A Church for Cange, Haiti

Shane Larry Larkin

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

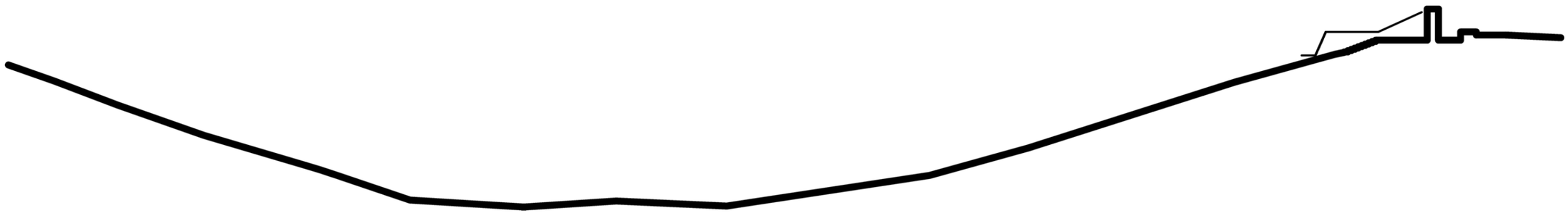
William U. Galloway

Mario C. Cortes

V. Hunter Pittman

December 20, 2012
Blacksburg, Virginia

Keywords: Architecture, Limitations, Opportunities, Construction, Haiti, Church



A Church for Cange, Haiti

Shane Larry Larkin

ABSTRACT

Architecture is a functional art with numerous competing requirements. What are the roles for limitations in architecture? Is it enough to simply make a “good building”? Can architecture spring solely from that which is required, or is more necessary?

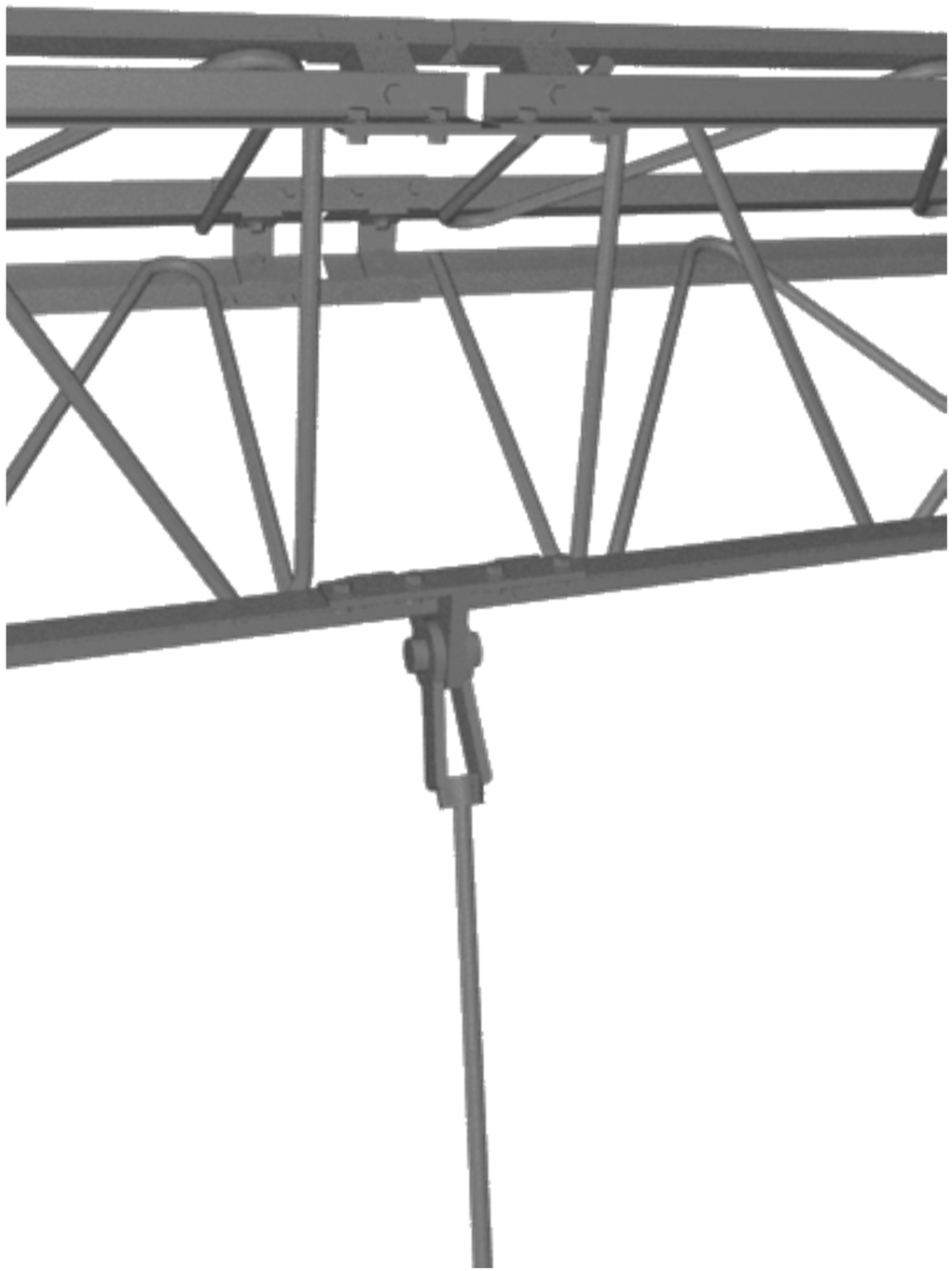


TABLE OF CONTENTS

LIST OF FIGURES

Unless noted otherwise, all photos and work are by the author.

At the beginning of our second year of study in the School of Architecture at Virginia Tech, we were asked a simple question, “What is an architect?” Without much reflection, I remember responding “A person who takes advantage of opportunities.” It was not until several years later, while looking back upon my previous work, that I realized that not only do I believe that architecture is the exploitation of opportunities, but my work is a record of that belief. The challenge of this Thesis is to understand that process; the act of making architecture out of the existent.

Architecture does not begin with a tabla rasa, a blank slate; it is full of innate potential from the outset. Every project begins with a litany of pre-existent and sometimes contradictory requirements and limitations:

Budget (or lack of sufficient funding)
Building codes
Accessibility
Structural issues (gravity, shear forces)
Climatic factors (rain, wind, the regular path of the sun)
Materials
Methods of construction
Site (both natural and built environment)
Zoning
Mechanical systems
Programmatic concerns
Tradition
Function
Ritual

What is architecture? Architecture, like printmaking and fashion design has an expectation of some basic level of functional consideration. Just as a model on the runway does not want to be left inappropriately exposed, building occupants have a long list of expectations concerning their building’s performance. It is easy to become so ensnared with those functional considerations that a building falls short of crossing the threshold over to architecture. Likewise, it is probable that if the practical elements are ignored in a quest to make architecture; the designer will fall short of even making a good building. I believe that at a basic level, architecture, with few exceptions, must first be good building. It is the intent of this Thesis to probe that transformation: from opportunities, through building, to architecture.

Robert Kronenberg in his book, Spirit of the Machine, describes three possible relationships between architecture and structural elements. Structural elements and architecture can be synonymous, separate, or structure can be ignored as unimportant. These same three relationships can be extrapolated to all of the various building components and requirements. The various requirements of a modern structure can be thoughtfully designed synonymous participants in the architecture, separate actors, or merely treated as not important.

What is architecture? Architecture does not manifest itself in only one way. Architecture is about bringing order to elements; and various architects find different approaches to bring that about. Even in engineering there are numerous correct options. It is the architect’s job to select the option that best meets the needs of the project. There is a sketch in my first year studio notebook that describes the divergent ways in which Frank Lloyd Wright and Le Corbusier understood the relationship between the site and architecture. Wright places his buildings *in* a site while Corbusier places his buildings *on* a site. The site is only one of the pre-existing conditions that an architect must mitigate. It is the architect’s responsibility to meet this endless list of requirements and yet make architecture.

Limits provide a threshold, but not absolute definition. It is this variety that leaves room for the work of the architectural imagination. Sculpture can be divided into additive and subtractive processes. An important subcategory of sculptural additive works is “found objects”. My approach to architecture is similar to the found object in sculpture. It is the elements and how they are put to work that make architecture. The limitations and requirements become my pallet.

Architecture is specific, but the specifics vary. So, what are the specifics in Cange, Haiti?

Haiti is attempting to recover from a recent earthquake, so seismic design considerations are paramount.

Decades of poor agricultural practices make the use of wood, even on the scale of furniture, problematic.

Much of Haiti is defined by scarcity, but rubble and local stone are abundant.

Skilled labor is scarce, but manual laborers are plentiful.

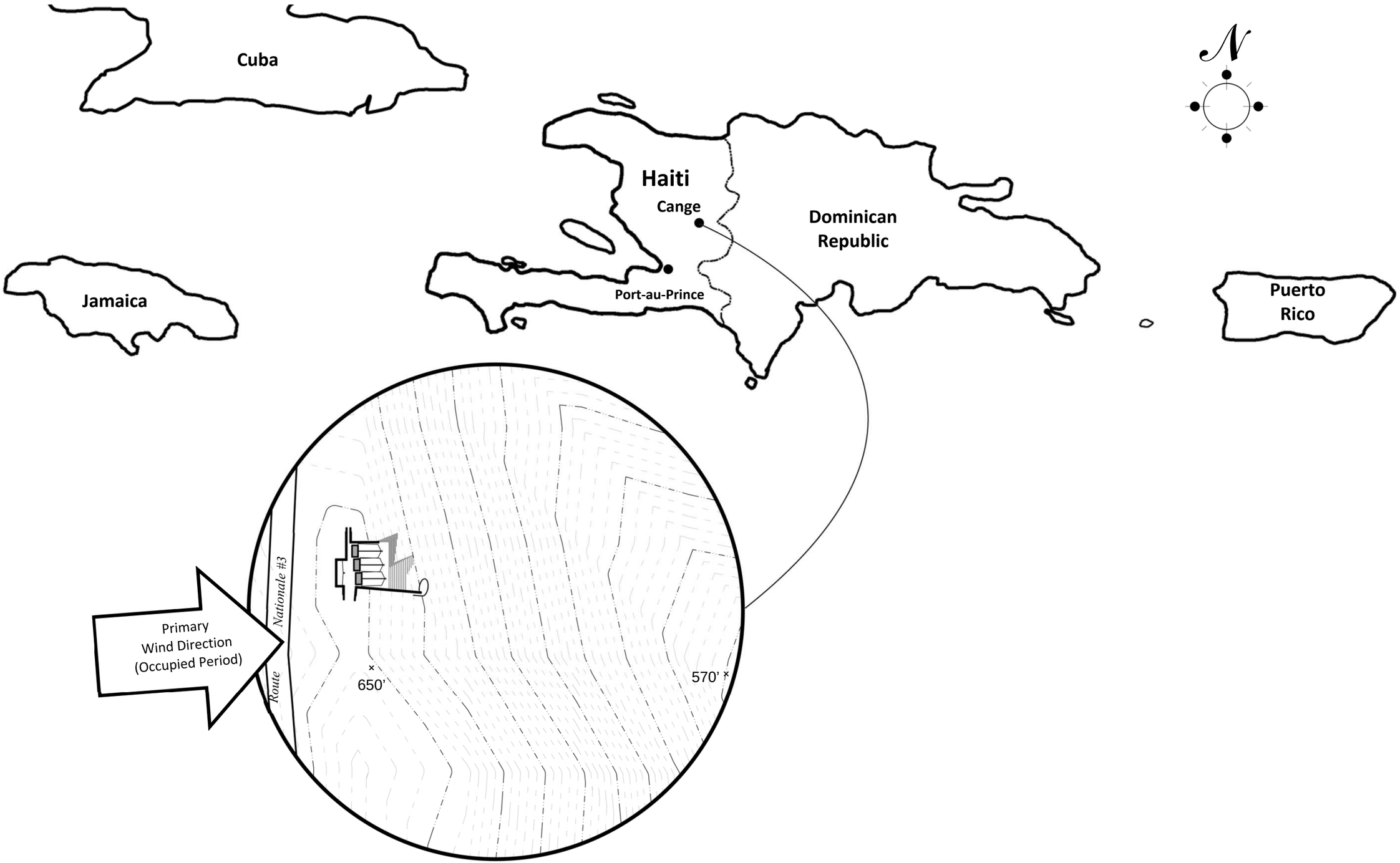
Heavy equipment is almost nonexistent.

The following pages explore the opportunities found within the scarcity of an island nation to make a church for the people of Cange, Haiti.

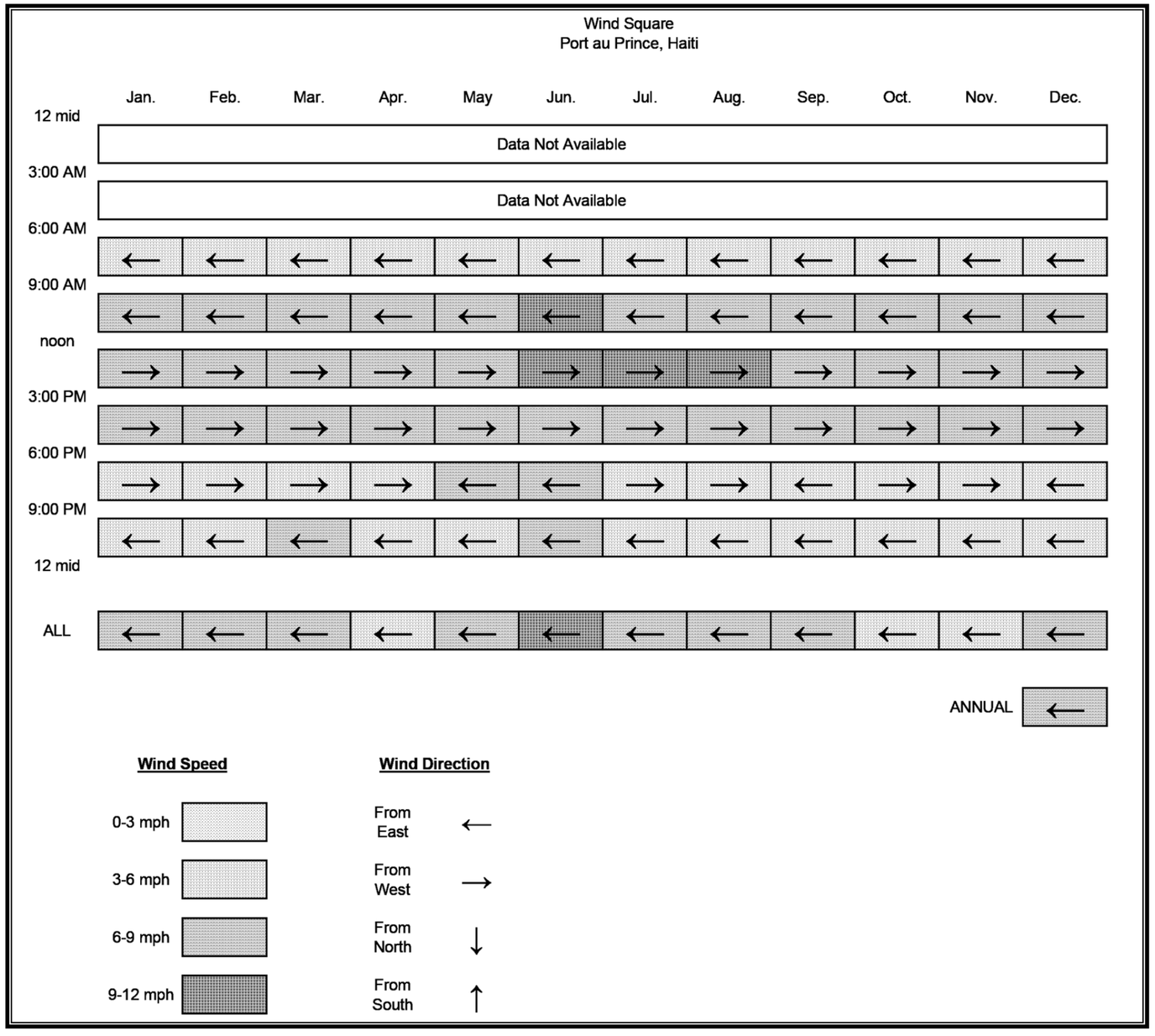
View from Northeast

Frank Lloyd Wright on the nature of Organic Architecture:

“An architecture that develops from within, outward in harmony with the conditions of its being, as distinguished from one that is applied from without.”

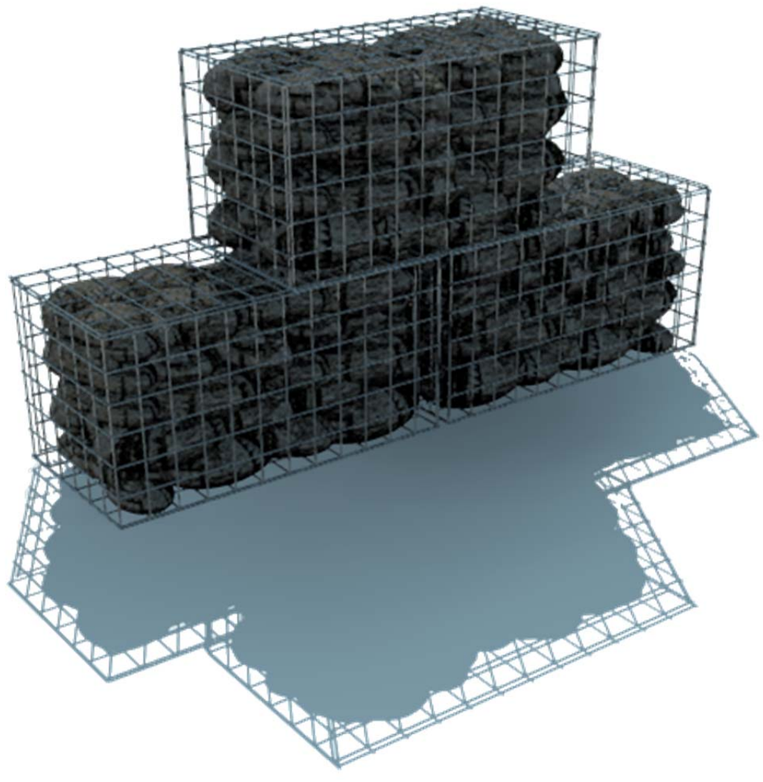


Vicinity Map

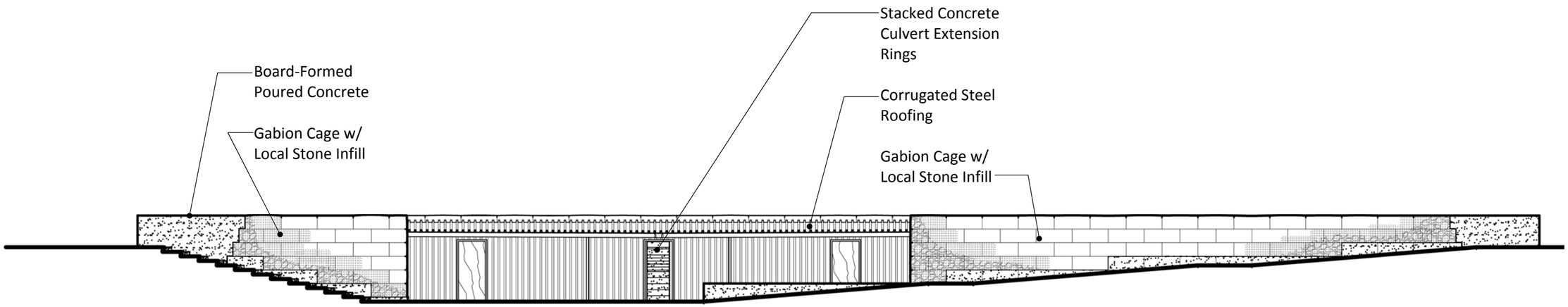

Wind Square
Port au Prince, Haiti
Jan.
Feb.
Mar.
Apr.
May
Jun.
Jul.
Aug.
Sep.
Oct.
Nov.
Dec.
12 mid
Data Not Available
3:00 AM
Data Not Available
6:00 AM
9:00 AM
noon
3:00 PM
6:00 PM
9:00 PM
12 mid
ALL
ANNUAL
Wind Speed
0-3 mph
3-6 mph
6-9 mph
9-12 mph
Wind Direction
From East
From West
From North
From South

Excavation at Cange, Haiti

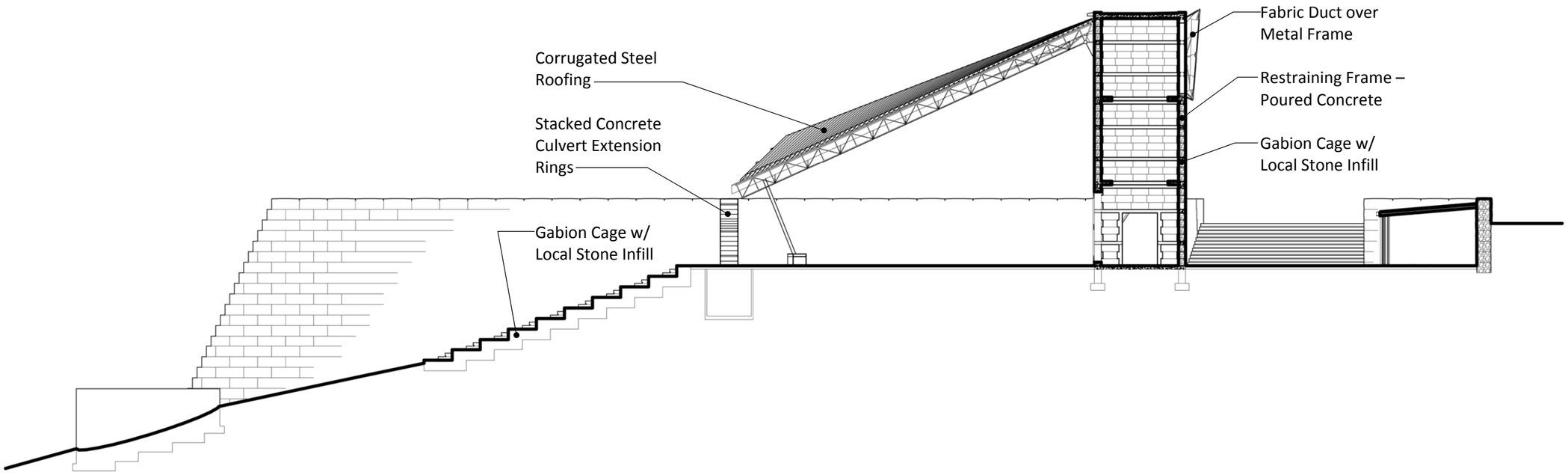
Local Stone



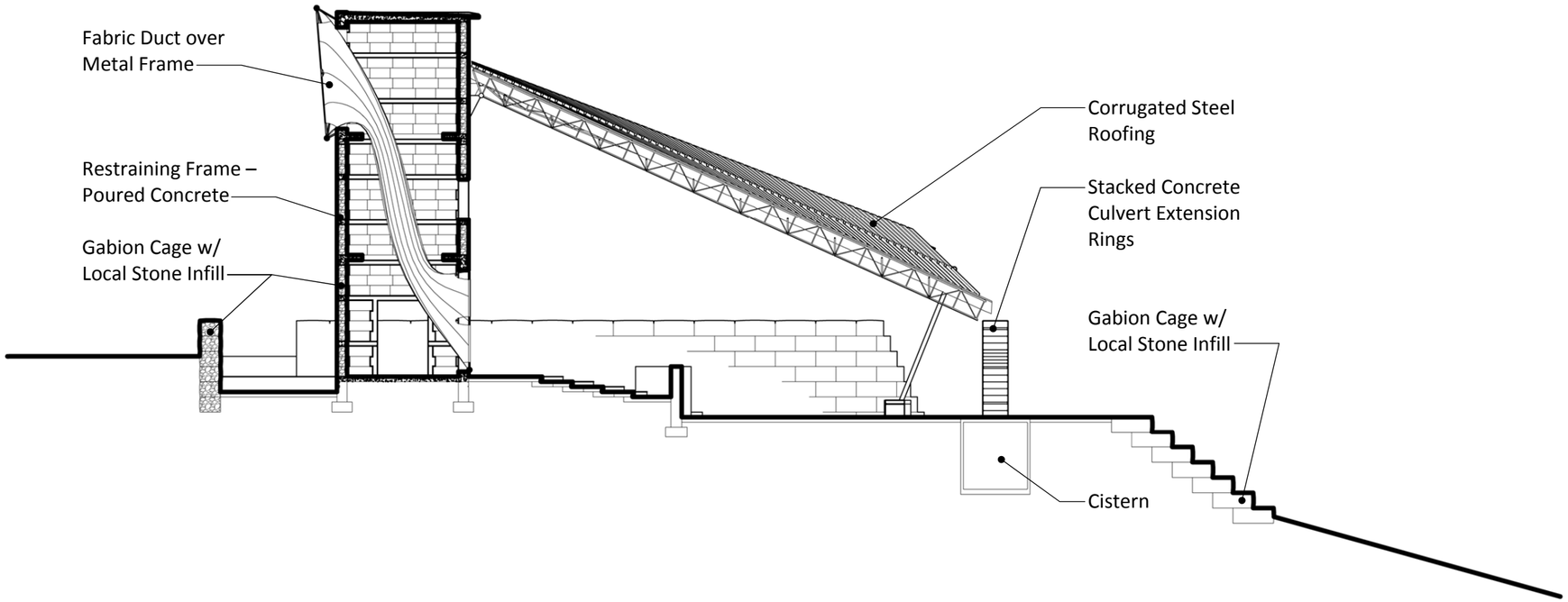
Gabion Cage with Local Stone



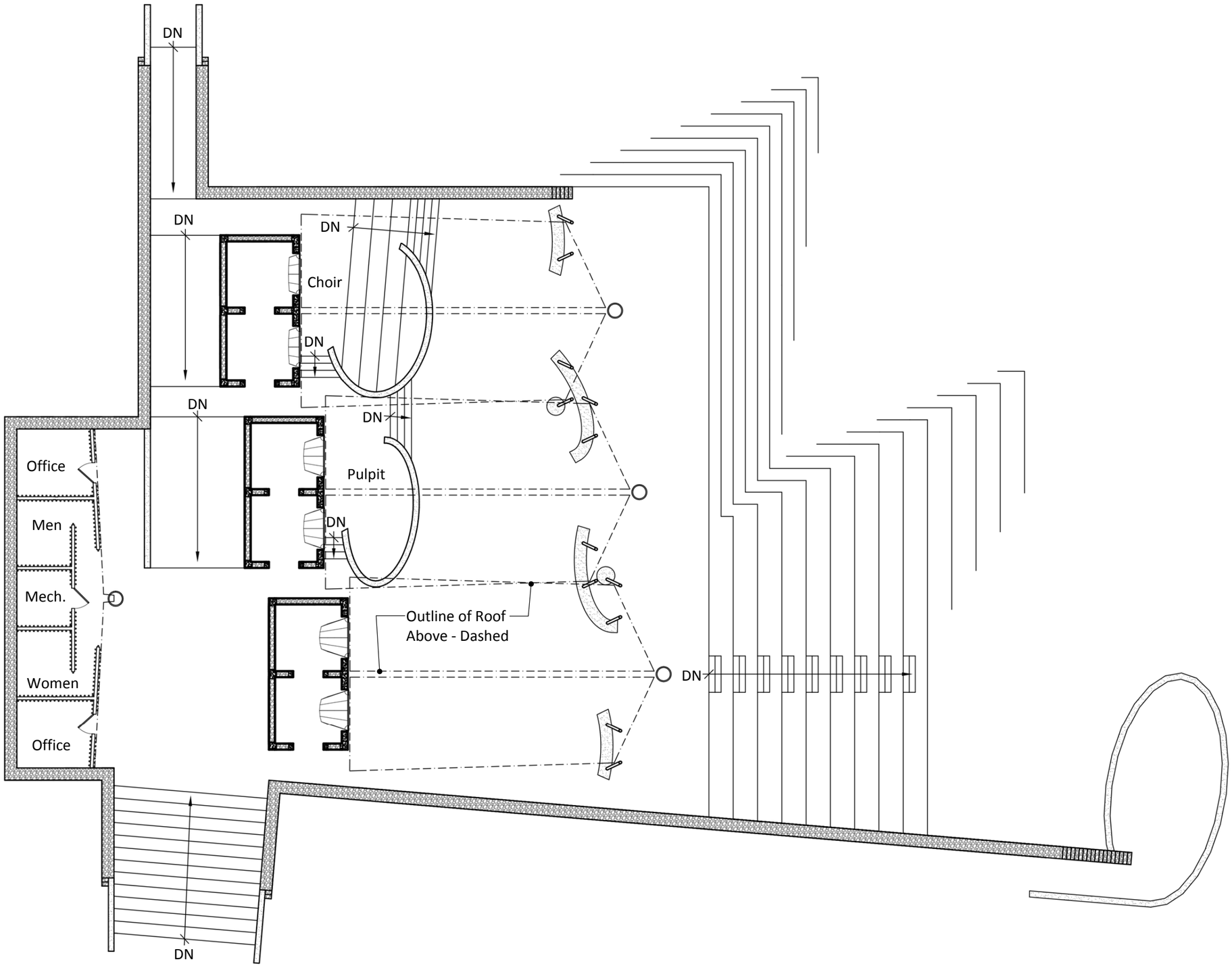
Section through Entry Plaza



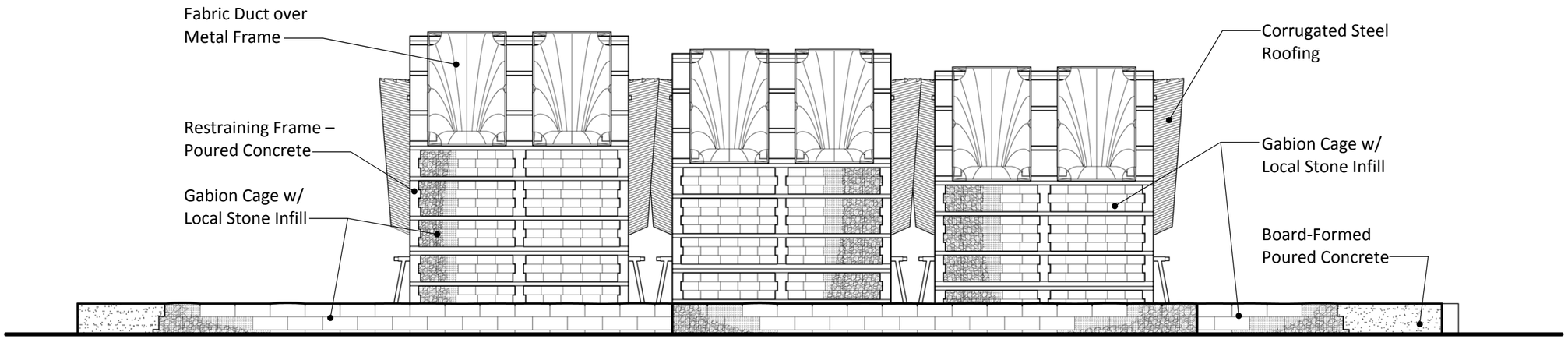
Section Looking South



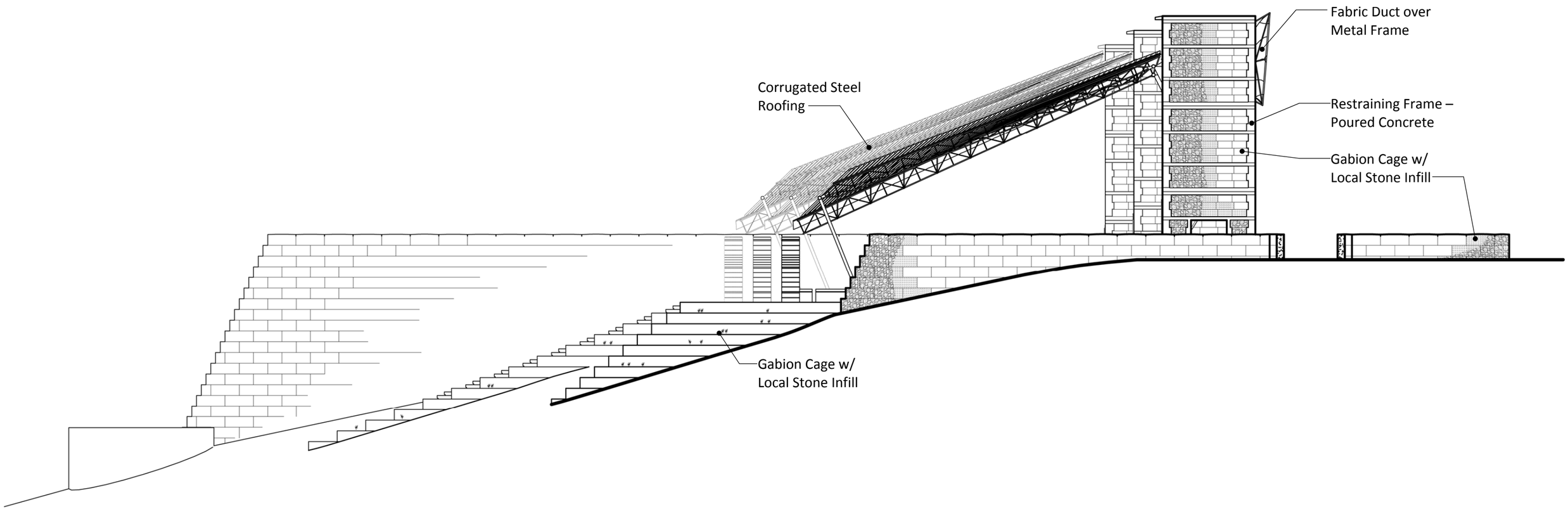
Section Looking North


DN
DN
DN
Choir
DN
DN
DN
Office
Pulpit
Men
DN
Mech.
Outline of Roof
Above - Dashed
Women
DN
Office
DN

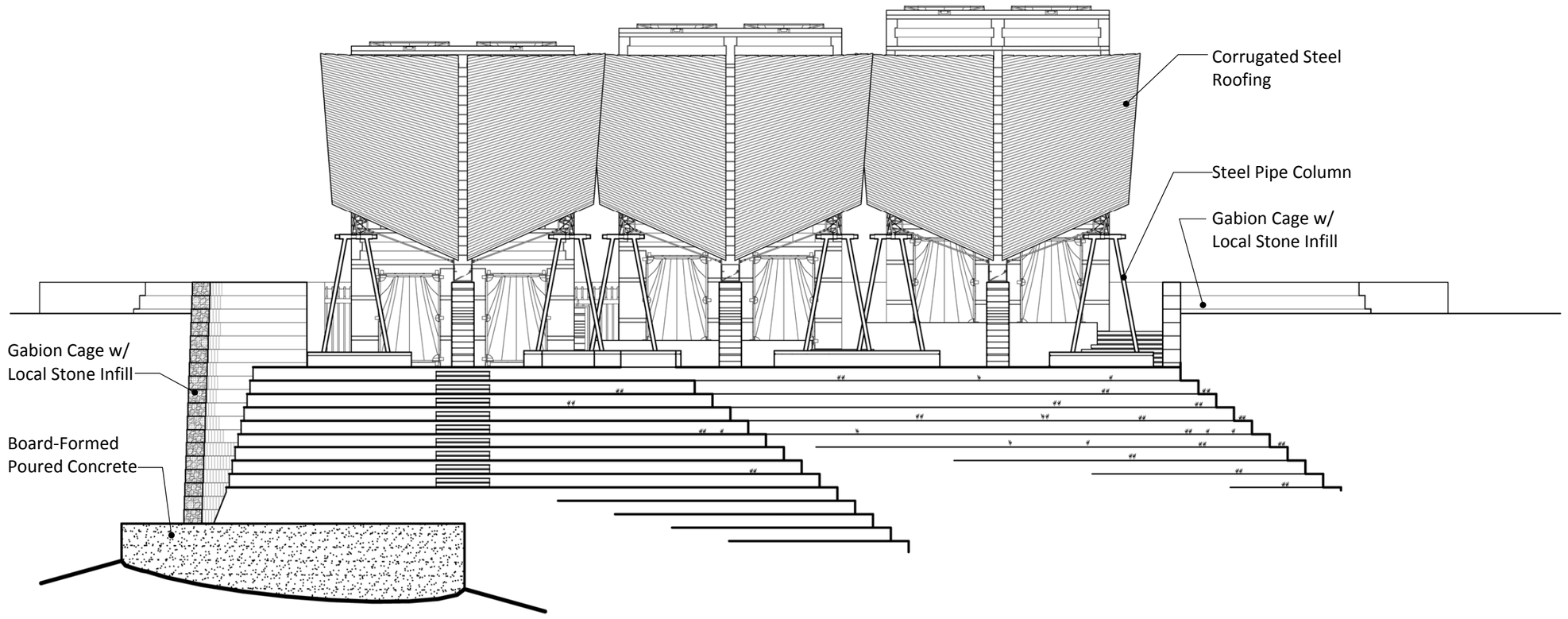
Floor Plan



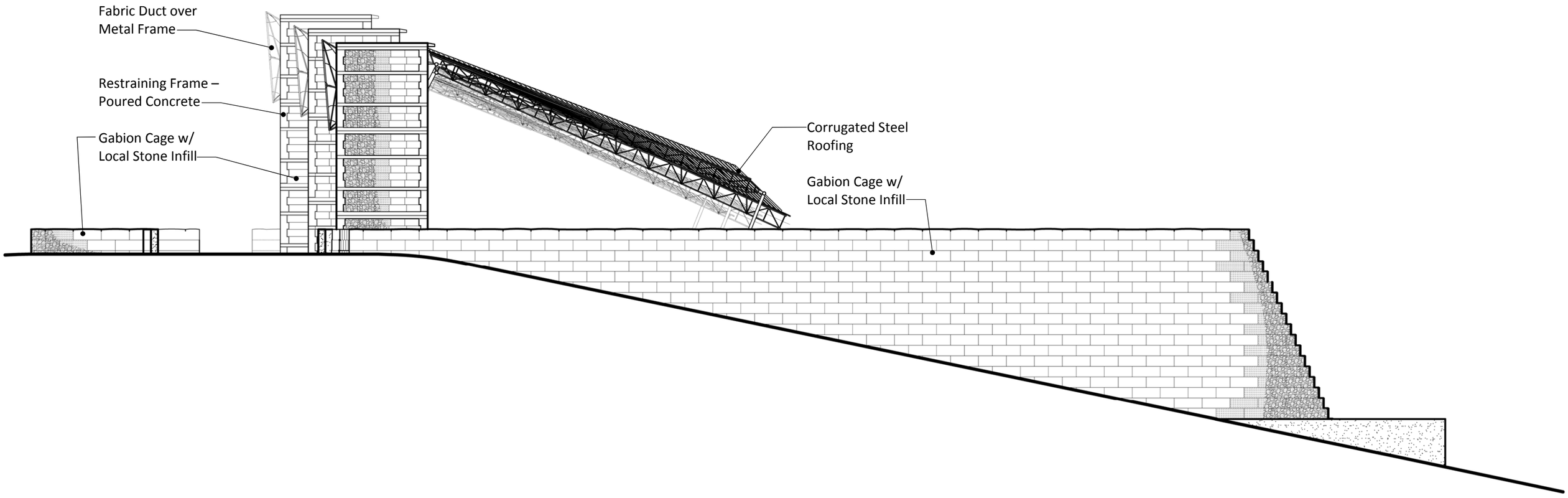
West Elevation



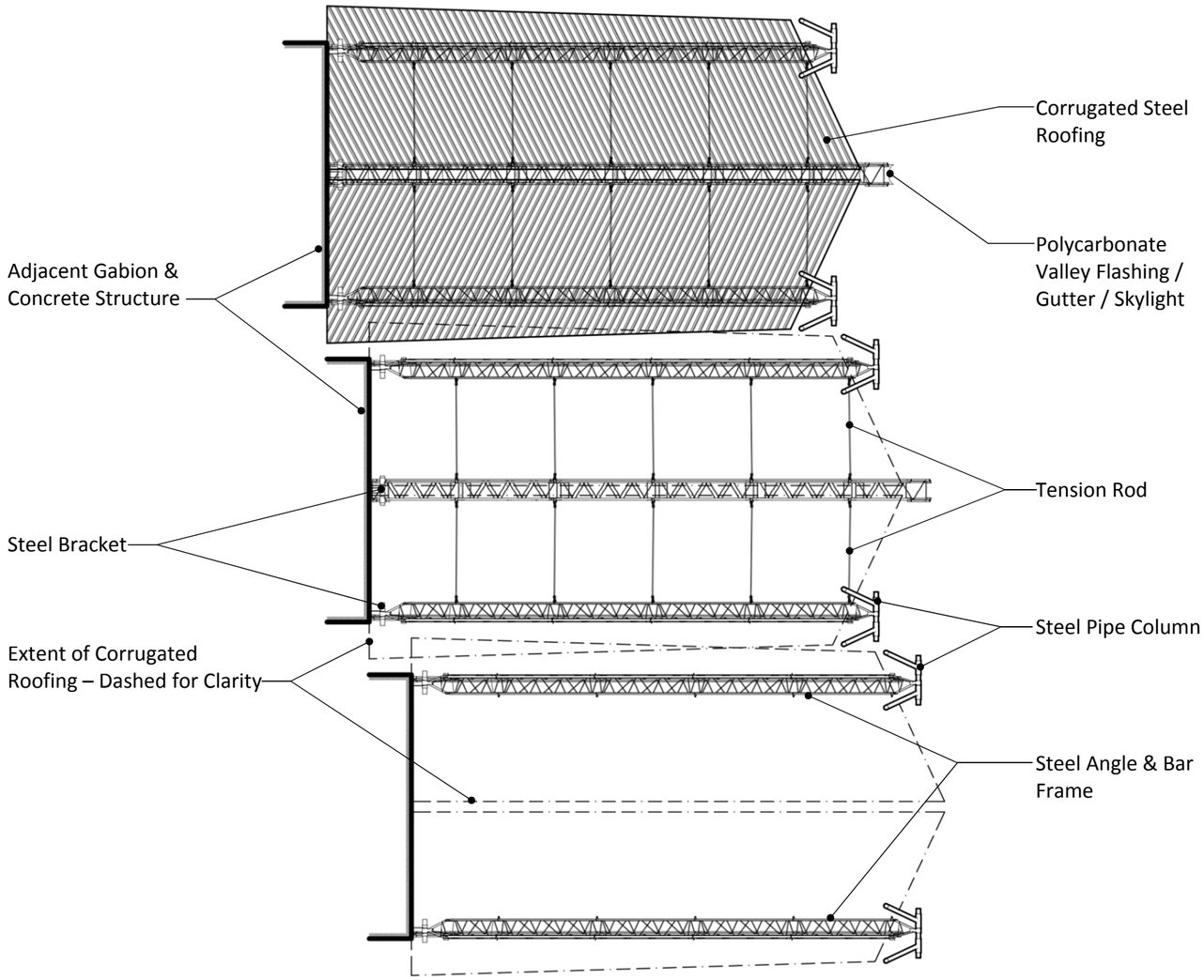
North Elevation



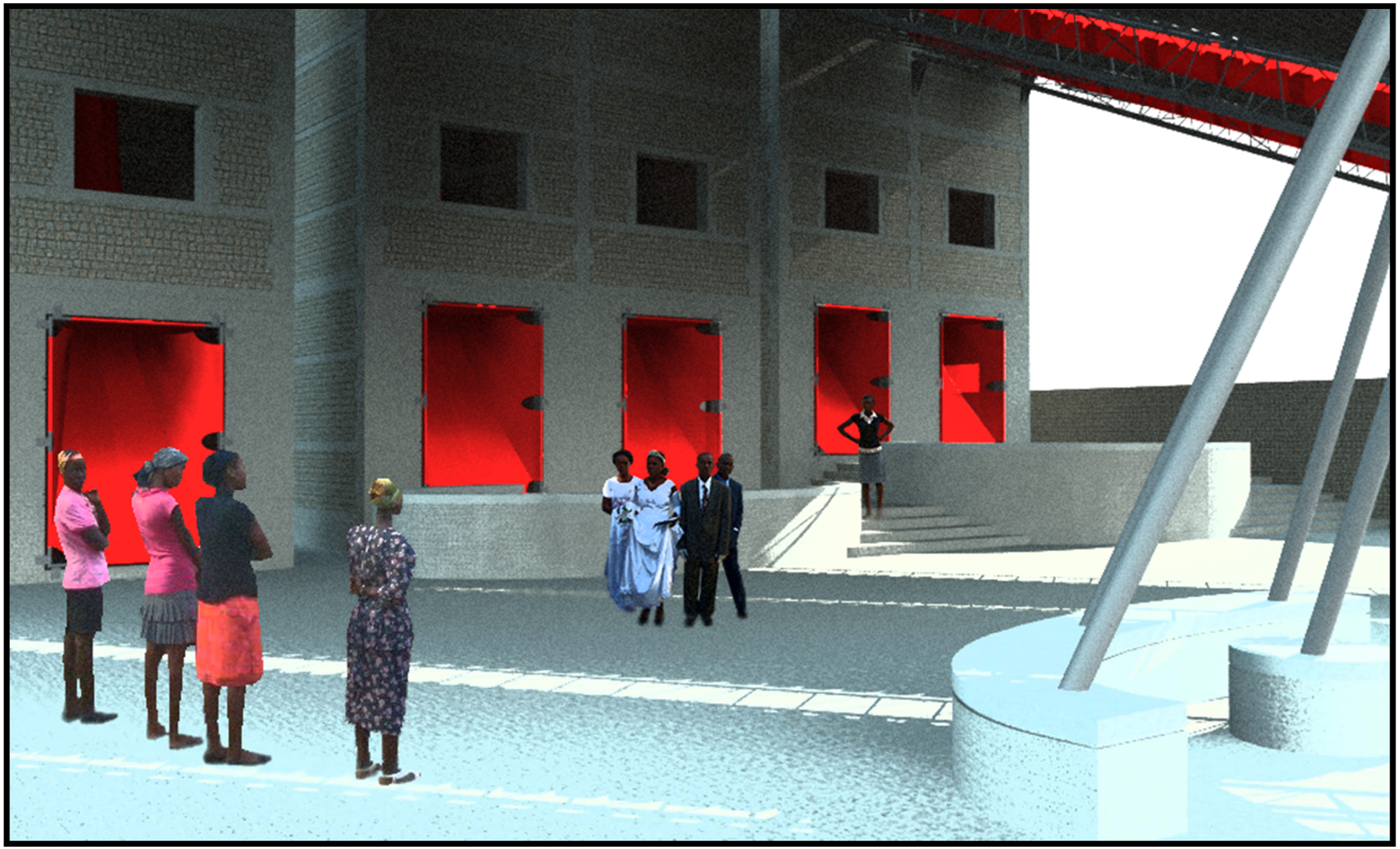
East Elevation

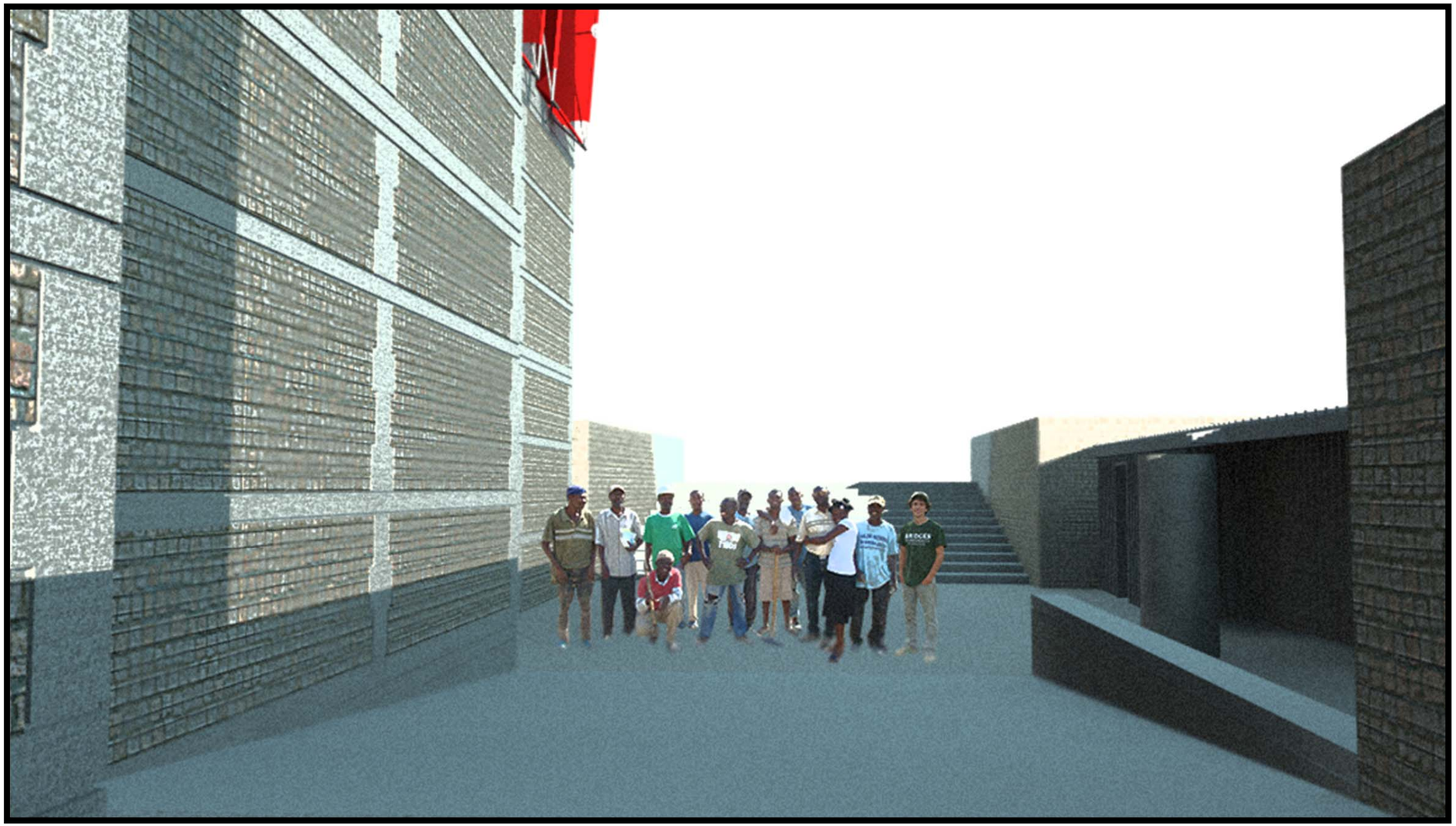


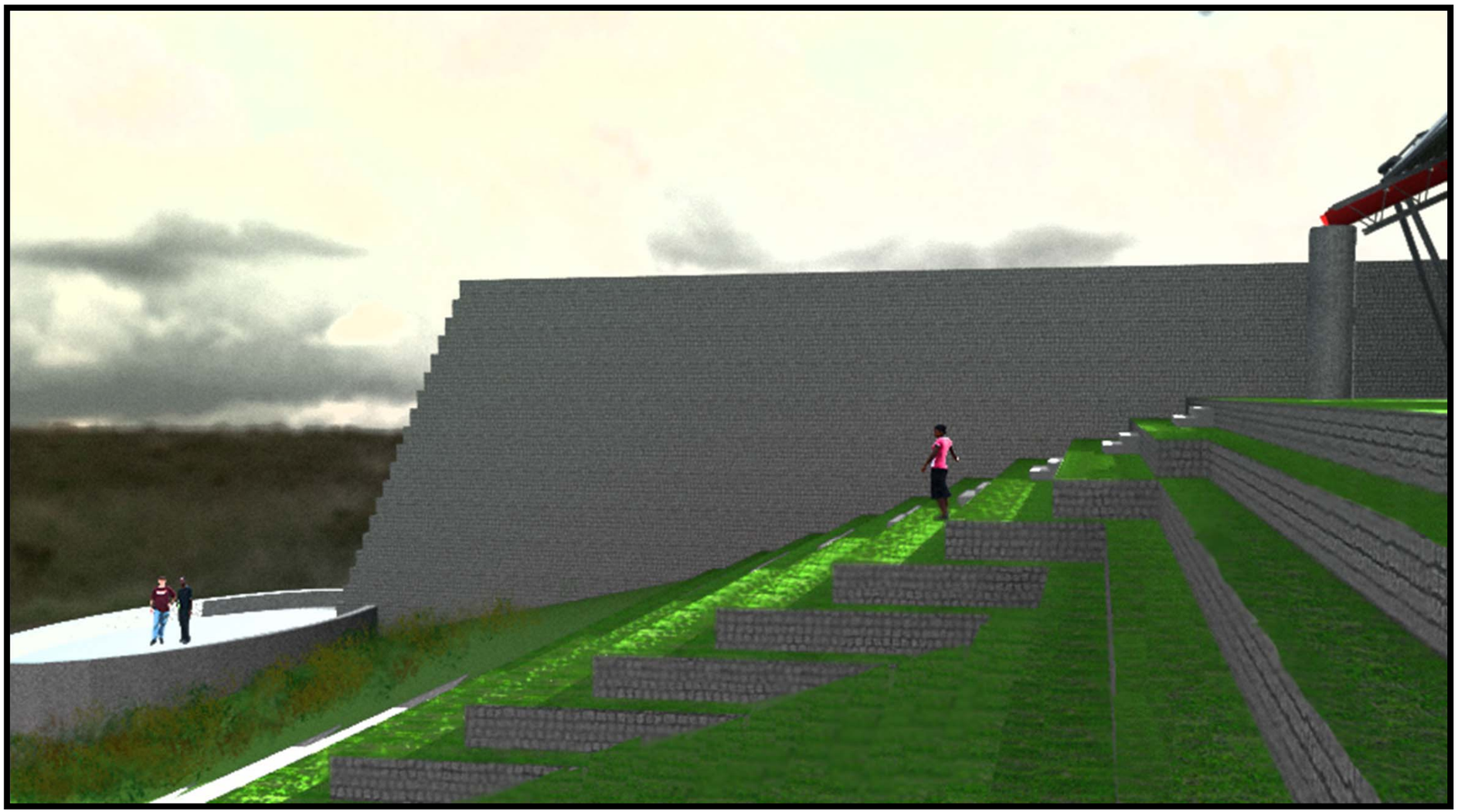
South Elevation



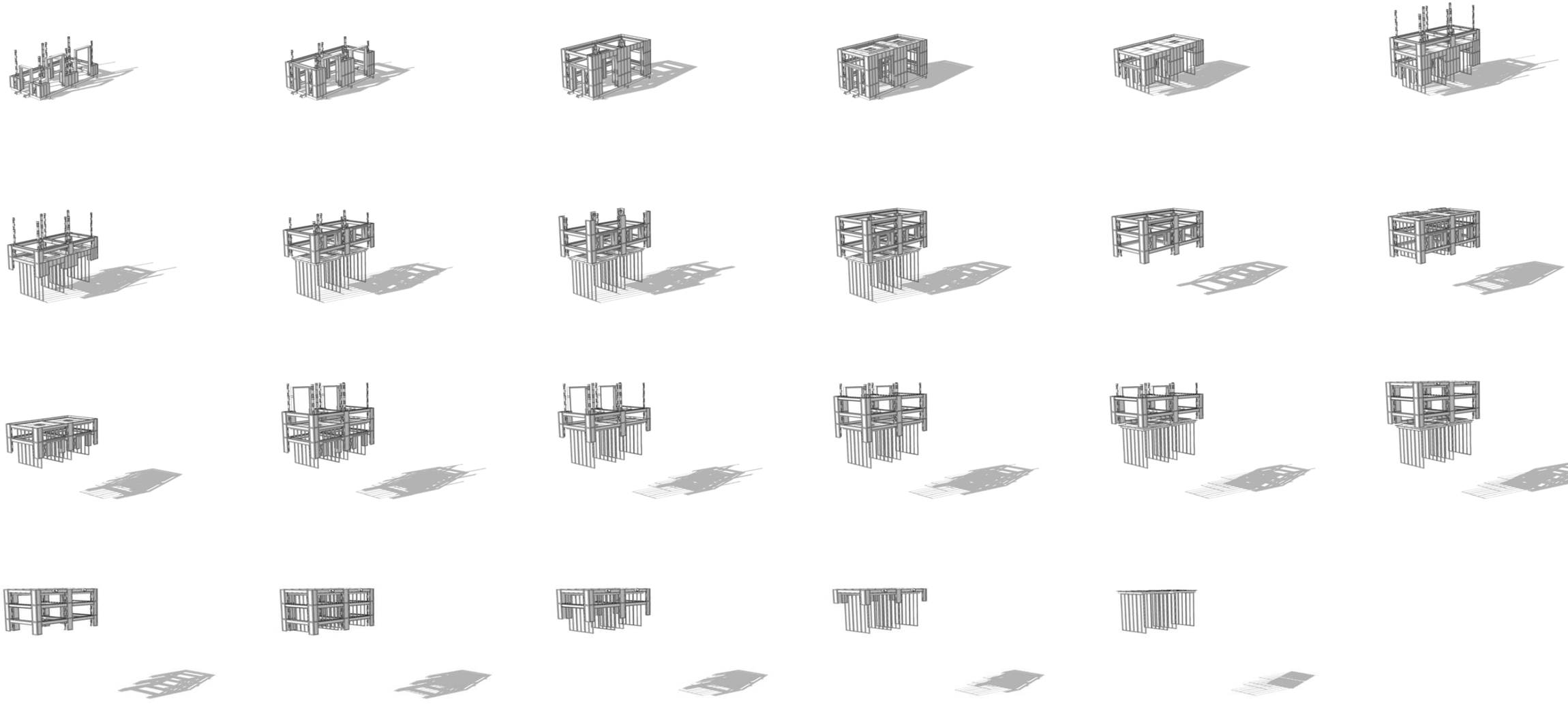
Partial Reflected Ceiling Plan

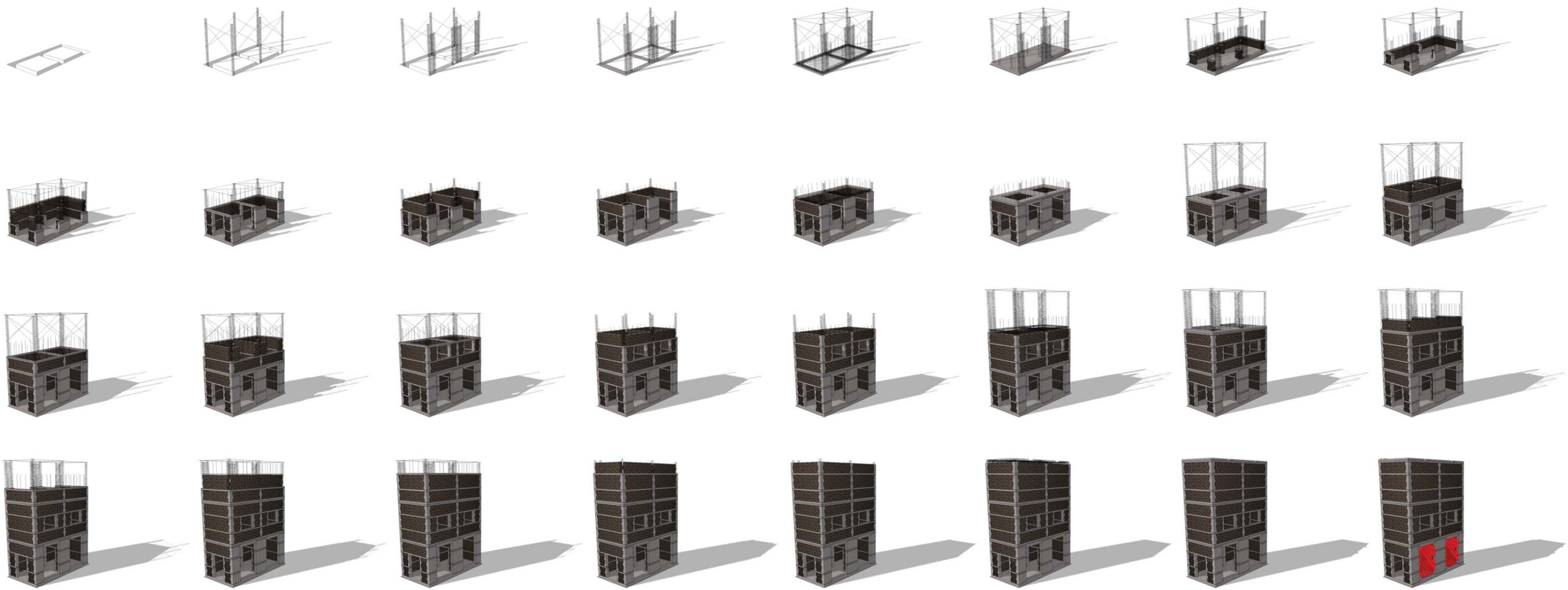




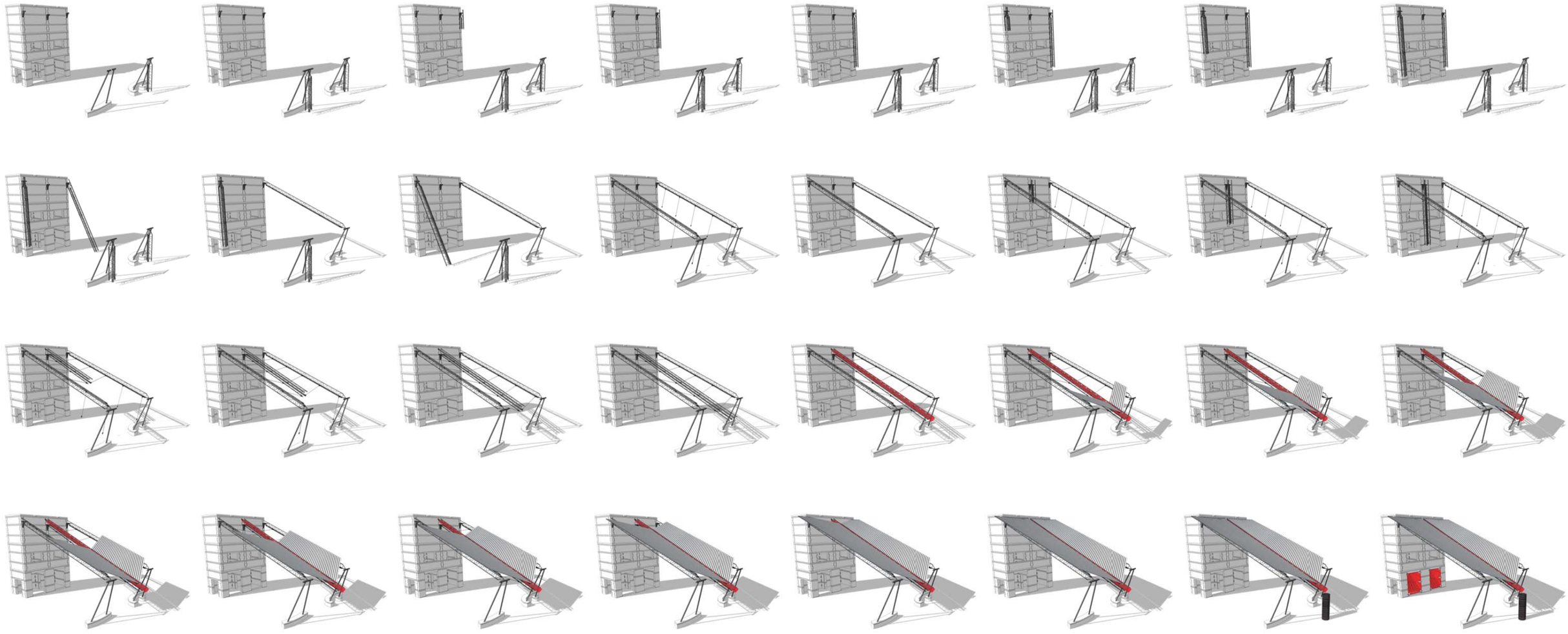


Terraced Hillside

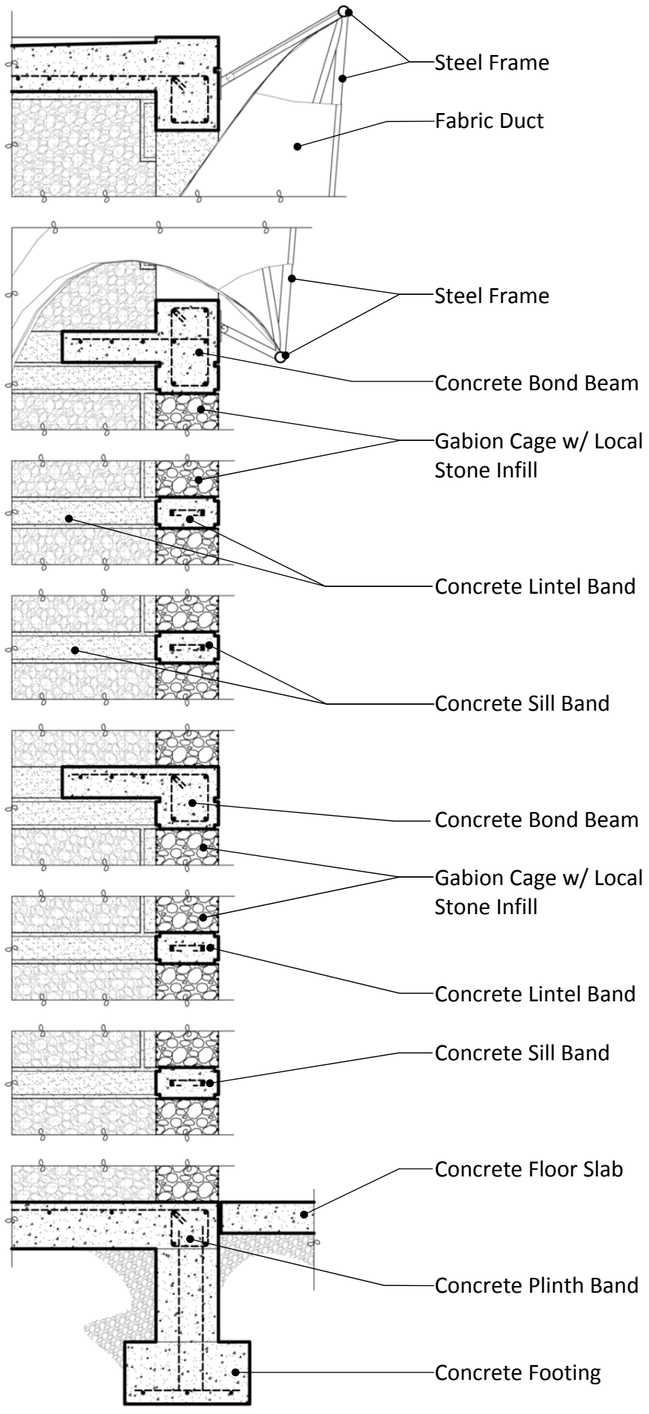




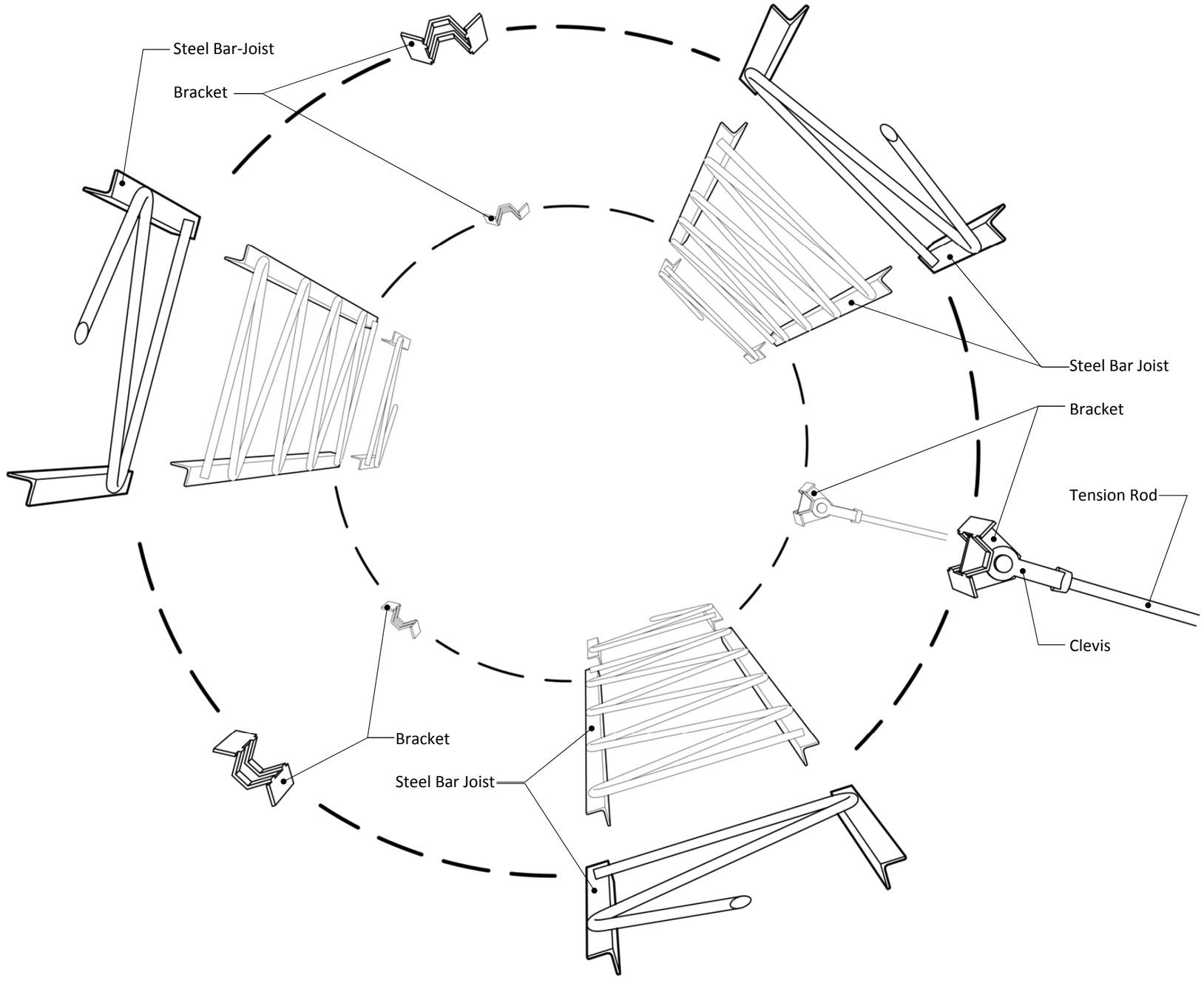
Progression – Wind Catcher



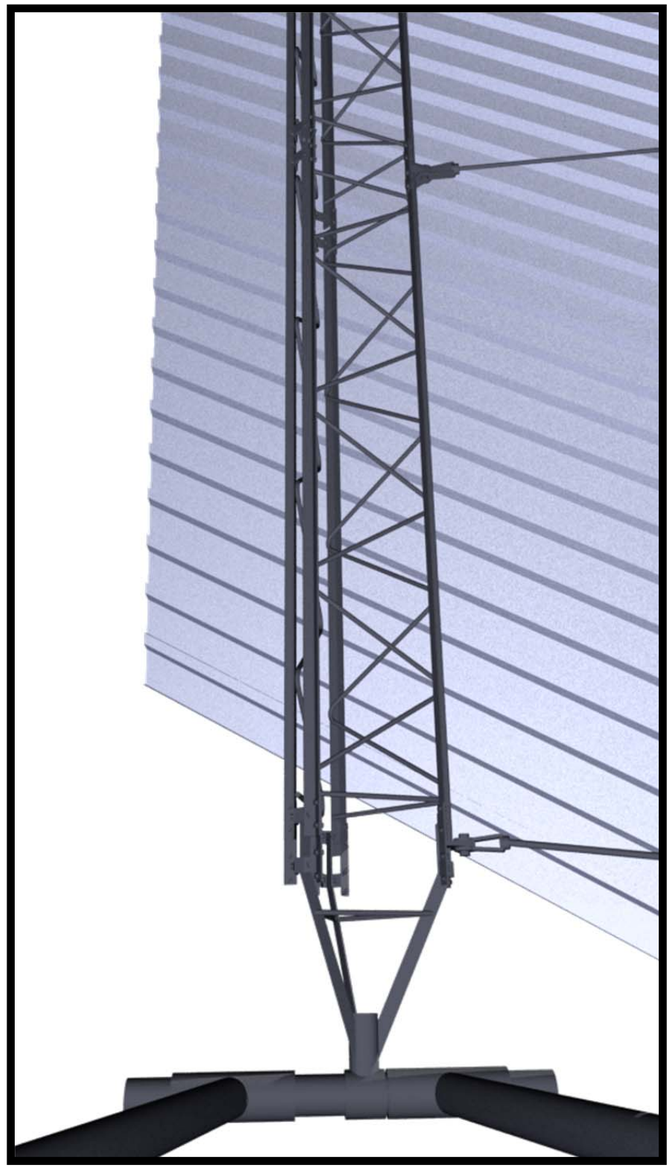
Progression – Roof Assembly



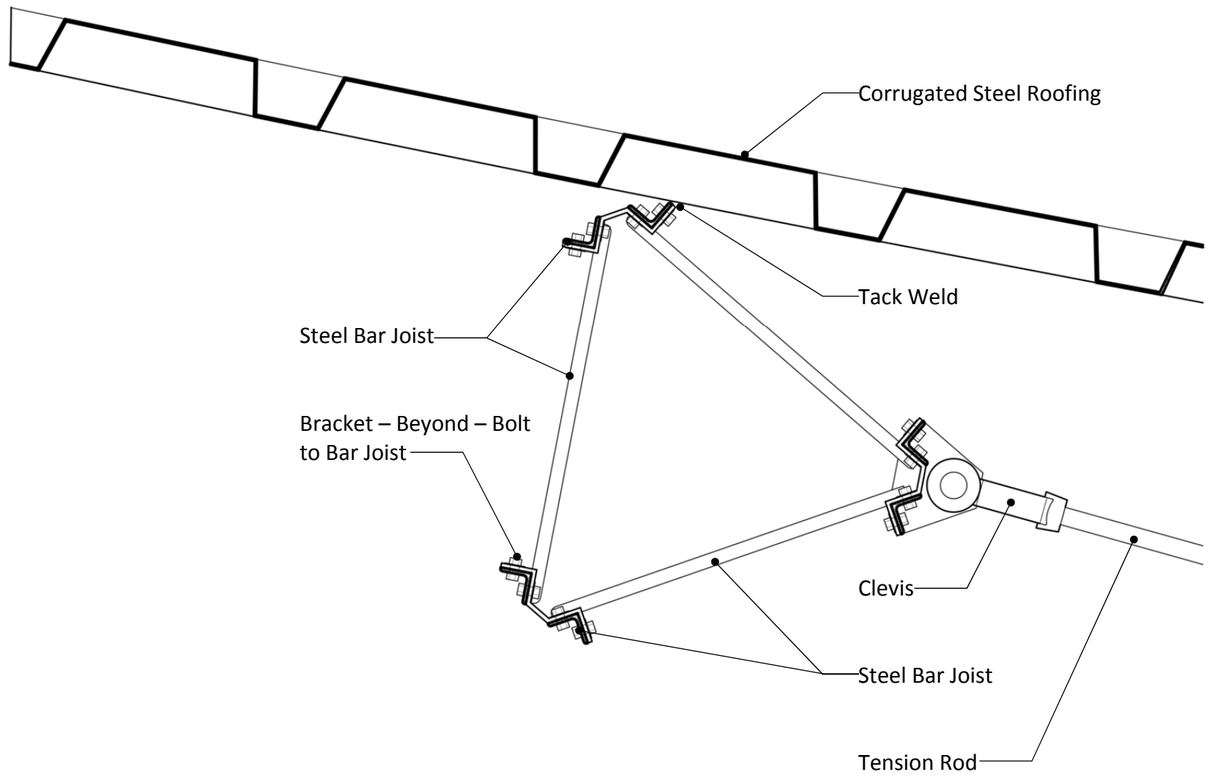
Wall Section - Wind Catcher



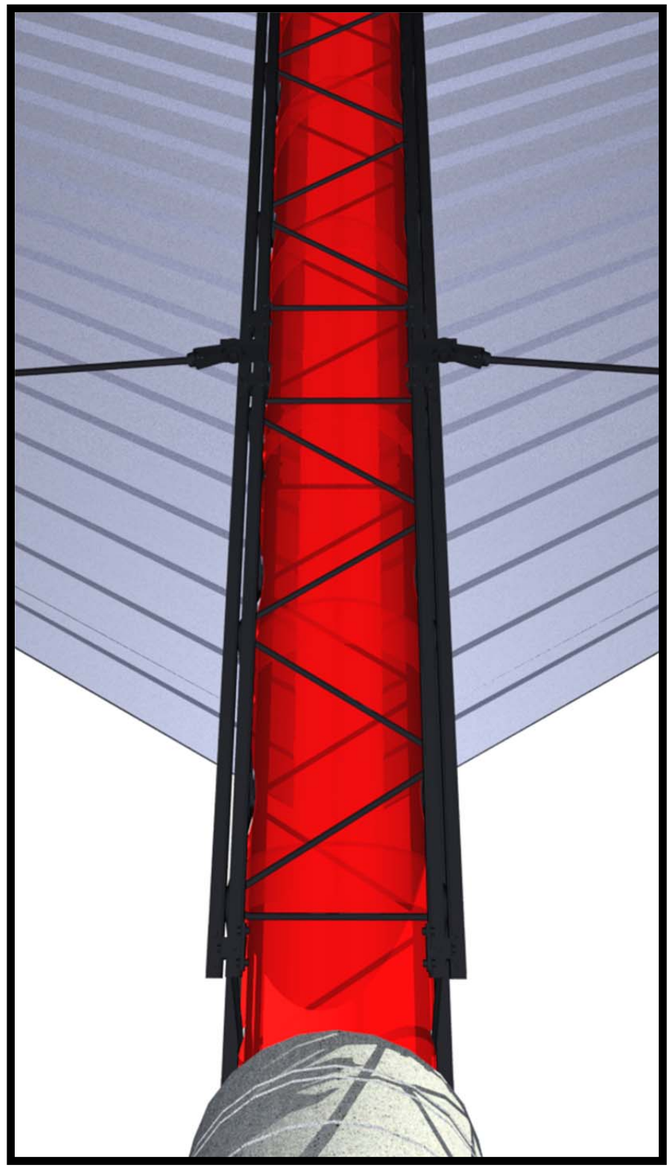
Composite Bar-Joist Girder- Exploded View



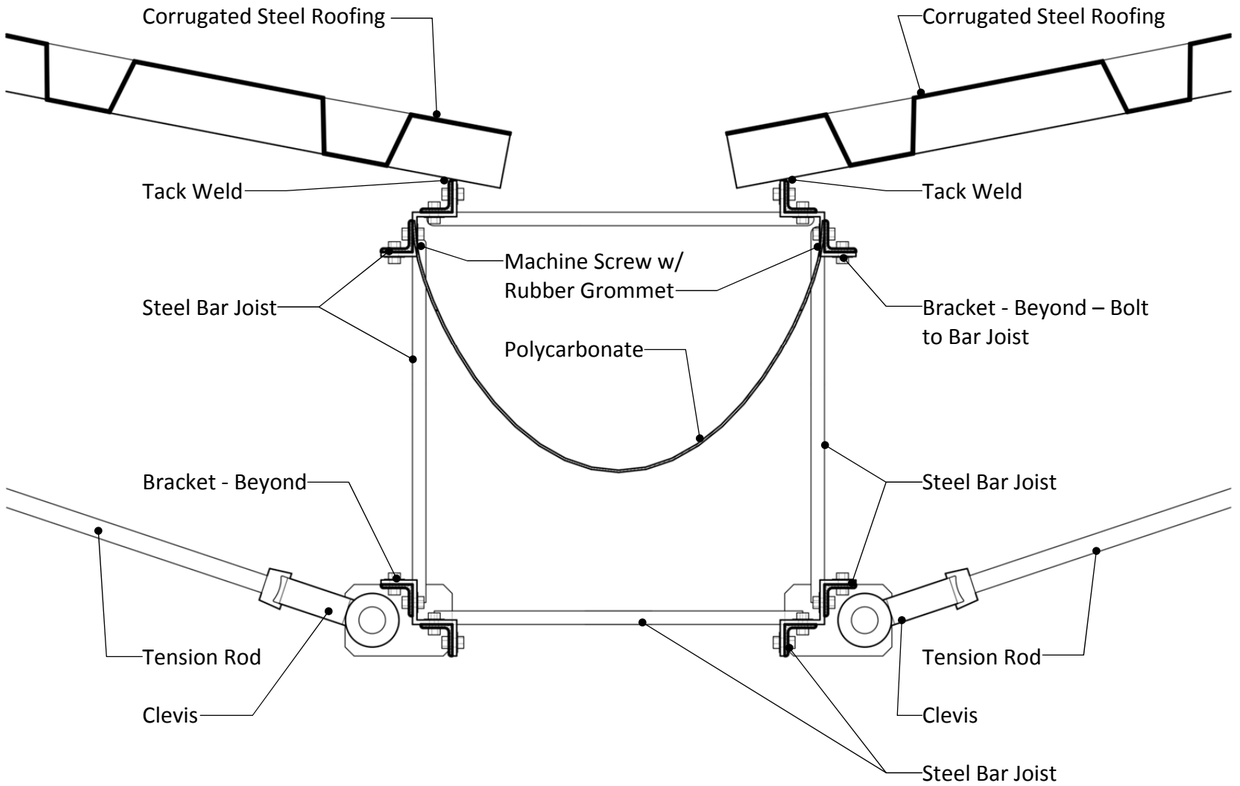
Detail: Outer Roof Assembly



Section: Outer Roof Assembly



Detail: Center Roof Assembly



Section: Center Roof Assembly

BIBLIOGRAPHY

Barrie, Thomas. Spiritual Path, Sacred Space: Myth, Ritual, and Meaning in Architecture. Boston: Shambhala, 1996.

Brown, G.Z. & DeKay, Mark. Sun , Wind & Light: Architectural Design Strategies. New York: John Wiley & Sons, Inc., 2001.

Brzev, Svetlana. Earthquake-Resistant Confined Masonry Construction. Kanpur, India: National Information Center of Earthquake Engineering, 2007.

Frank Lloyd Wright. “In The Cause of Architecture II”. The Architectural Record, May, 1914.

Kronenburg, Robert. Spirit of the Machine: Technology as an Inspiration in Architectural Design. Great Britain: Wiley-Academy, 2001.

Le Corbusier. Towards a New Architecture. Trans Frederick Etchells. New York: Dover Publications, Inc., 1986.

Venturi, Robert. Complexity and Contradiction in Architecture. Lawrenceville, NJ: Princeton University Press, 1992.

Vitruvius. The Ten Books on Architecture. Trans. Morris Hicky Morgan. New York: Dover Publications, Inc., 1960.

Zumthor, Peter. Thinking Architecture. Trans. Maureen Oberli-Turner, Catherine Schelbert. Basel; Boston: Birkhauser, 2006.