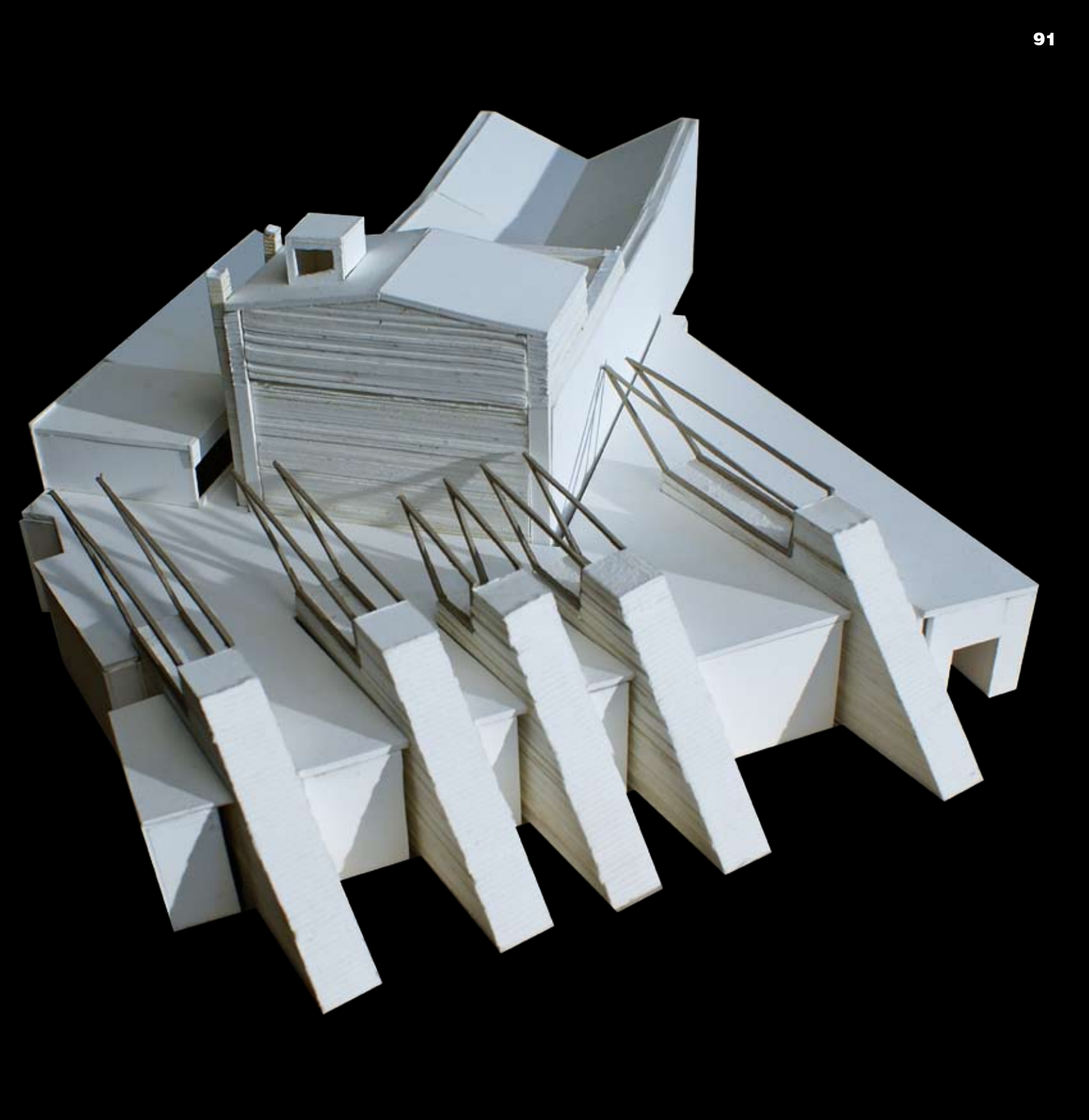
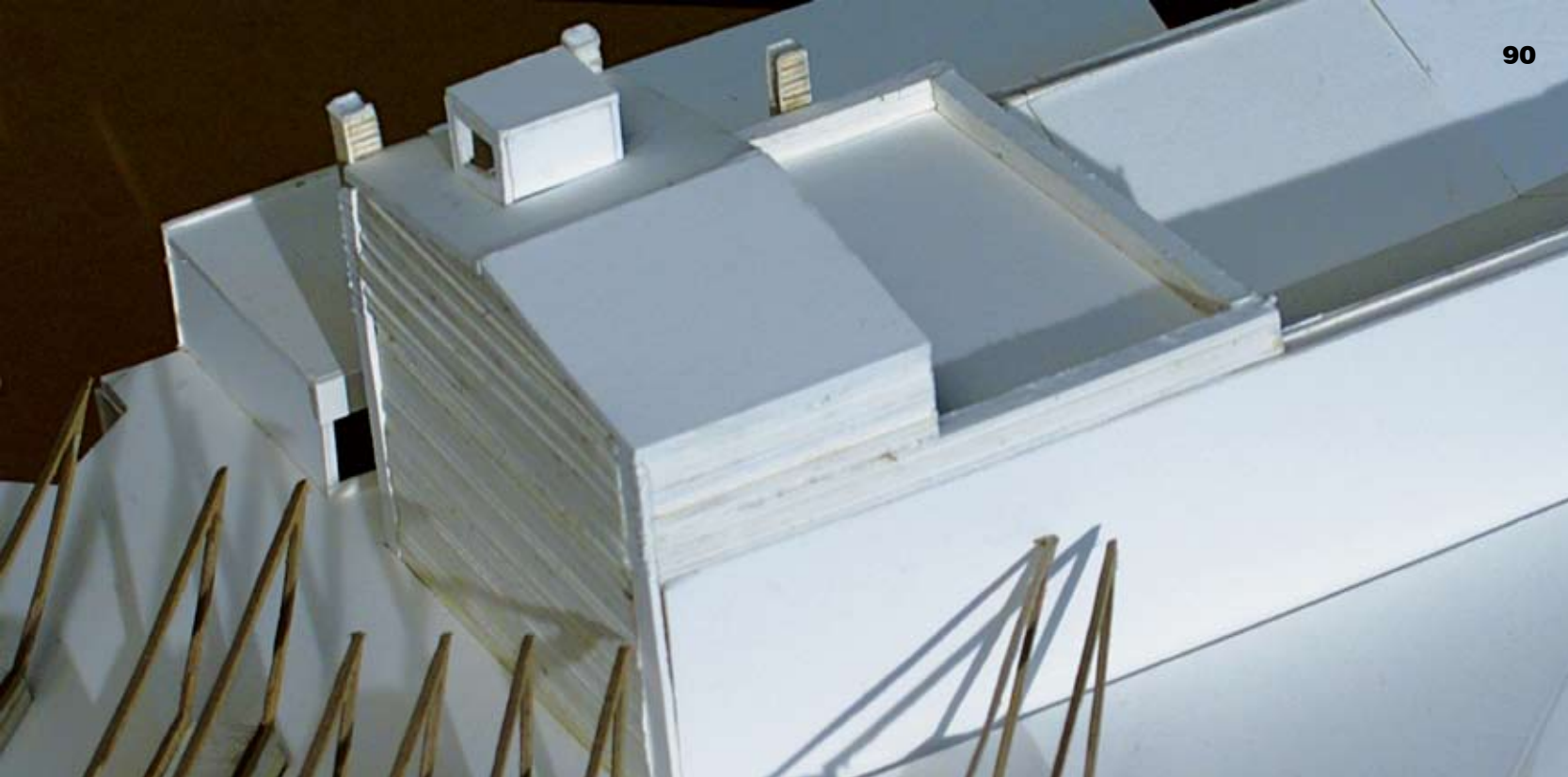


East elevation.



Final model.







thank you!

mama + papa [valentine]

paul [emmons]

marcia [feuerstein]

jaan [holt]

susan [piedmont-palladino]

heather [shaffer]

carolina [dayer]

greg [porter]

ellen [sullivan]

po-hao [chen]

michael [ford]

brian [gafney]

lesley [golenor]

jeff [gowen]

matt [granelli]

keri [kennedy]

khalid [khriesat]

alec [luong]

omni [morse]

cheryl [moy]

leigh [mundy]

steve [small]

from trash to ash to peas! -jaan

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Image sources

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Old man, Artist unknown. Public domain. <http://www.gutenberg.org/files/14093/14093-h/images/55.png>
- p. 8 Venus demanding arms from Vulcan for Aeneas, Francois Boucher, 1732, Public domain.
http://upload.wikimedia.org/wikipedia/commons/e/e1/Boucher_Vulcan_Presenting_Venus_with_Arms_for_Aeneas.jpg
- p. 38 Bacchus, Michelangelo Caravaggio, c. 1597, Public domain.
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- p. 60 Stratiotes and Metis by the river Permessus, Artist Unknown, c. 1875, Public domain.
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