Armature : Infill

A Health Care Facility in Verón, Dominican Republic

a graduate thesis by

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“Armature:Infill”
A Healthcare Facility in
Verón, Dominican Republic

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William Galloway

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Abstract

The purpose of this book is explore the idea of permanent and temporary within the context of architecture, and how the permanent and temporary affect time and memory. This project takes on the program of a healthcare facilty in the community of Veron located in the Domincan Republic. Through the exploration of materials, the identity of the project is identified by a series of walls that bring order and scale to not only the clinic but the surrounding community as well.

Thank You : Dedication

To my Committee

Thank you for your time, knowledge and guidance , not only with my thesis but also over the past three years.

To the Virginia College of Osteopathic Medicine

Thank you for allowing me the oppurtunity to work on this project, and the priviledge of working with your institution.

To my Friends

Thank you for never letting me get too serious, and for always remindingto have fun.

To my Family

Thank you to my family for always being there to listen, even when you didn't always understand what I was doing, you still stood behind me.

I dedicate this book to my good friend and teacher Jeff Mayfield, who left the party early but left all of us with enough memories to keep our glasses full for years to come.

"I don't have to take myself seriously to be serious about my craft."
Kirk Morphew

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Introduction

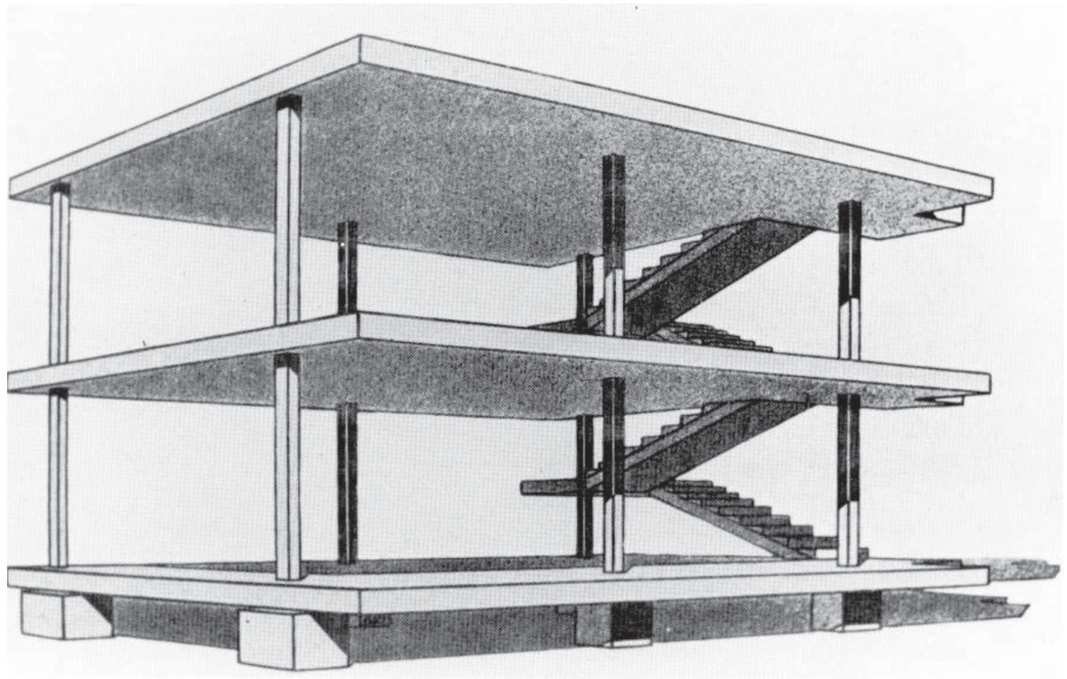
Architecture has always held a certain level of truth that is not as evident in other art forms, in that the works of the architect do not last. Paintings can be treated and cared for, sheltered away from sunlight and rain and covered with glass that prolongs them. Literature and music do not exist in the realm of the physical- therefore allowing them to survive centuries. Architecture must weather the elements, stand-alone over its life and deal with time and growth, as the human condition must as well. What becomes of the building as it ages? Buildings begin to find different means of existing-through habitation the building proves its worth of life. But soon the roof begins to leak; the rain falls through the cracks, collecting in pools in worn spots on concrete floors. Buildings fall into disrepair; Cities rise and fall with the ebb and flow of time. Buildings, like people, grow old- they change physically over the years, slowly slumping more and more, till they are lying on the earth, finally resting on the spot where they originated. The only thing that remains are the pieces that can withstand. The pieces mark the existance of the structure, marking where it once stood. Architecture then relies on memory- and through memory we find the building that used to exist, and revel at the change it has taken. Materials speak a language that speaks purely of time. Rocks on the riverbed are smoothed over millions of years by the movement of the water. The stone becomes the object that explains the beauty of time, and therein lays the beauty of architecture. The beauty of architecture is in the journey, from the past to the present to the future.

Franciscan Monastery, ca. 1504-47, Santo Domingo, Dominican Republic

Precedents

Dom-ino House
Le Corbusier

The Dom-ino House house was developed using three rectangular slabs supported on six slender square columns. The construction consisted of an inexpensive and standardized concrete skeleton, using rubble for walls, mass produced windows, doors and fixtures. The houses would be laid out end to end in formal patterns, some of them indented around grassy communal areas. Although it was never constructed, the Dom-ino house was instrumental in Le Corbusier's development of his 5 point plan, and the sketch was said to be located above his desk next to a photo of the Parthenon.



Diagoon Houses

Delft, The Netherlands
Herman Hertzberger 1970

The idea of the Diagoon Houses is that they are in principle incomplete. The plan is indefinite, so that the occupants will be able to decide how to divide the space and live in it; if the family changes, the house can be adjusted and to a certain extent enlarged.

Montessori School

Amsterdam
Herman Hertzberger

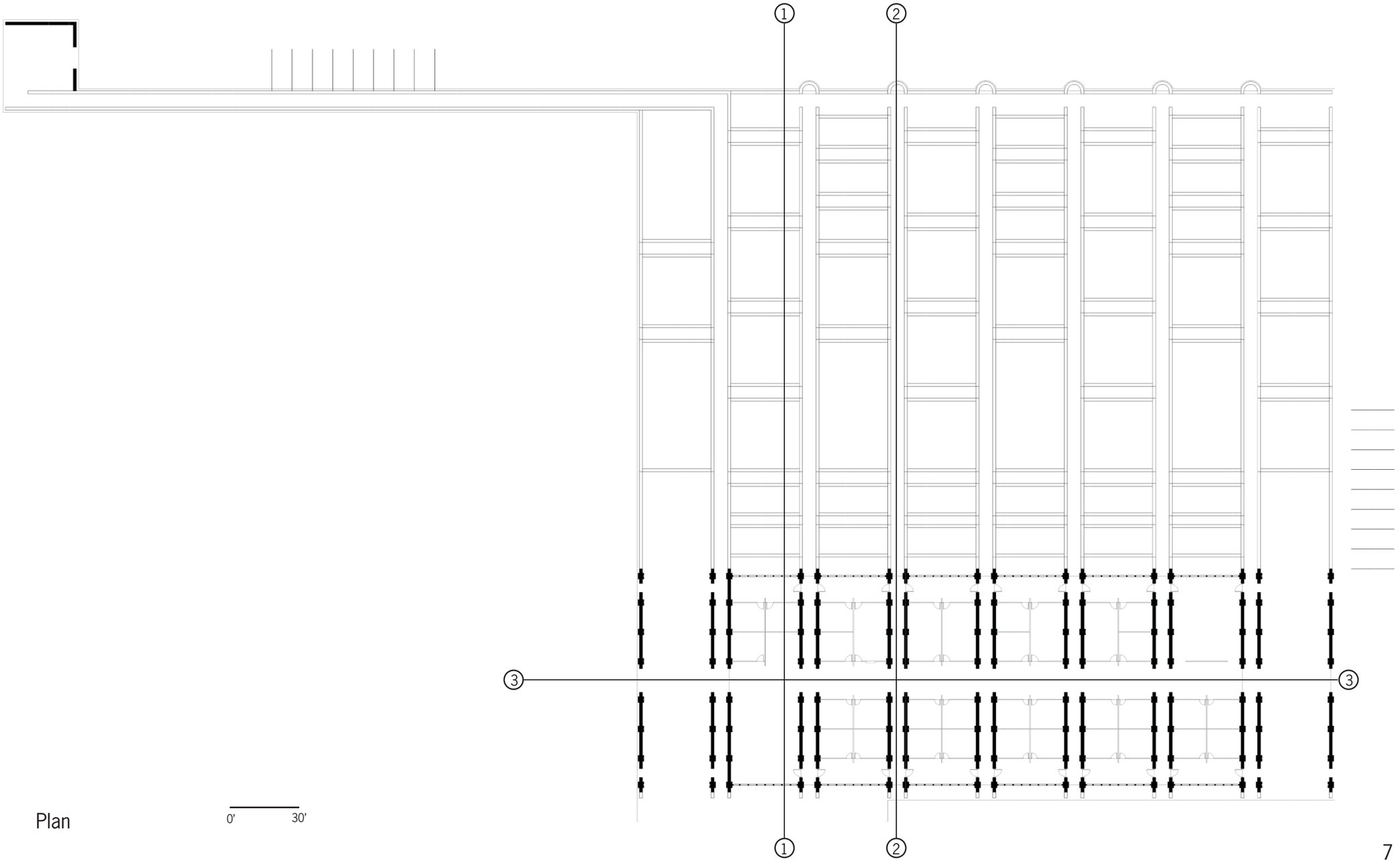
The Montessori School uses concrete masonry as its main building material. Hertzberger uses the same units to create an exterior playground area.

Site

The site for this project lies along a secondary street, in an area next to the baseball field and across the street from the polytechnic high school. The site provides a large area, roughly 500 feet by 500 feet of land that isundeveloped, primarily flat, and within a prime location for pedestrians and motorists. The only community space that can accomodate a large number of people is the baseball field; the citizens use it for not only sporting events but also children play in the outfield. To the east of the site is a local neighborhood known as Villa Plywood, which gets its name from the material most commonly used.

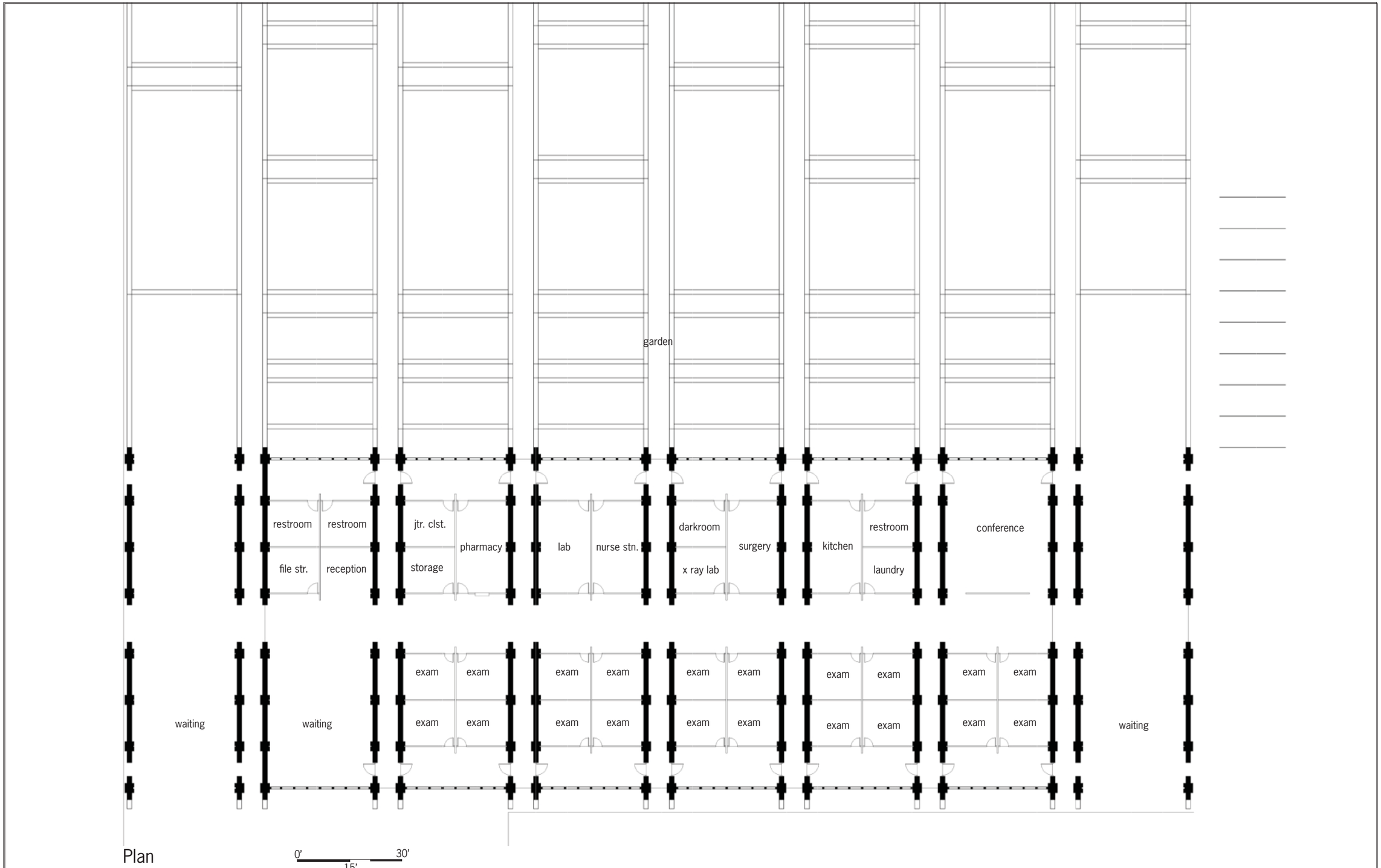
Site Plan

0’ 60’



Plan

0' 30'


garden
restroom
restroom
file str.
reception
jtr. clst.
storage
pharmacy
lab
nurse stn.
darkroom
x ray lab
surgery
kitchen
restroom
laundry
conference
waiting
waiting
exam
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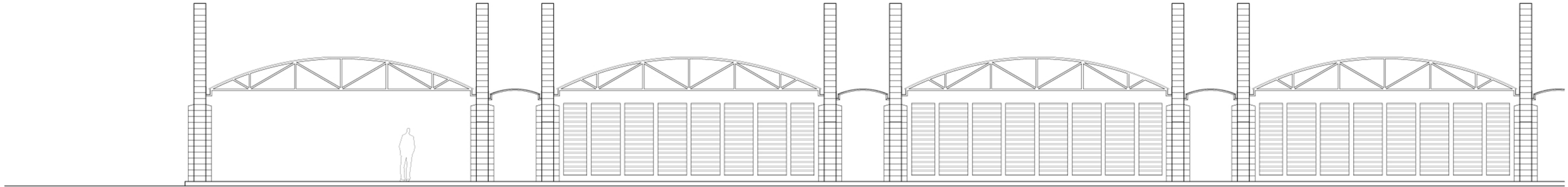
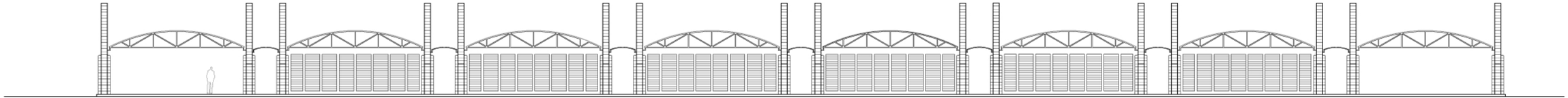
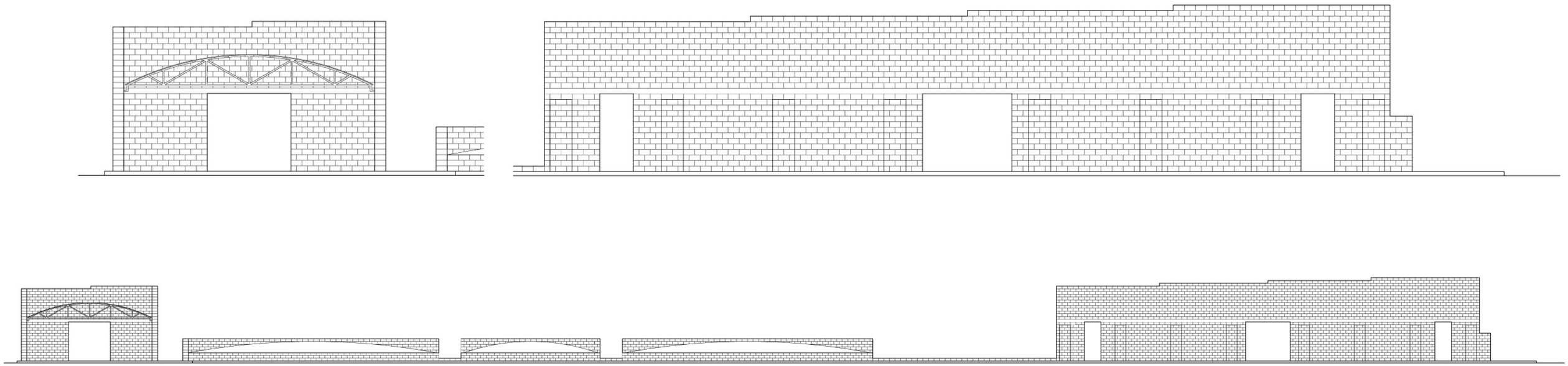
waiting
0'
30'
15'

Plan

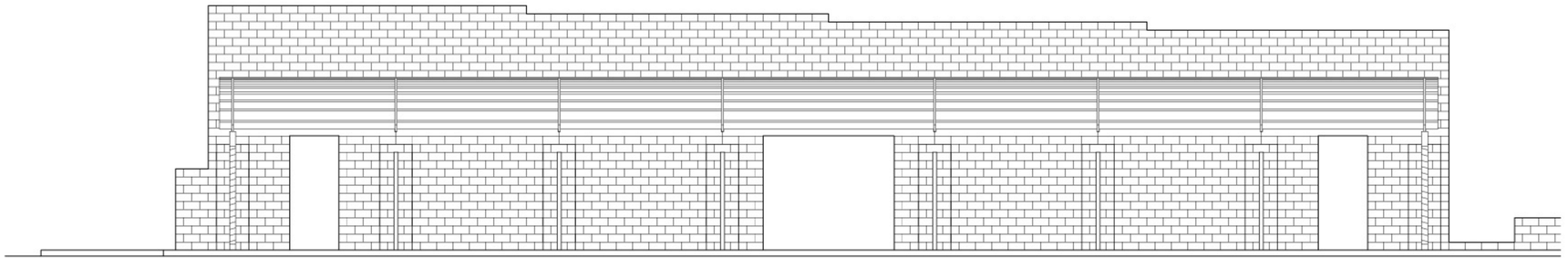


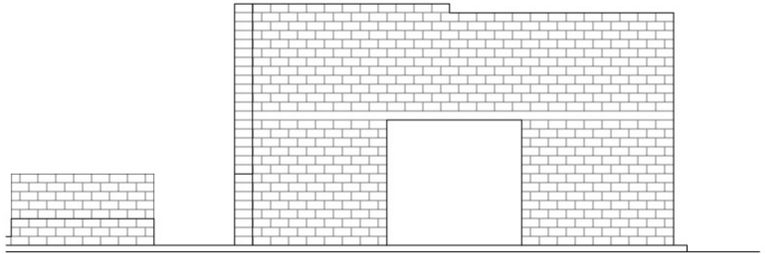


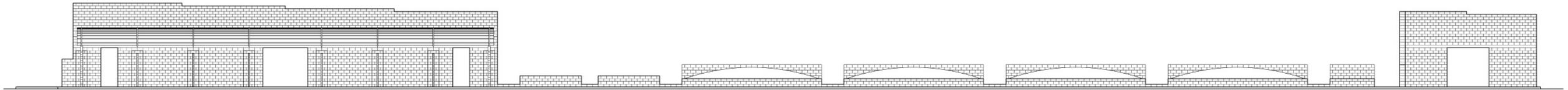
STREET ELEVATION



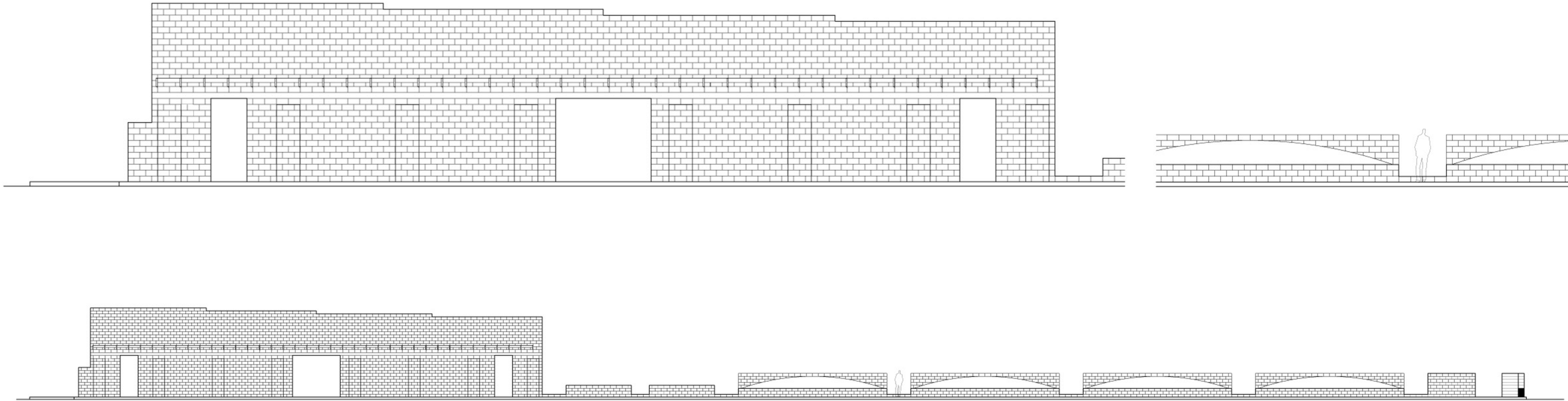
WEST ELEVATION



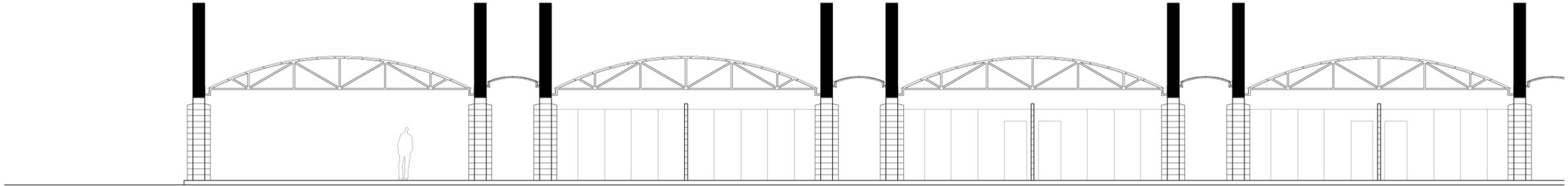


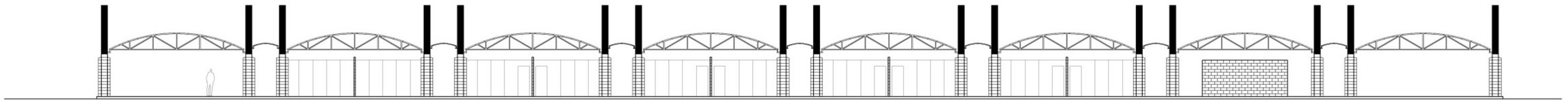


SECTION 1

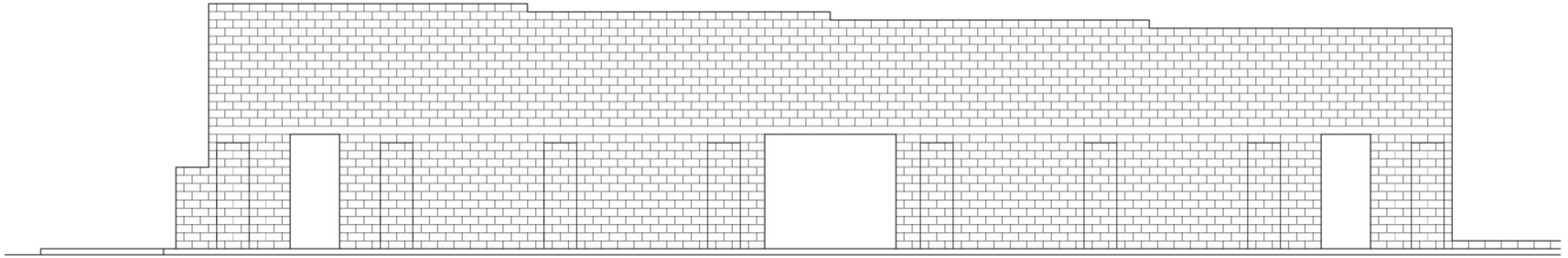


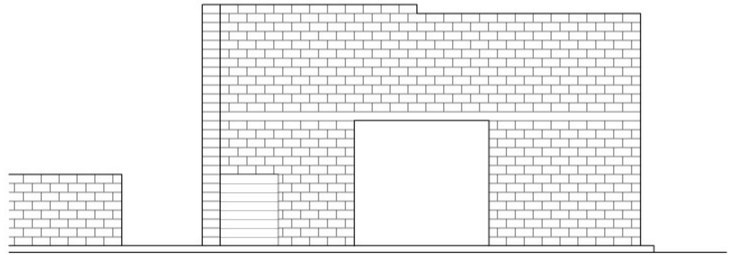
SECTION 2

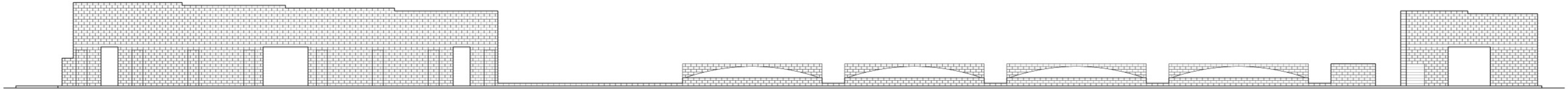




SECTION 3



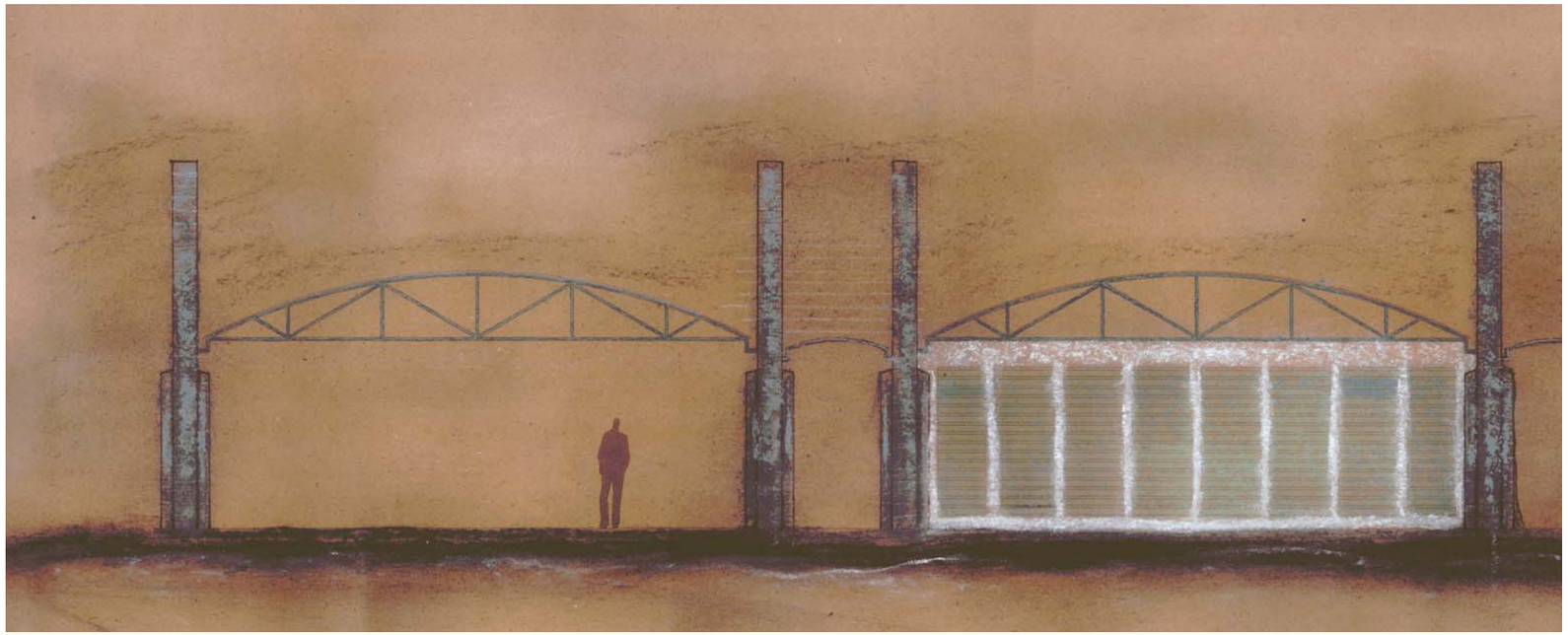




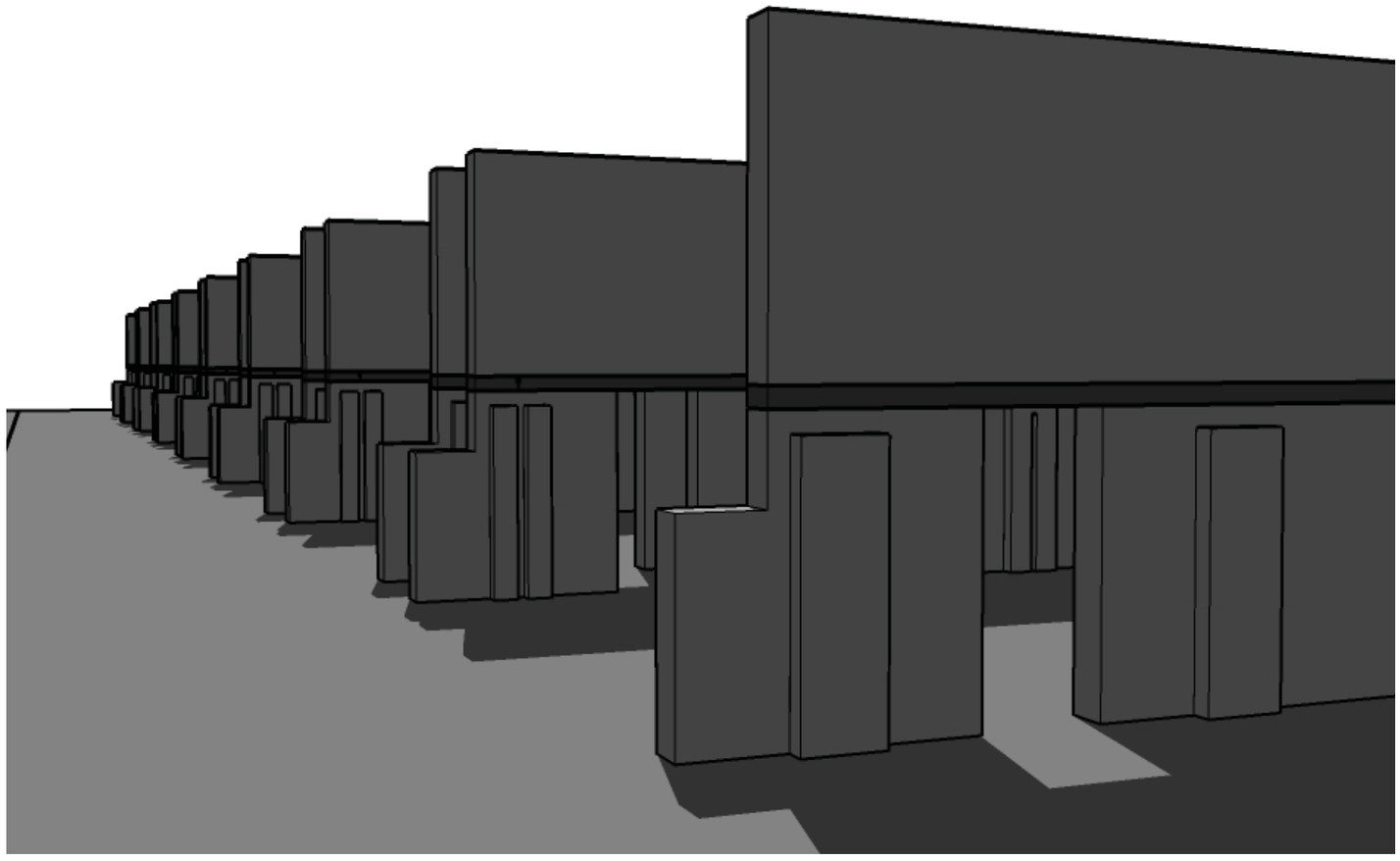
EAST ELEVATION

Walls

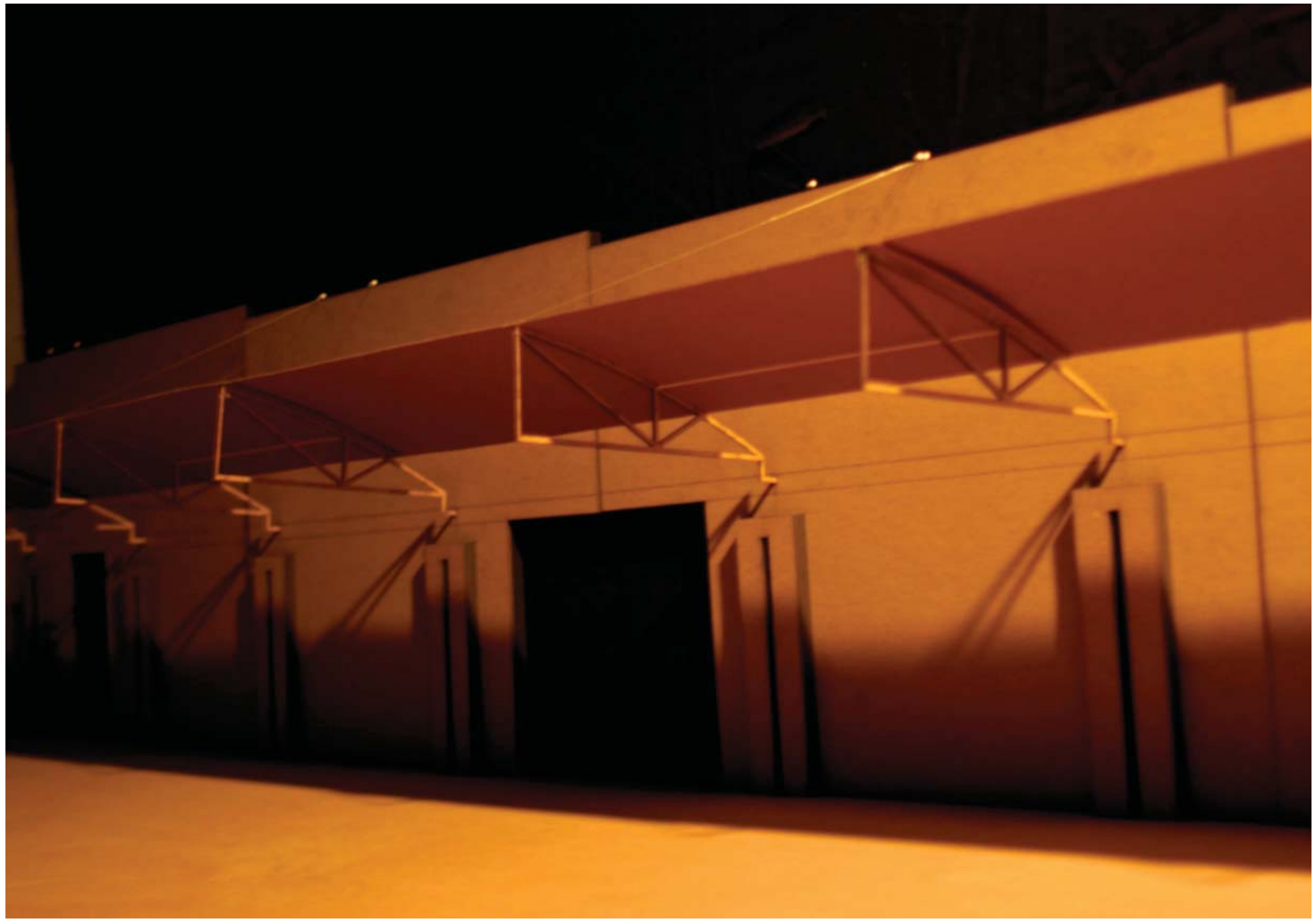
The walls rest on a concrete foundation, poured directly on the coral. This is common among the structures in the area- the coral is too hard to excavate.

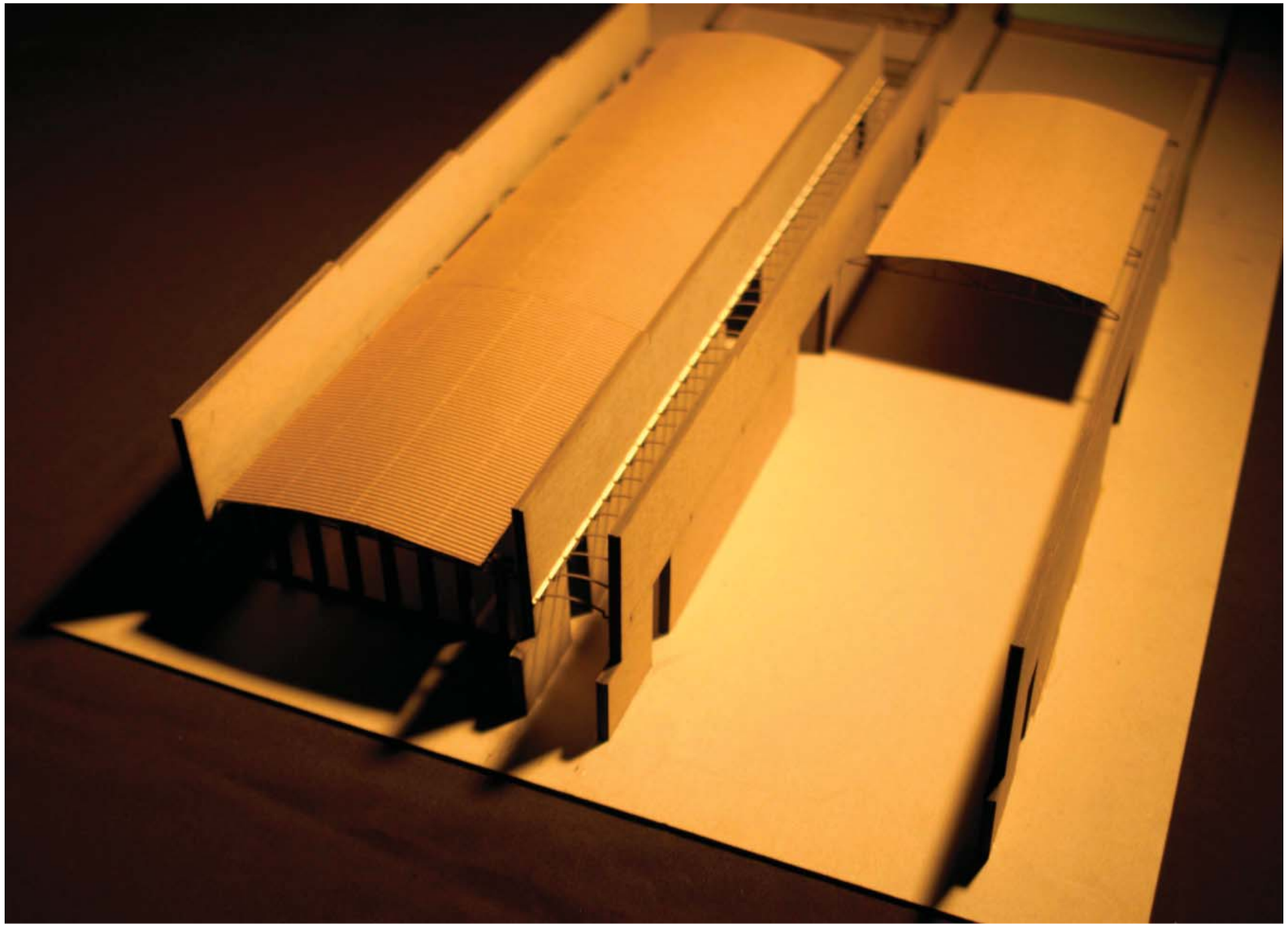


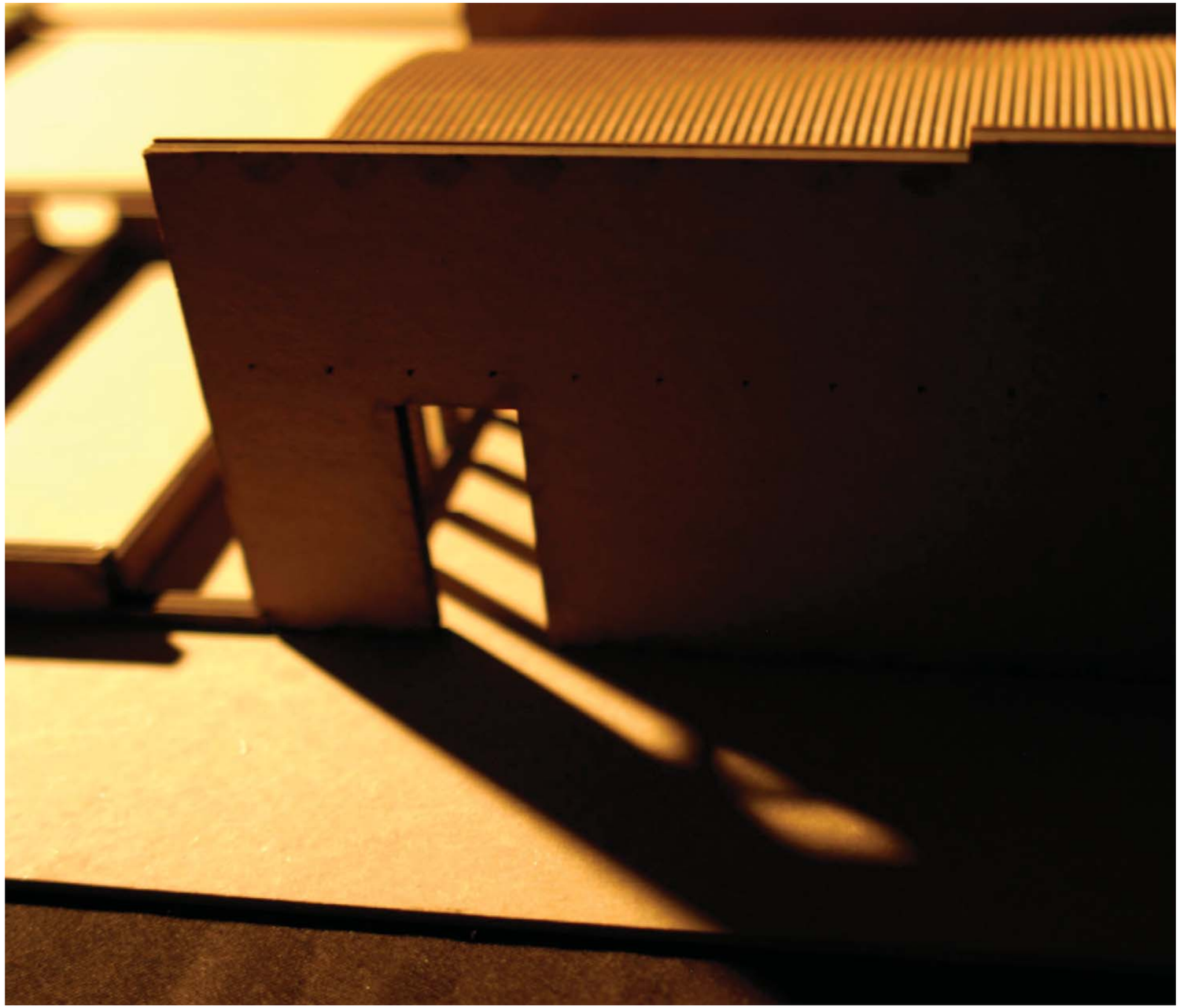
The walls of the structure rise to 20 feet, creating a vertical presence that rises above the surrounding landscape. The height of the walls creates a visual landmark that can be seen from any approach.



The walls are made of concrete and cmu- of hard material that can stand up to the dogged climate. They stand apart to allow the infill, but only under its own rules. The walls make it known that they are the armature, and that all that occurs inside must be accepted by the wall.

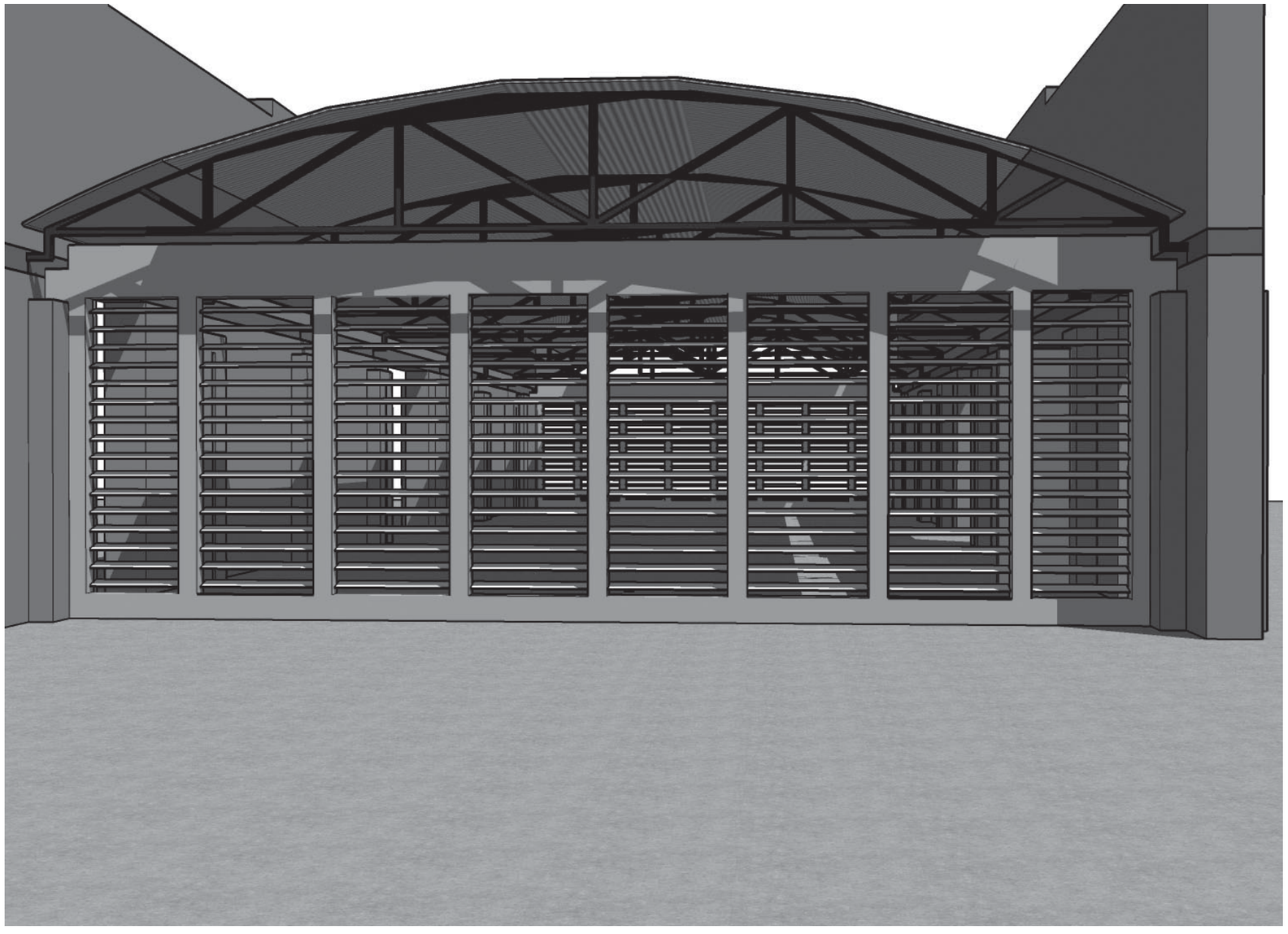




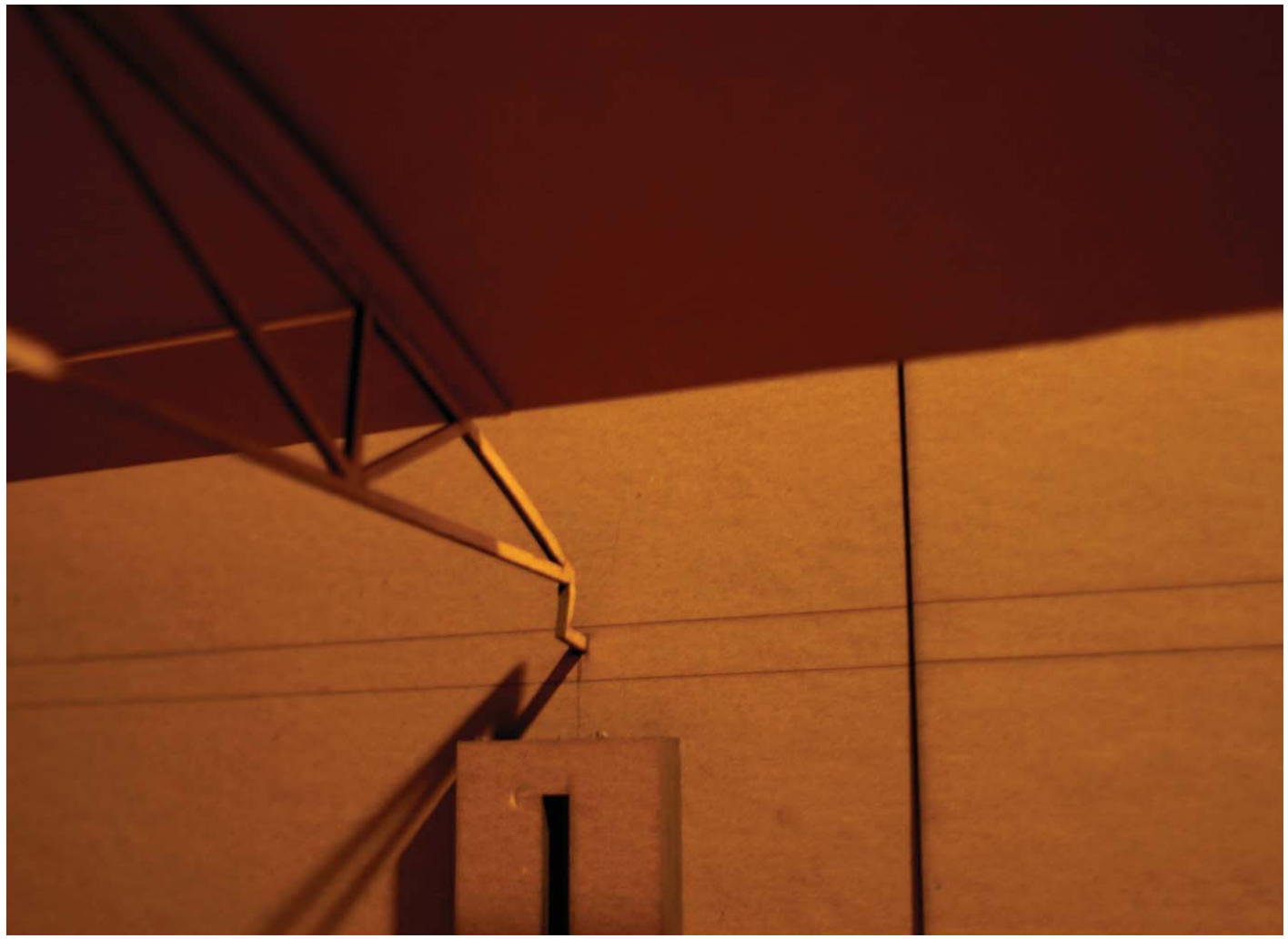


Infill

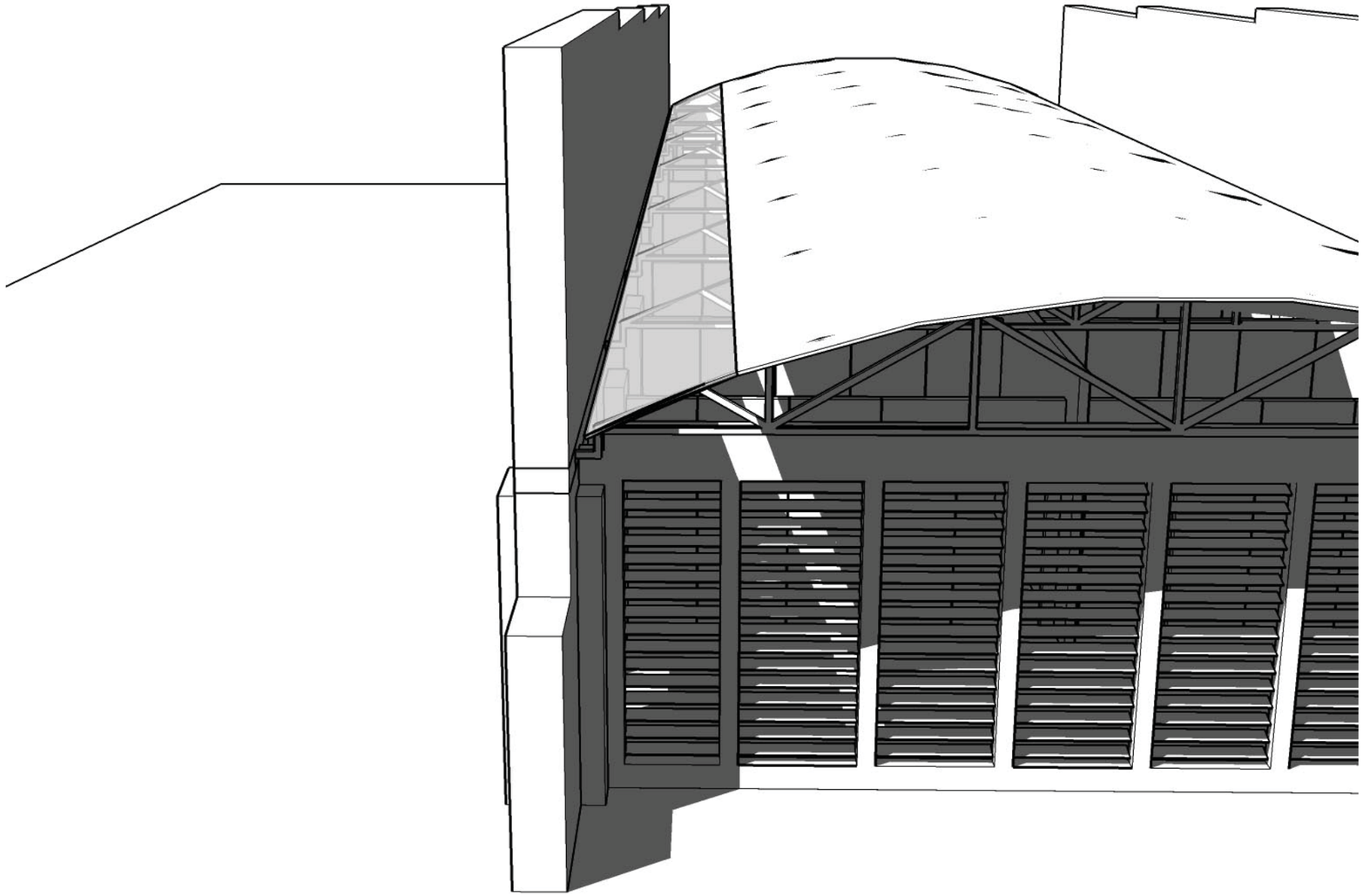
The interior elements, or infill, are constructed of material that is temporary: wood, plaster and metal roofing. Infill elements can be removed, blown away, pulled apart or replaced.

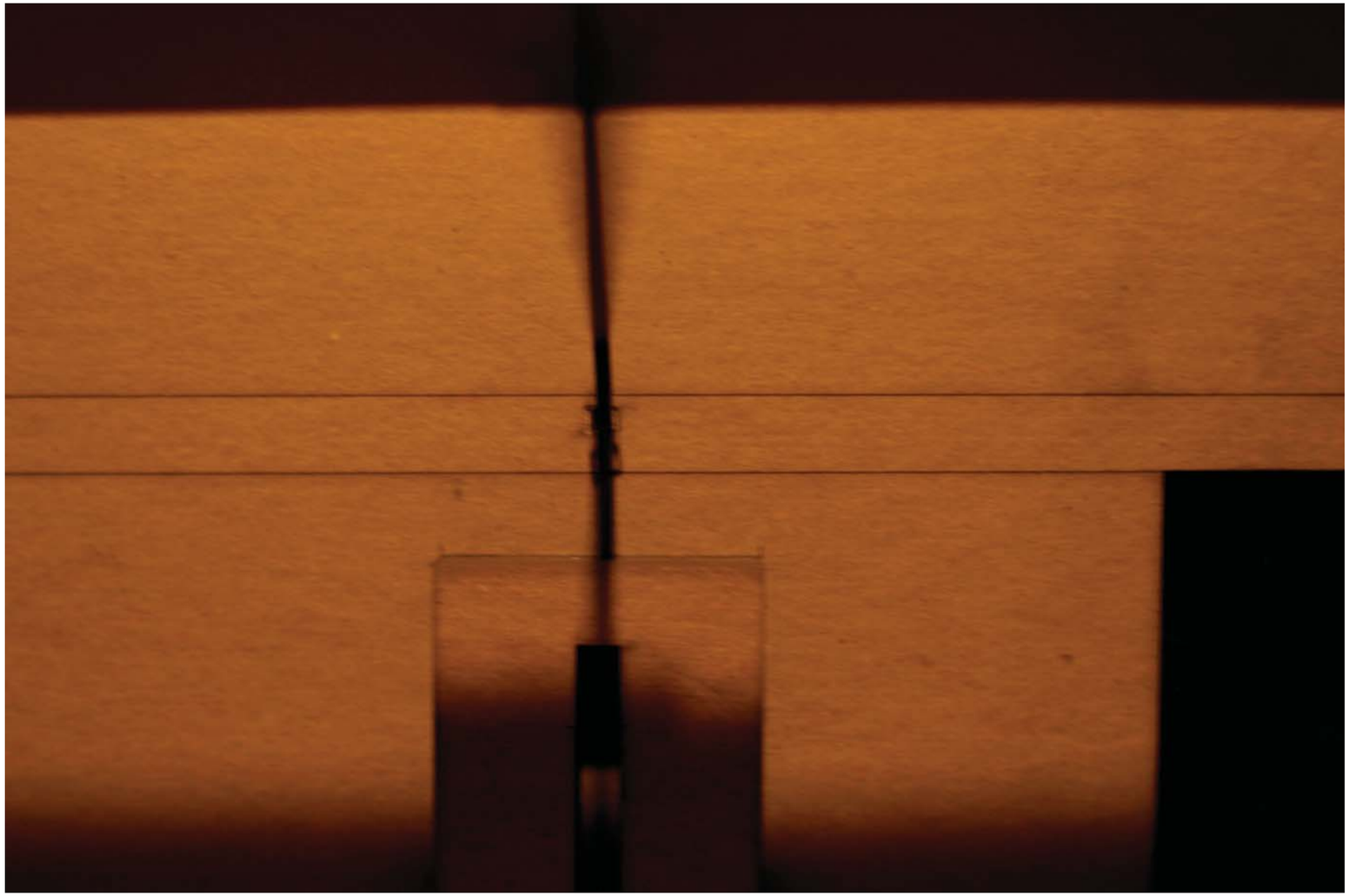


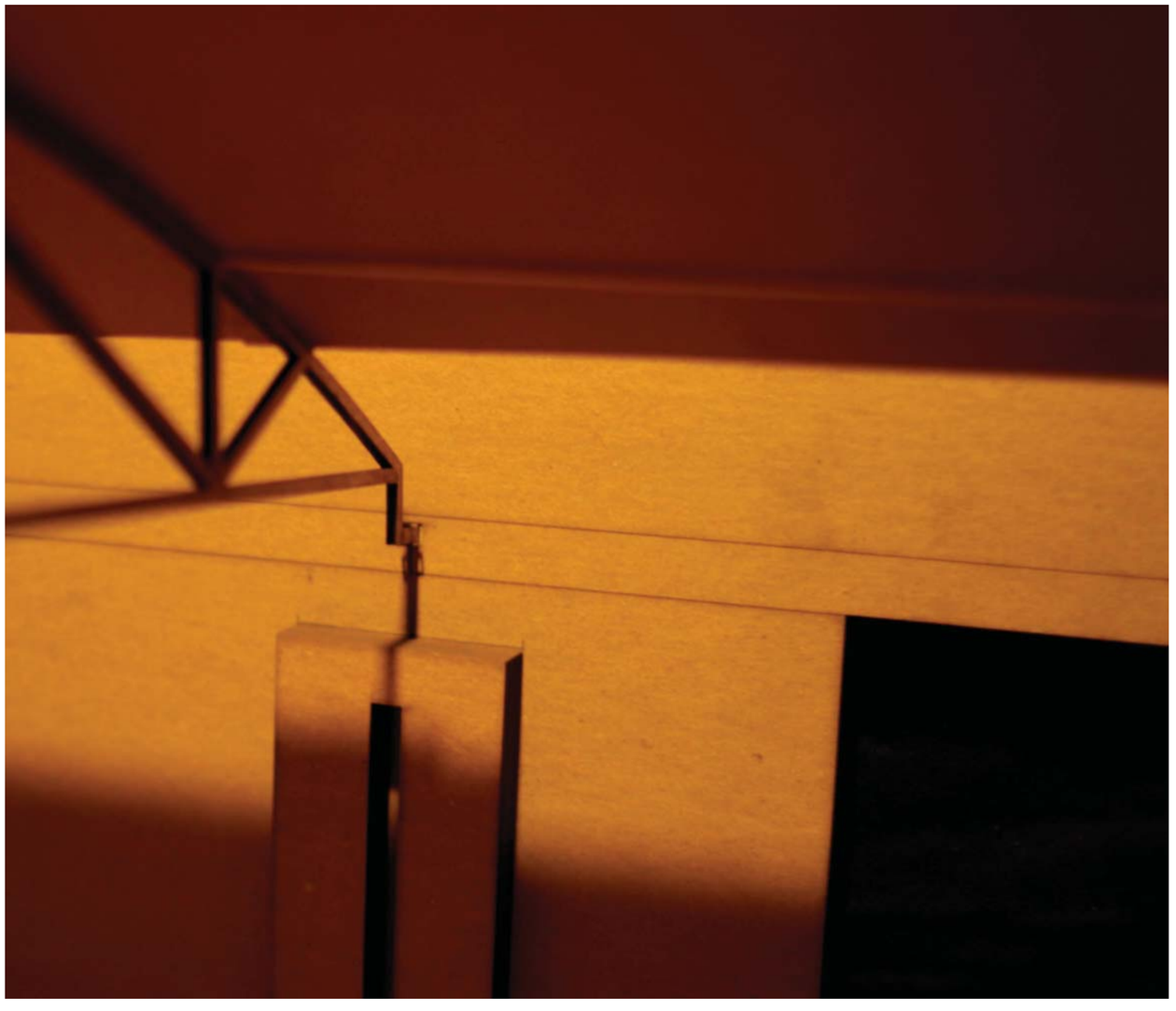
As the roof truss approaches the wall, the wall reaches out to accept the infill along a specific line.



The roof holds back, allowing light to enter the space and wash down the walls.

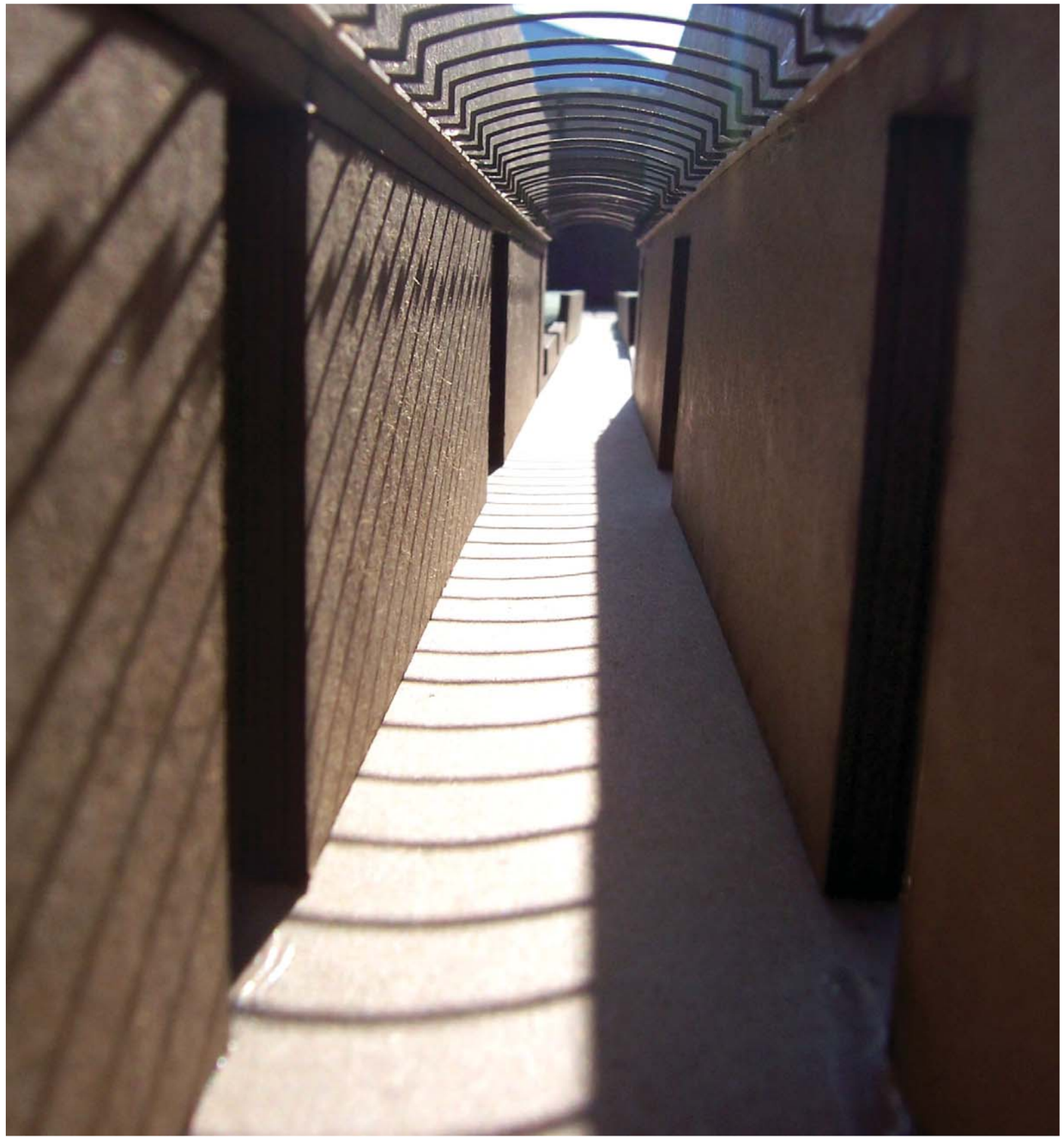




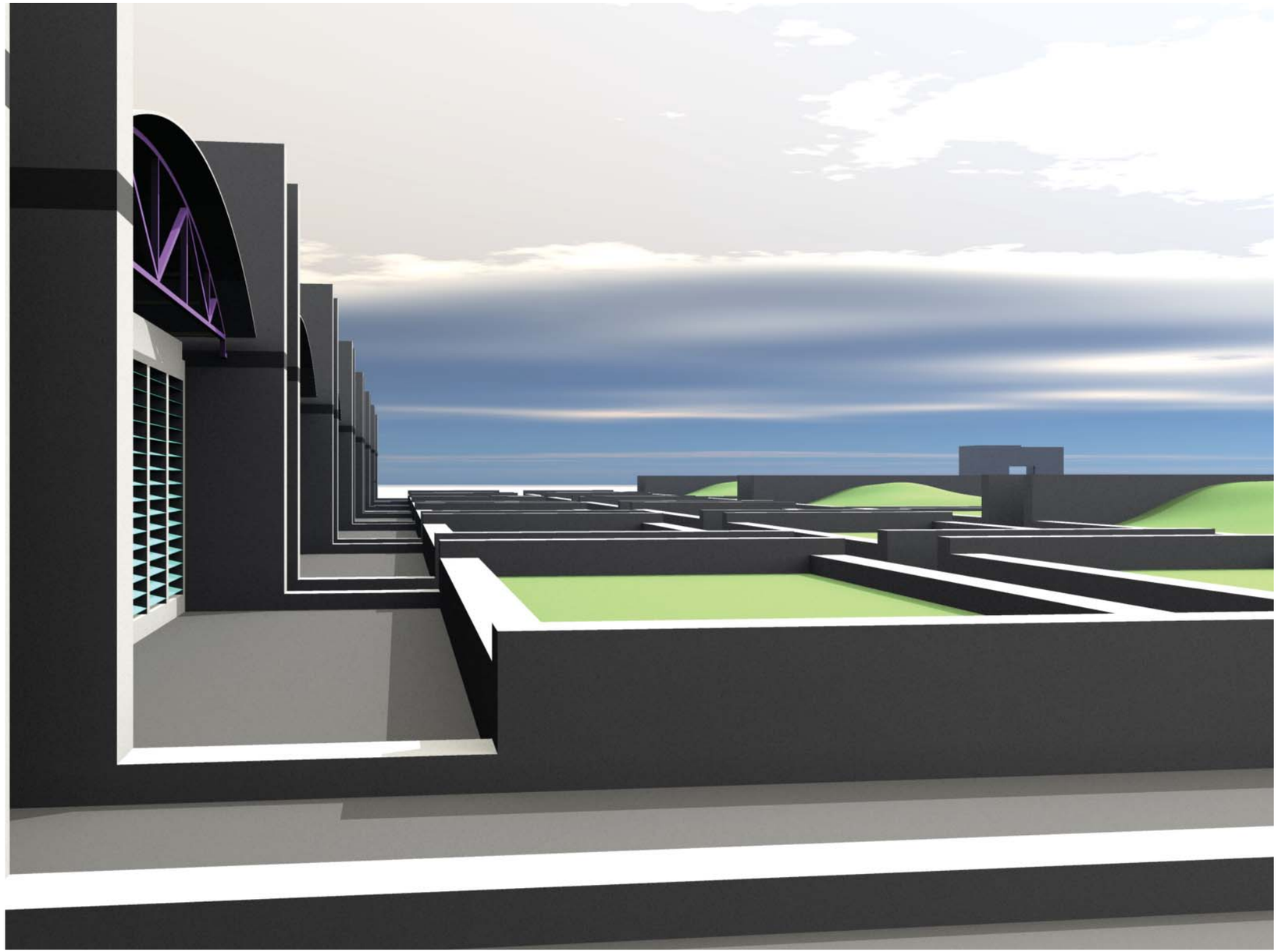


Pathways

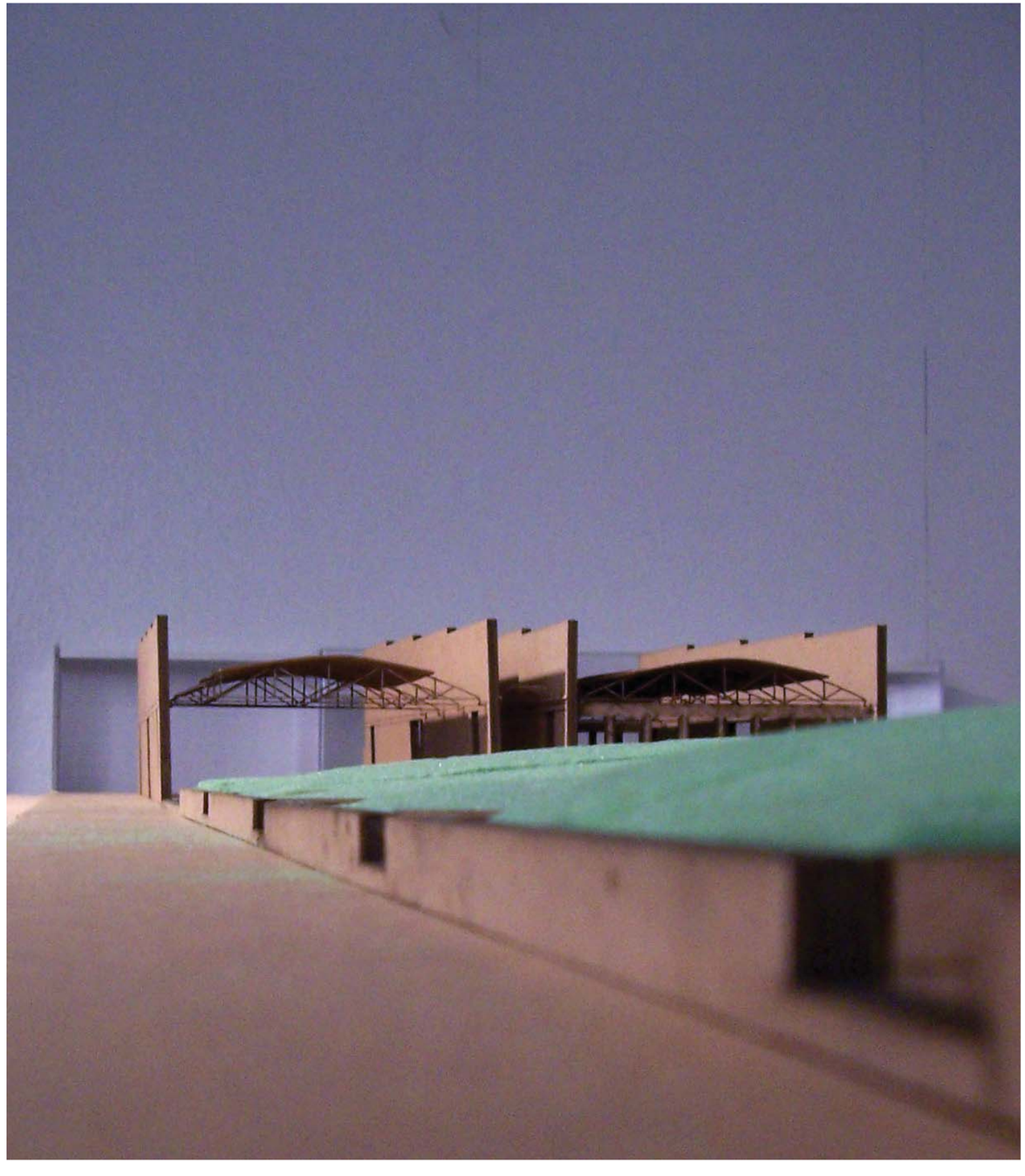
The path leads from the street, through the clinic, and opens into the courtyard. The path opens up when the wall drops in height, allowng the view.



The walls continue into the landscape, reaching out to create the spaces for rest. They lower themselves to provide a seat, and to allow the people to rest, and wait. Some lower only slightly, and point the way down the path leading to the town.

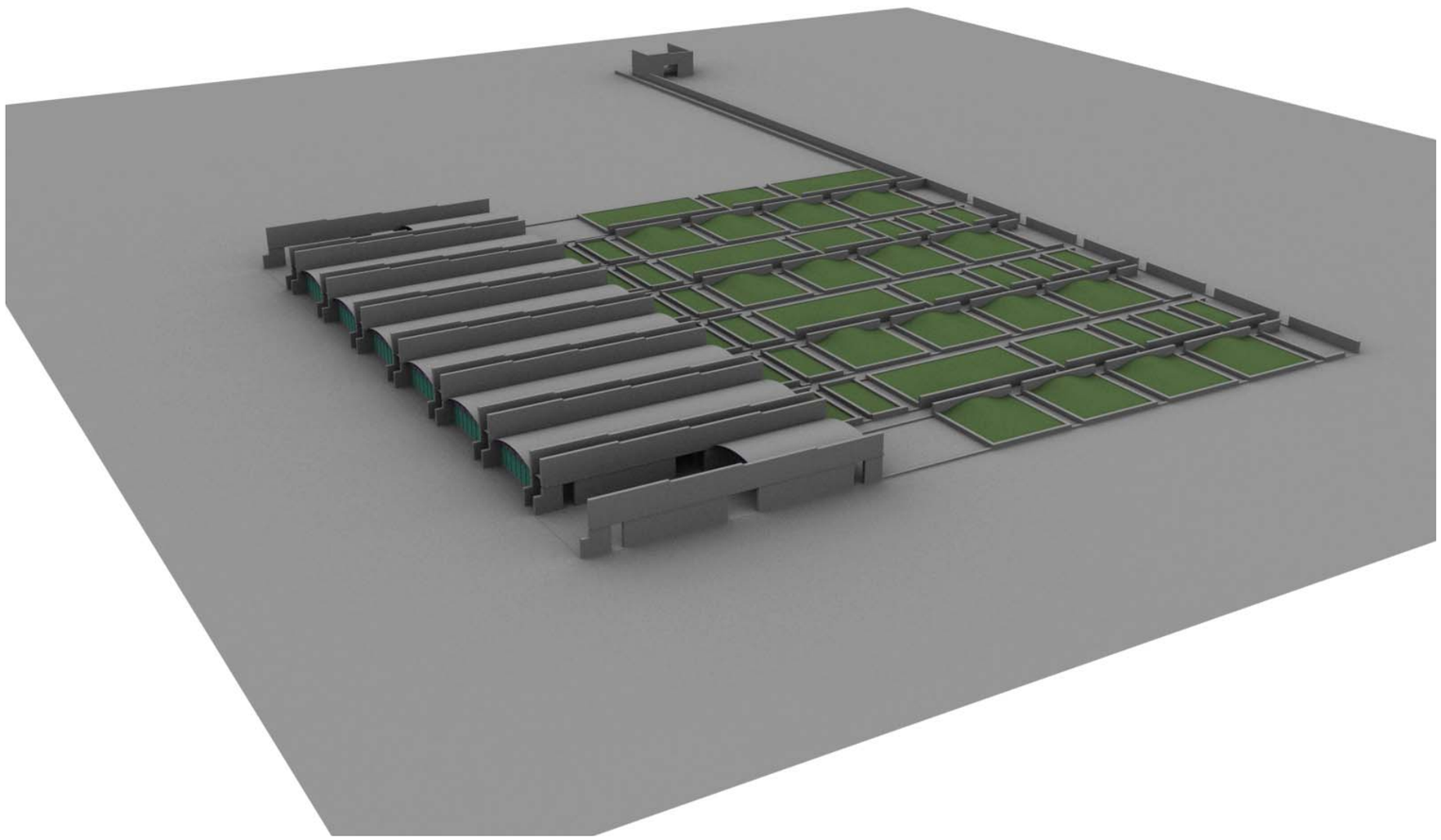


As the wall moves farther into the landscape, its forms begin to move differently; it no longer holds to the same shape. The wall begins to rise and fall, creating new paths and spaces.



Outdoor Spaces

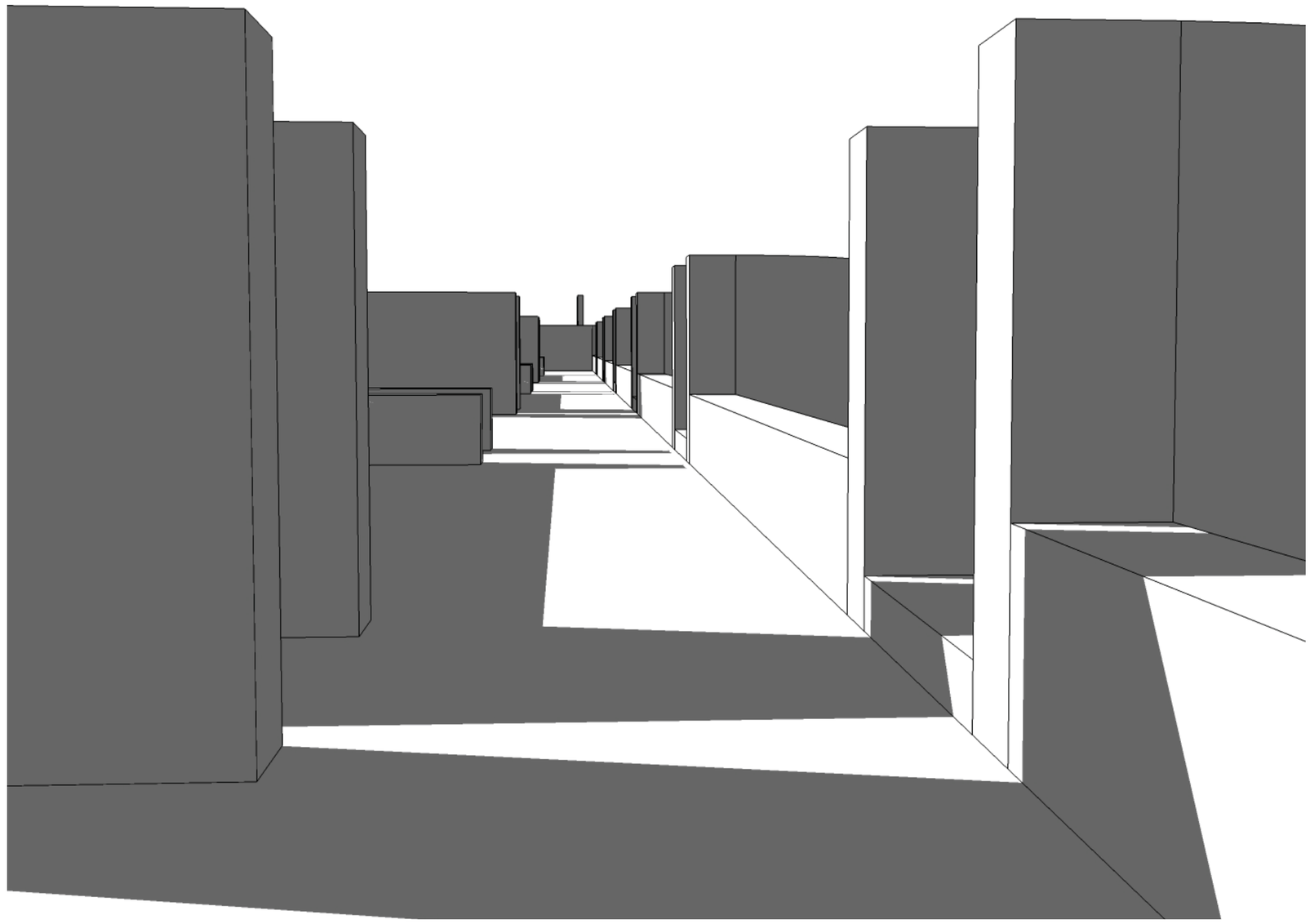
Once the walls have dropped, they begin to form spaces that hold mounds of earth. The earth acts to create a play between the horzizontal nature of the physical landscape and an artificial vertical landscape.

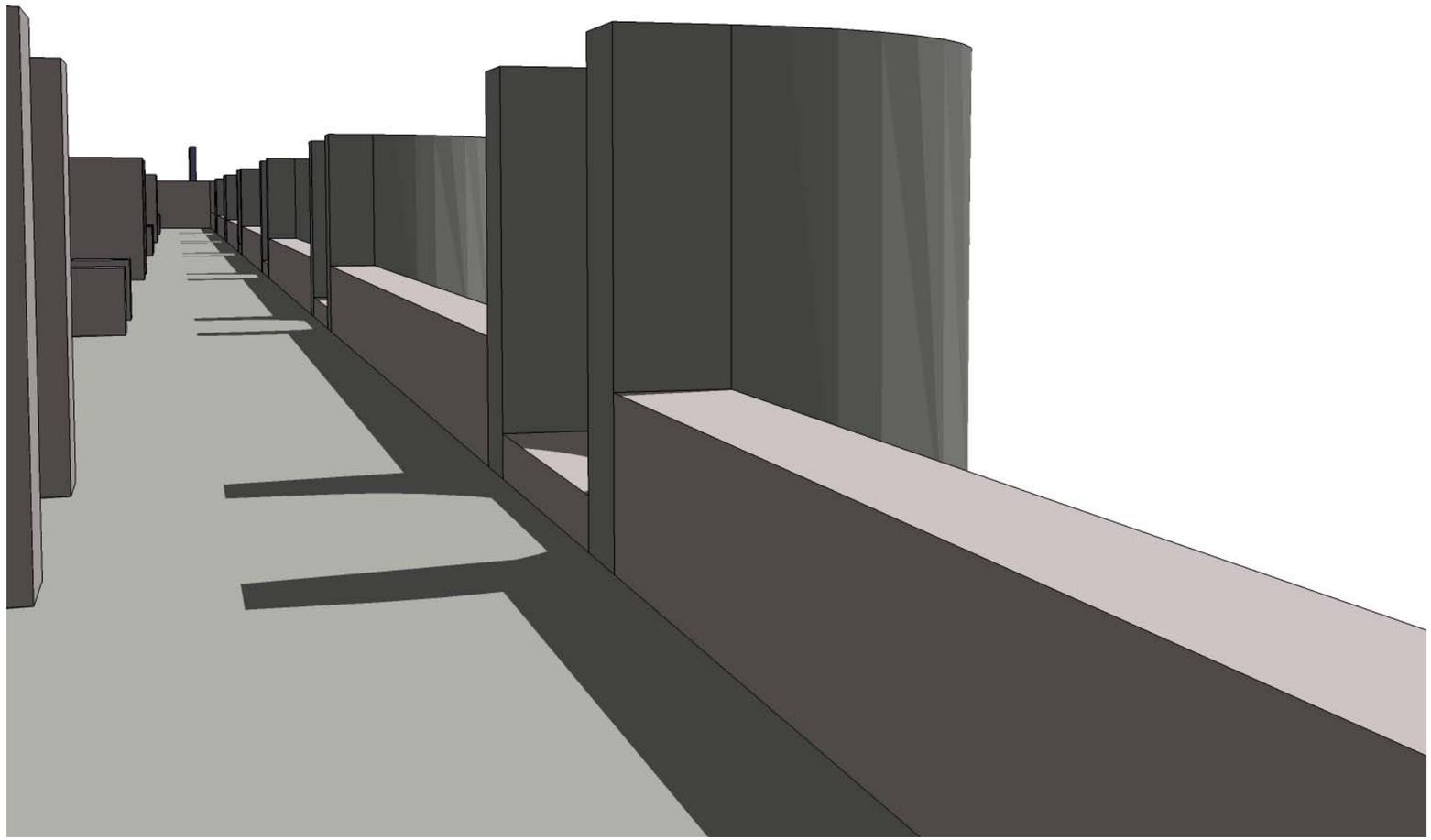


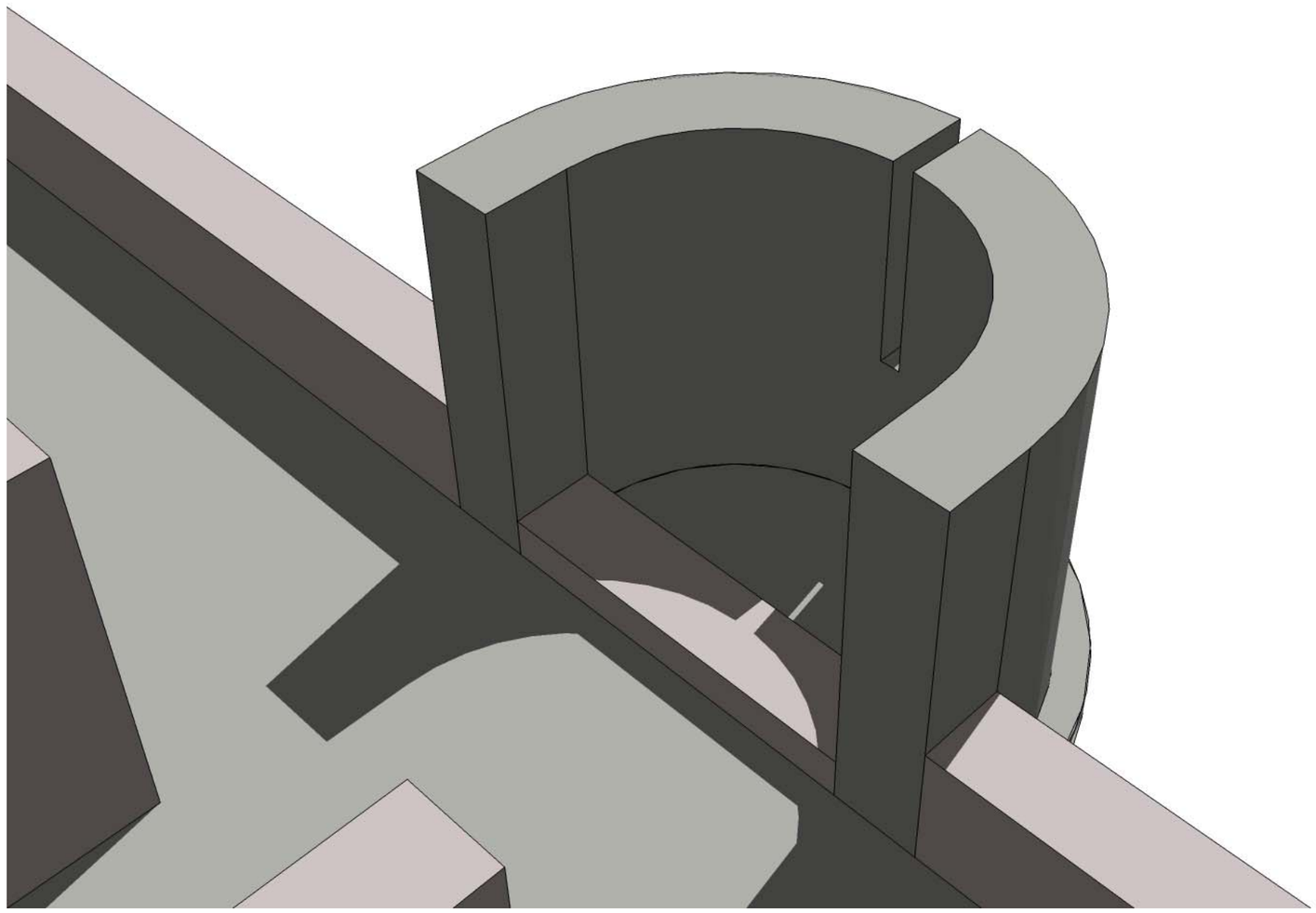
Children are not concerned with getting from one point to another in the fastest way possible. They are more concerned with the path rather than the pace. The paths and earth are for the children to enjoy. It is not often that the children have seen a series of grass mounds, or had the opportunity to feel the grass under their feet rather than coral.

End wall

The wall ends sharply and abruptly. The walls have reached the limit, and have meet the last path. The end marks the existence of the concrete curves, where at the right time of day, light slides through the cracks, and makes the mark on the concrete floor that points where they have just come.

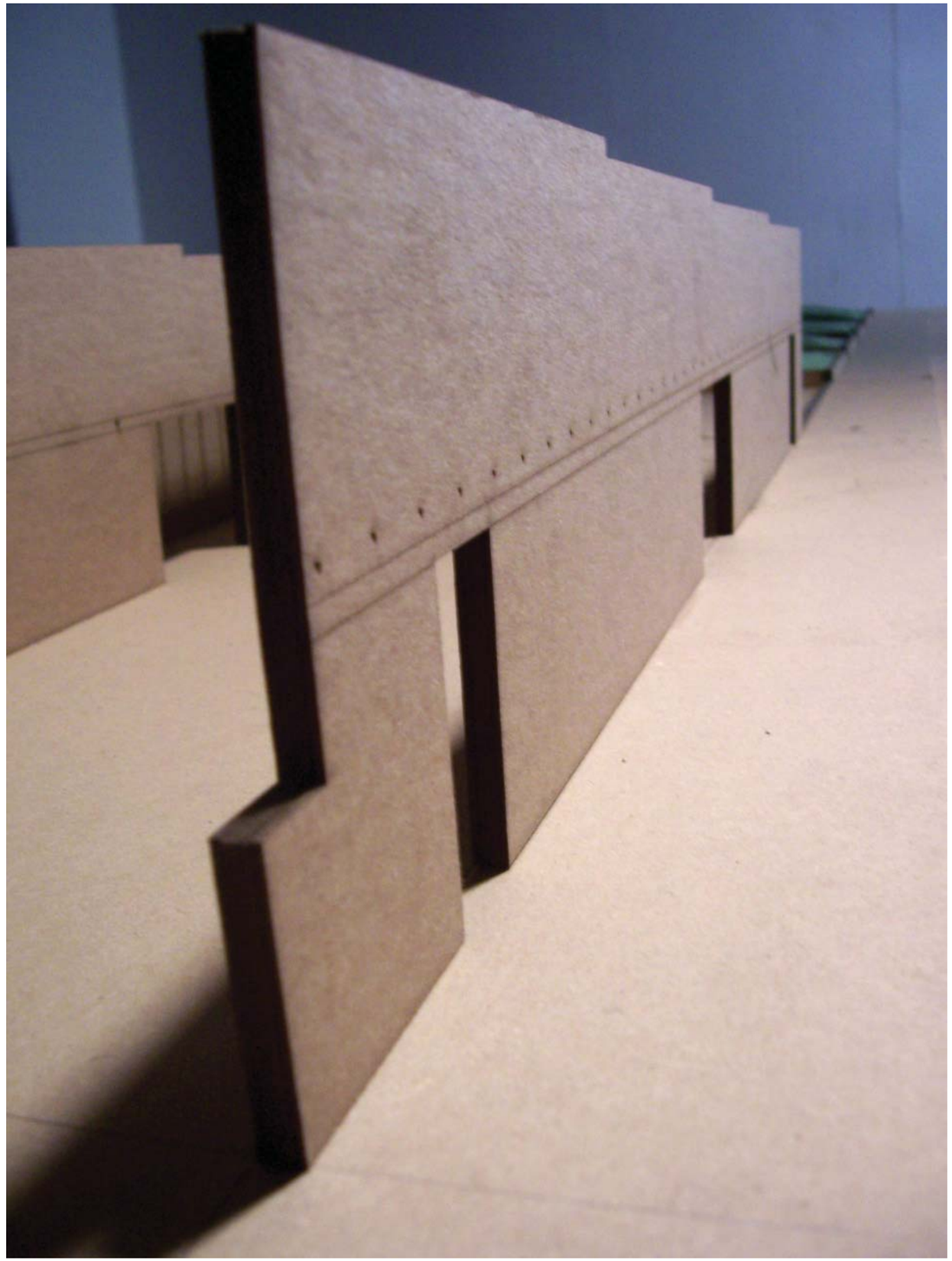






Conclusion

The walls continue to stand, but they no longer hold a medical clinic; they have evolved, confirming their merit by creating shelter. There lies the moment when the ruin, the remnant, forms the new. Ruins hold memory- the memory of what occurred, what once was attempted and realized. The ruins are therefore ever changing, rising up over and over to inform us of what we should aspire to create.



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notes/credits

Images

Photographs and work are by the author except for the following:

p. 7	Curtis, William. Le Corbusier: Ideas and Forms. New York: Rizzoli International Publications, 1986.
p.10-11, 40, 44-48	Images are from Virginia Tech survey of Veron, performed in May 2005.

Appendix A
Veron: Site Information
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Veron : History

Veron is a community created by a series of incidents, most notably a growing tourist resort industry and a presidential election. In 1969, Grupo Punta Cana, comprised of attorney Ted Kheel, local developer Frank Raineri and several others, purchased 30 square miles of land on the eastern tip of the Dominican Republic. At the time, three to four families lived on the property, and were allowed to remain by Grupo Punta Cana. In 1993, there were around 80 homes in the Veron area. In 2000, a presidential election took place in the Dominican Republic. A large influx of squatters moved to Veron at this time, due to the fact that there was little resistance put up by the governement due to the election. Currently there are roughly 7,000 people who live in the area known as Veron, most working in the service industry in the resorts or in the construction industry.

Grupo Punta Cana is currently in the process of deeding the land to the residents of Veron.

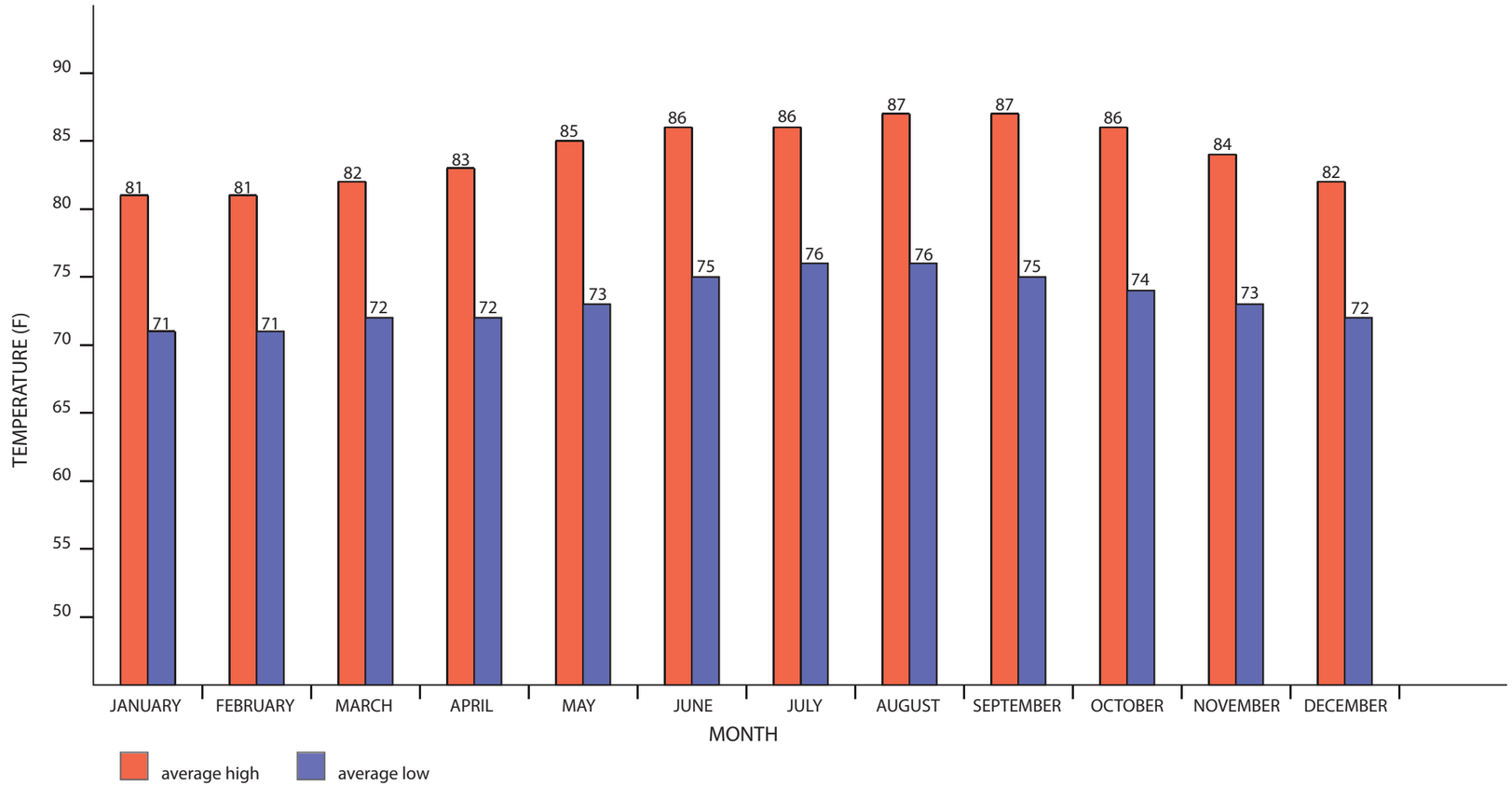
Sattelite image 2003

Sattelite image 2005

Veron : Location and Climate

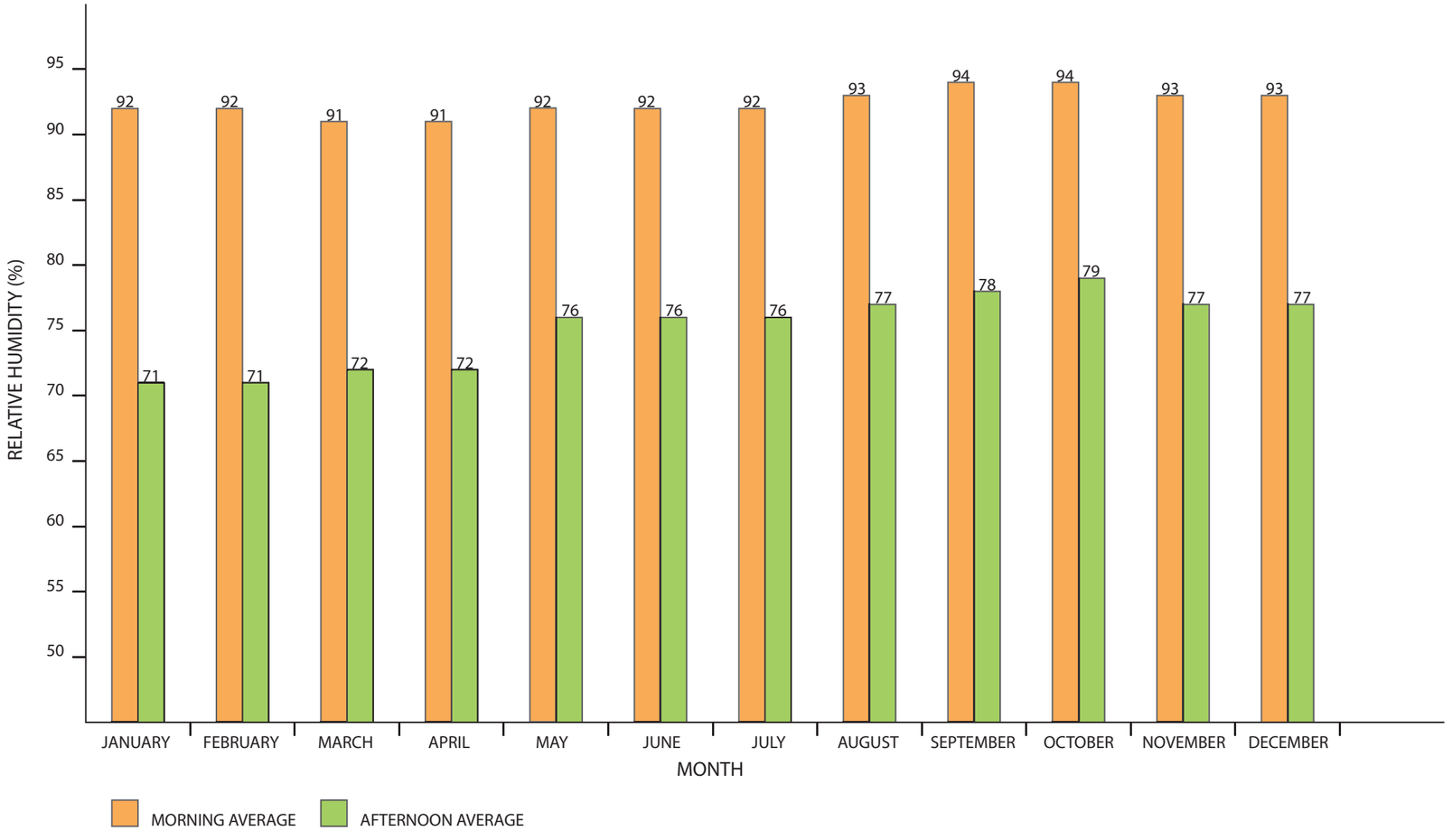
Veron is located at 18 degrees North latitude, 68 degrees West longitude on the Eastern tip of the Dominican Republic in the province of La Altagracia.

The climate is classified as being a warm-wet to hot-wet climate. Average temperatures (shown right) rarely drop below 70 degrees farenheit, and often can reach over 90 degees farenheit.



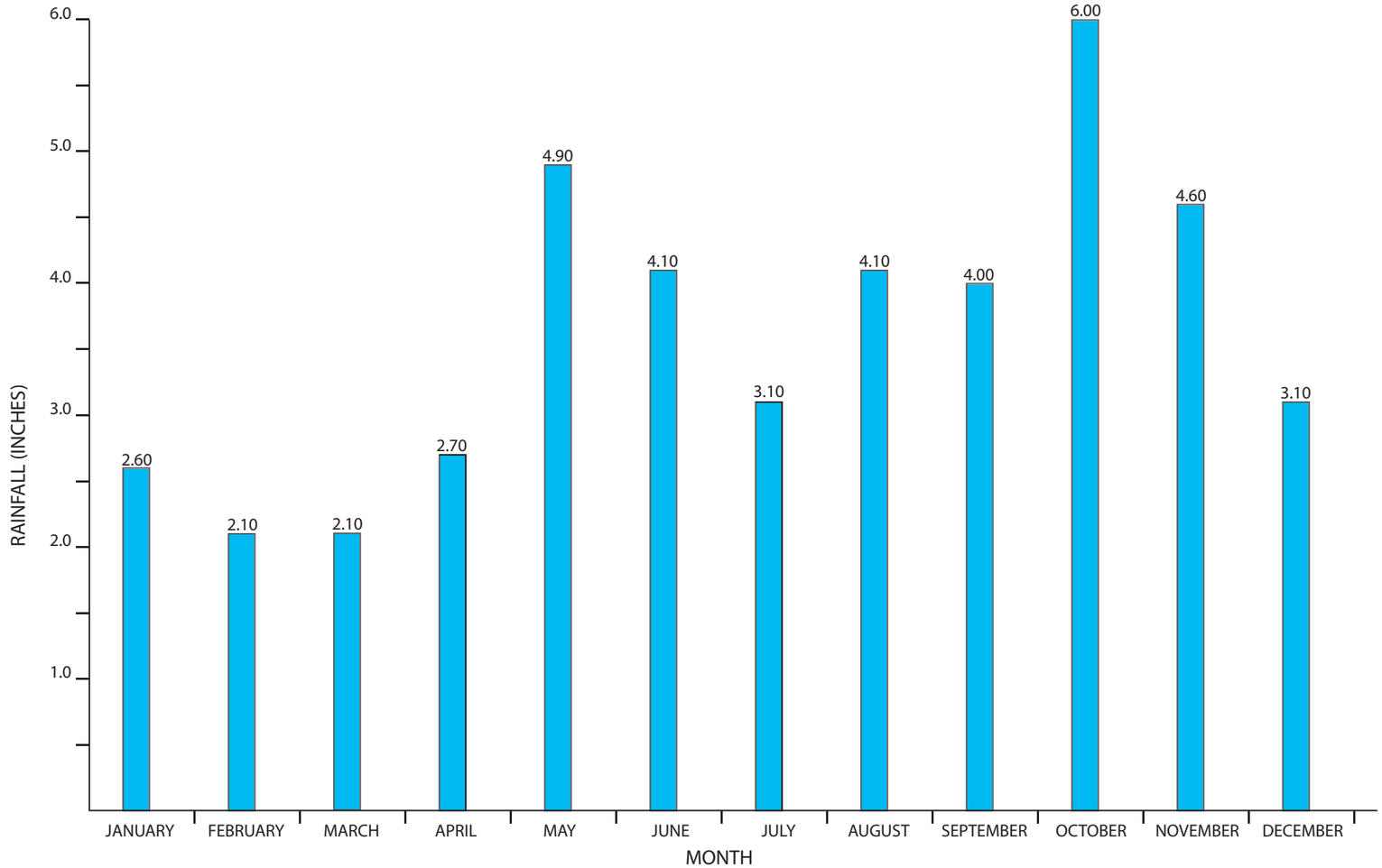
Veron : Location and Climate

Relative Humidity is consistently over 90 percent in the morning, and rarely drops below 70 percent over the course of the day.



Veron : Location and Climate

Average monthly rainfall ranges from roughly 2.5 inches during the dry season, to 6 inches in the wet season. Veron sees roughly 44 inches of rain per year.



Veron : Site

Veron is located on a large area of coral substrate. The ground surface is jagged and rough, making excavation difficult. There are locals who use large drills to create holes for sewage and wastewater disposal. Most of the construction consists of pouring a concrete slab on coral grade. The coral does not stop vegetation from growing, although this vegetation consists mainly brush or smaller plants. In some areas, there is enough soil to support growth of palm trees, but these areas are few and far between.

The major vehicular paths consists of the main two lane highway and several smaller streets that run perpendicular. The main highway is an asphalt road in fair condition. Traffic on the road is moderate to high, and few adhere to the speed limits or traffic laws. There is a large amount of bus traffic, mainly consisting of buses of tourists going to the resorts, or buses picking up local residents for work. There are no bus stops, and there are no sidewalks or given pedestrian walkwas on the main highway. The secondary roads are mainly gravel and dust and are wide. There is often little vehicular traffic, consisting mainly of motorcycles and mopeds.

Veron : Material

Some wood is used in construction, mainly in two ways. Some smaller trees and limbs are used to provide structural support for roof structures or walls, almost the same way as we use nominal sized lumber in the United States. Also, palm trees are often cut and skinned along the length of the tree and used for siding.

Veron : Material

Concrete masonry units (CMU's) are widely available. A second building material is cast in place concrete. These materials, although physically resistant and widely available, are not ideal for the humid climate. Most structures are often over constructed to compensate for hurricanes, which are common in the area. Walls are often very thick, which causes heat gain during the day that makes it unbearable to exists within the structures at midday.

Veron : Material

Most structures in the community nearby include materials that are scavenged from construction sites. Many of the citizens came to Veron to work in the construction industry, and whatever is left over after construction is completed is brought to Veron and used in any way imaginable.

Existing Clinic

The existing medical clinic for Veron is in a state of disrepair. The clinic was constructed by the government, but has not been used for some time, is in disrepair, and does not provide any service to the community.