

# Long Branch Nature Center

modern primitivism and the constructed dialogue of being within nature

Brett D. Hartle

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

Susan C. Piedmont-Palladino, Committee Chair  
Jaan Holt  
Paul F. Emmons

June 26, 2014  
Alexandria, VA



nature, elemental, timeless, weathering, intervention, spirit

© 2014 Brett D. Hartle

All rights reserved.

This entire work, including all parts, is protected by copyright.

No part of this publication may be used without the prior consent of the author.

For referenced material, see cited sources page.

# Long Branch Nature Center

modern primitivism and the constructed dialogue of being within nature

**Brett D. Hartle**

The Architect's first drawn line marks a significant moment where alteration to the site is conceived and intervention with nature is beset. Equilibrium of the natural order; vegetative, habitat, hydrology, and geology are all in a vulnerable state. Rarely do these develop into harmonious balances. More often they are imposed instances.

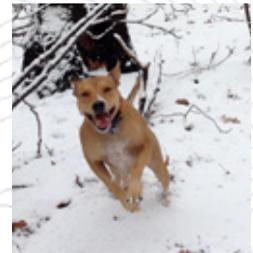
The Industrial Revolution forever changed the relationship between humans and nature, tilting the weight of power towards man. While humans capacity for innovation and destruction have grown enormously, our dependence on the natural cycles and resources of the planet remain and grow more voracious. Yet simultaneously, modern progress has facilitated the physical and psychological detachment of that interdependence. The fundamental elements of our existence are veiled through the efficiency of urbanization and its derivatives of specialization, mass-production, and globalization.

This project is an examination of the interrelationship between humans and nature through the lens of civic architecture within a naturalistic setting. The fundamental thesis of this project is that there is a primal biological thread that connects human beings to the natural order, whether on a visceral or conscious level. This project explores the belief that humans intrinsically yearn to reinforce that bond - awakening primordial instincts developed over millions of years of evolutionary survival that have been suppressed by the artifice of modern life. Through a process of retreat and contemplation, this project offers the opportunity of individuals to evaluate and rebalance their own scales with nature and find their own accord and harmony.

to my parents, for their unwavering love and support  
& instilling in me the value of a life-long education

to Niranda, for being my foundation & source of optimism & inspiration

& to Koa (our dog), for helping to discover my site  
& constantly reminding me of the unrestrained joy of running through a forest



*'I went to the woods because I wished to live deliberately, to front only the essential facts of life, and see if I could not learn what it had to teach, and not, when I came to die, discover that I had not lived. I did not wish to live what was not life, living is so dear; nor did I wish to practice resignation, unless it was quite necessary. I wanted to live deep and suck out all the marrow of life, to live so sturdily and Spartan-like as to put to rout all that was not life, to cut a broad swath and shave close, to drive life into a corner, and reduce it to its lowest terms.'*

- Henry David Thoreau, *Walden: Or, Life in the Woods*

When I was a child, not more than 4 or 5 years old, like Thoreau I also went into the woods and returned changed from it. Though I had no intention of an introspective experience, it was the first instance I can vividly remember having my anthropocentric perspective shattered.

My family and I had spent the night before camping in a cabin on a rural plot of land they owned in the southwestern corner of Colorado, outside of Durango. At the crack of dawn, energized by my youth and unincumbered by a need of caffeine, I assertively announced to the rest of my still-sleeping family that I would be going for a morning walk and would return shortly. This was an area I was familiar with, having camped and hiked with my family many times before. In that nascent stage, my sense of independence was already evident. Sensibility, however, for me came through tacit experience.

As I trudged along through familiar landscape, eventually each tree and rock began to resemble each other and I had left no bread crumbs or stones to find my way back. I was lost. Fear and panic washed over my youthful confidence at the recognition of my foolishness. I have no recollection as to how much time passed, probably not very long, but the realization of being lost and the sense of being a feeble, teary voice in the wind are still vivid in my memory. Needless to say I was found; probably sooner than I imagine and without incident, but also not without a profound changed perception of my relationship and humility towards wilderness and nature.

My return to academia has been a deeply personal endeavour. Over 10 years removed from undergraduate studies and having already immersed myself within the profession of architecture, this was an opportunity to lose myself once again.

I want to sincerely thank my committee Susan Piedmont-Palladino, Jaan Holt, and Paul Emmons for allowing me to walk a nontraditional path of exploration; understanding the value in the uncharted and uncertain, with the eventual goal of self-discovery. Throughout, Susan, Jaan, and Paul generously offered their time, wisdom, and insight, and challenged me to re-examine and reconsider notions that were too easily and quickly constructed. Their illuminating insight often resonated within me long after it was spoken. The WAAC itself has been an amazing collage of incredibly unique and talented individuals from all corners of the world collectively gathered to learn, contribute, and improve on the human condition. I am grateful to have had to opportunity to momentarily lose myself within such an amazing setting.

To those individuals and those who made and continue to make the WAAC what it is, you will be a part of me from here on.



## Table of Contents

Dedications	iii
Acknowledgements	iv
Introduction	1
Site Overview	2
Site History	6
Site Analysis	12
Concept Studies	24
Refinement	26
Synthesis	30
References	50
Image Credits	51



*'Clearly the problem of man and nature is not one of providing a decorative background for the human play, or even ameliorating the grim city: it is the necessity of sustaining nature as a source of life, milieu, teacher, sanctum, challenge and, most of all, of rediscovering nature's corollary of the unknown in the self, the source of meaning'*

*-Ian McHarg 'Design With Nature'*

Man's modern detachment from his natural existence leaves a physical and psychological void. So much so, that humans have found clever ways to artificially recreate elements of the natural world within our urban existence in attempt to fill that cavity. Contrived manifestations of nature in the form of manicured lawns, overly geometric landscaping, urban water features, and computer desktop wallpaper all scream of an innate yearning internal in humans to shed the artifice clouding their existence and a desire to become self-aware.

The Transcendentalist Movement brought an articulation to that self-awareness. The words of those individuals are still salient amidst the changing landscape of time. But the relationship between humans and nature is a complex one and deeply introspective. Nature is a source of abundance and vitality or it can be an unyielding force that threatens our existence. It can be fragile and show the scars of mindless habitation, gentle and remind us of its everlasting beauty, or destructively showcase its unmatched power.

The Parks Movement and following environmental conservation movements have garnered a deeper societal appreciation for our natural surroundings and its ephemeral qualities. Environmental stewardship and advocacy has brought environmental awareness to the forefront of our consciousness and has also made us aware and culpable of the negative aspects of our human existence on the planet. The definitions of nature and wilderness, and our place within, are reshaped by the context of our time.

This thesis establishes that the relationship of humans and nature is both in conflict and inseparable. Humans are as part of nature as the rest of the plant and animal kingdom, formed and nurtured through it. Yet it is our unique quality of sentient beings that which makes us human. It is that consciousness coupled with our intuition and ingenuity which give hope to a promising coexistence.

This thesis project seeks to examine that relationship of humans and nature and seek an accord through an architectural response that exhibits the qualities of admiration and deference to the surrounding landscape while still providing a place for humans to gather, share, learn, and celebrate their existence within.

Like the powerful beauty of discovered ruins slowly taken back by surrounding nature, this project seeks that same apparent timelessness that is derived from the honesty of the fundamental building elements from which it is built from, and the solitary nature of its setting. Timeless, weathered, and in harmony. A place of retreat and rebalance and a source of inspiration and insight.

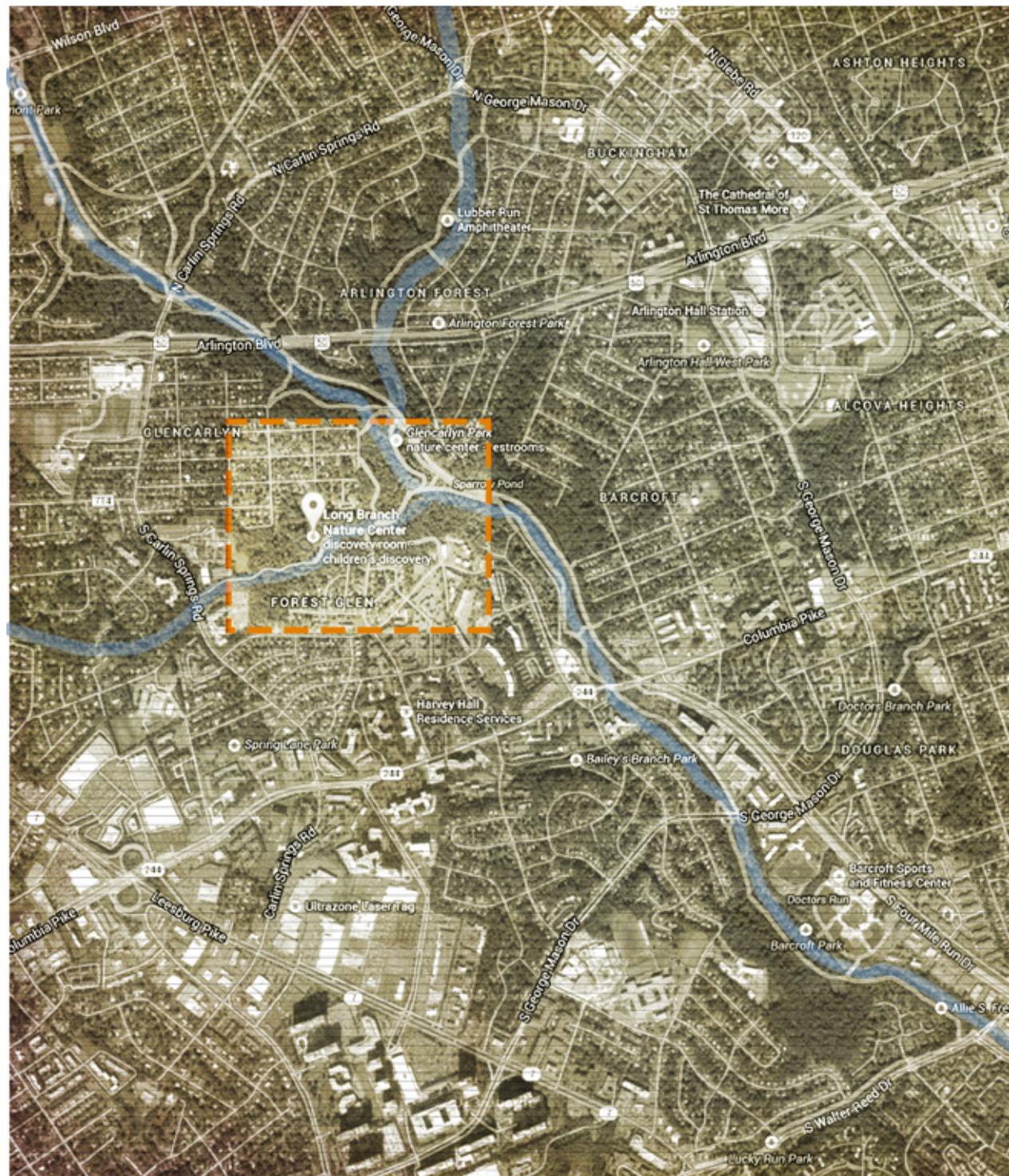
The Long Branch Nature Center is an existing facility owned and operated by Arlington County comprised of an existing one-story +-3,500 square foot wood-framed structure connected to exterior paved and unpaved walking paths and landscaped exhibition space nestled within a corner of the 17-acre wooded Glencarlyn Park.

Glencarlyn Park also connects to the north, under Highway 50, to Arlington Forest and Lubber Run Park.

The project site is roughly 6 miles outside of Washington, DC metro area and is considered a 'bedroom community' to the federal and commercial capital.

The surrounding area of the project site is suburban in context with various residential building types and ages and supporting community service buildings located within. Further out, heavy retail and high density office and residential exist along the Arlington Boulevard, Columbia Pike, and Leesburg Pike corridors.

The location of the existing nature center is near the confluence of Long Branch and Four Mile Run streams and connects with the Potomac River, the Washington and Old Dominion Trail, and Four Mile Run Trail.







The character of the project site is a heavily wooded forest area bisected by Long Branch Stream and surrounded on all sides by suburban single-family residential lots and the Virginia Medical Center to the west and Campbell Elementary School to the southwest.

The Medical Center parking structure shares vehicular site access with the Nature Center off of Carlin Springs Road.





context Historic Districts



context Parks Network



fig. 1 [fair use]

Glencarlyn Forest, formerly known as Washington Forest, holds significant historical significance as one of the spot locations in which George Washington performed his land survey which defined the original boundary of the District of Columbia. A statue marks the location of that survey spot and a preserved segment of the original oak tree used by Washington is on display in the Glencarlyn Library.

From 1789 until 1846 Arlington was a part of the District of Columbia and then was retroceded to Virginia to become known as Alexandria County. In 1920 the name Arlington was chosen to end confusion between the city of Alexandria and Alexandria County. 'Arlington' refers to the home of the Custis and Lee Families located within Arlington County on the grounds of the Arlington National Cemetery.

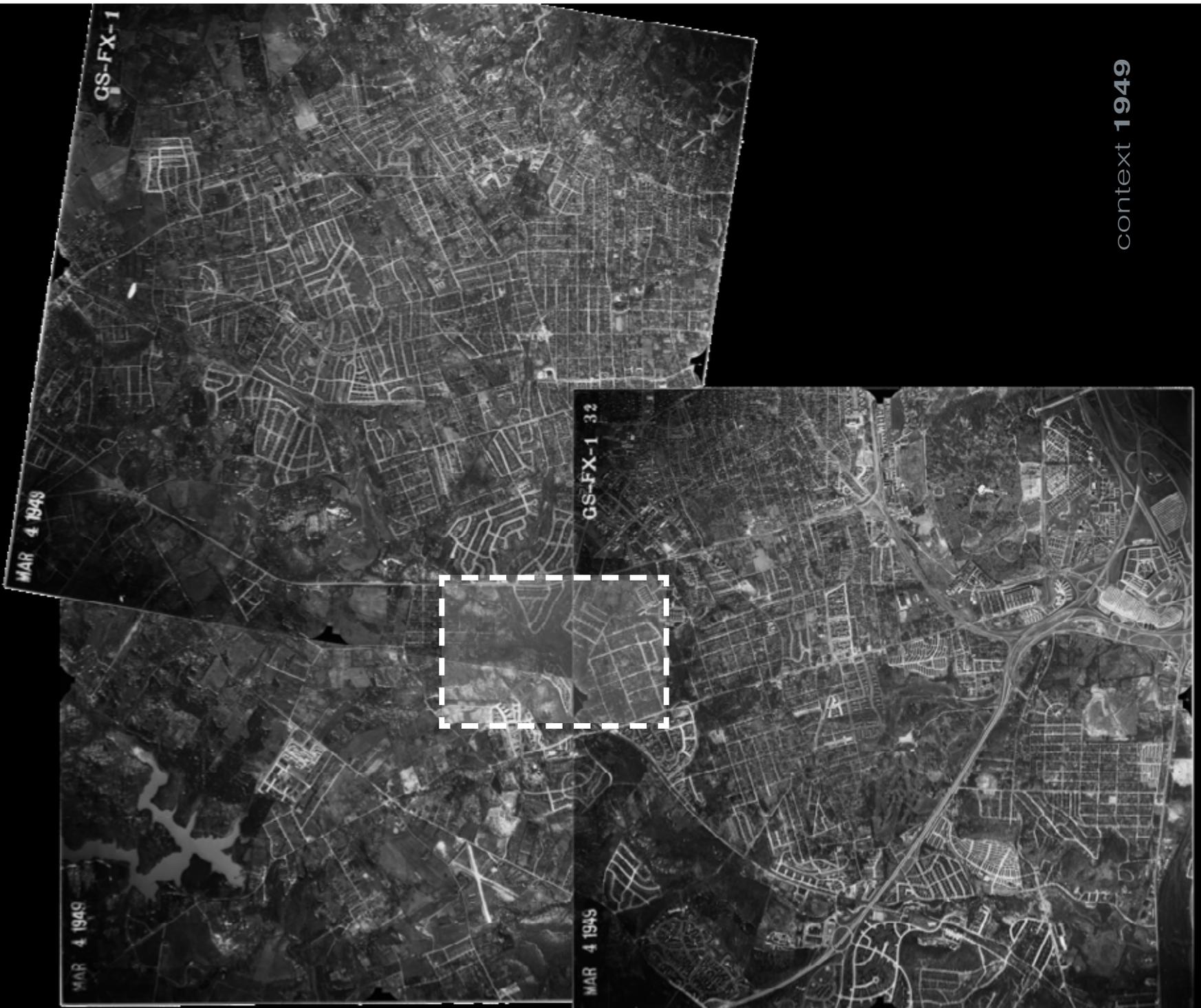
Originally created as a summer community for Washingtonians who wished to escape the heat of the city, the Glencarlyn neighborhood was established in 1888 by Samuel S. Burdett and his partner George W. Curtis. The Ball Sellers House, estimated to be originally built in approximately 1750 is the oldest structure still standing in Arlington and has been converted into a museum. Glencarlyn Hall, originally known as Curtis Hall was built in 1892 and still serves as the regular meeting location for the Glencarlyn Citizens Association.

fig. 3 [fair use]



fig. 2 [fair use]





context **1949**

fig. 4 [fair use]



fig. 5 [fair use]

According to the Glencarlyn Citizens Association, between 1930 and 1950 Arlington was the fastest growing county in the United States. The growth altered the complexion of the landscape from rural farmland and summer homes to a highly developed residential and commercial area.

The following historical aerial photography shows the effects of urbanization and sprawl over a 60 year period of the Arlington, VA area post-1949. Note that much of the suburban network to the north and east of the project site was established prior to 1949, while the vast majority of the landscape to the west and south was forest or pastoral farmland. The project site remains preserved due to its topography and watershed characteristics. Zoning boundaries established after the rapid suburbanization of the area in the 1960's have designated the project area as parkland resources and protect the area from further encroachment.

context 1962



fig. 6 [fair use]

context 1967



fig. 7 [fair use]

According to the *Washington Post*, Washington DC has lost 2.5 percent of its tree canopy every decade since 1950. The city has more concrete and asphalt (41 percent) than tree canopy (36 percent). Virginia's tree canopy is even less (35 percent).

Forest area is not simply an important source of beautification, but also plays vital roles in countering the environmental impacts of urbanization. Canopy shading reverses heat island effects of urbanization, trees act as biological filters removing particulates and carbon dioxide from our atmosphere and watersheds and establish a habitat for a variety of species that maintain the biodiversity of the area. Furthermore the project site is located upstream of the confluence of the Long Branch and Four Mile Streams which feed into the Potomac River and the Chesapeake Bay estuary.

Note the 1967 photograph ( fig. 7 above) showing the first visible indication of the existing Long Branch Nature Center.

context **1969**



fig. 8 [fair use]

context **1974**

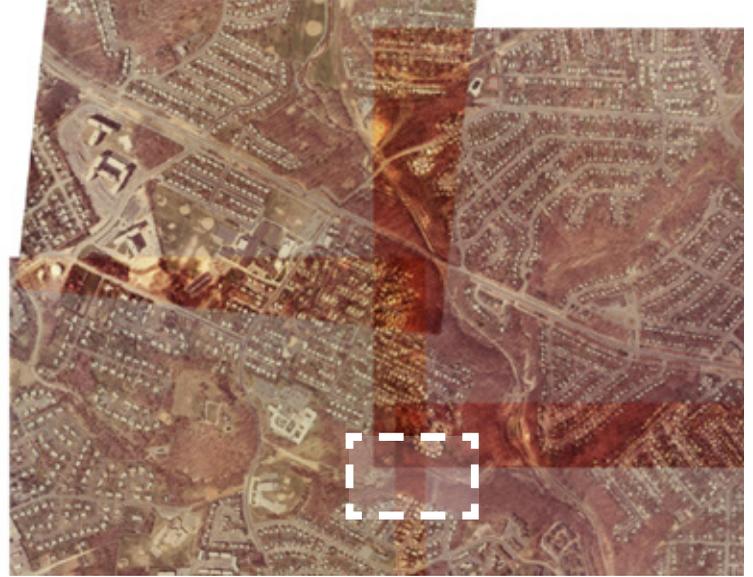


fig. 9 [fair use]

context **1989**

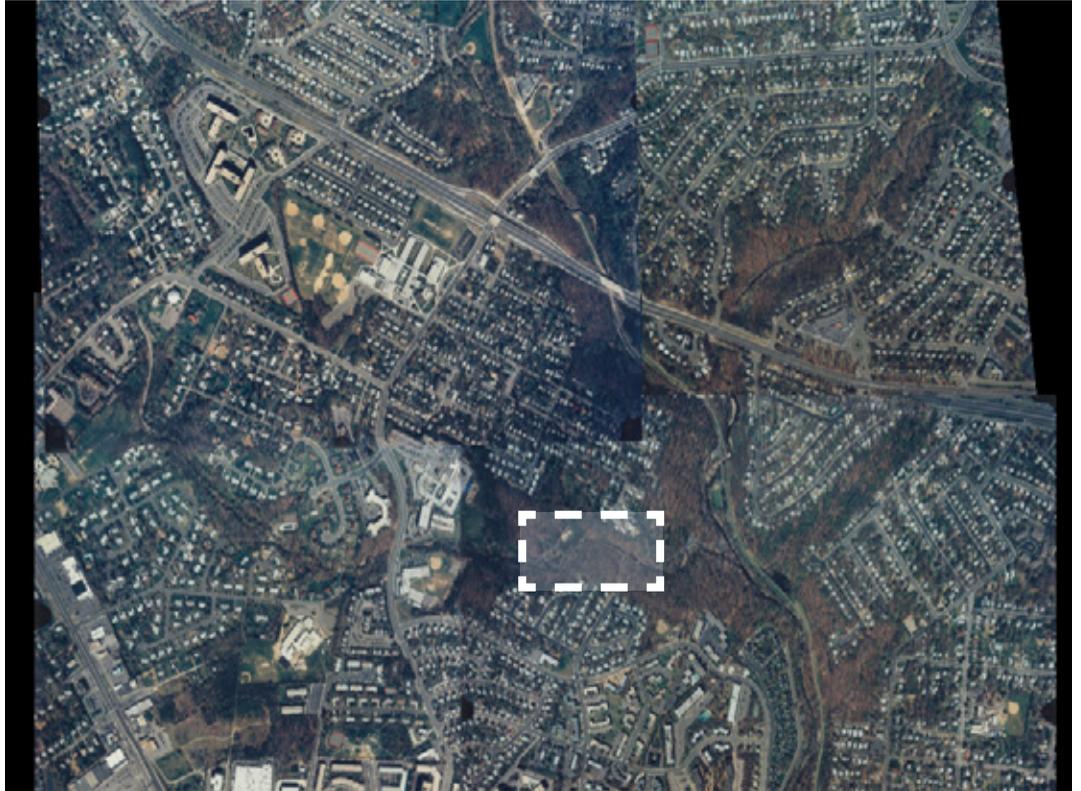


fig. 12 [fair use]

context 1982

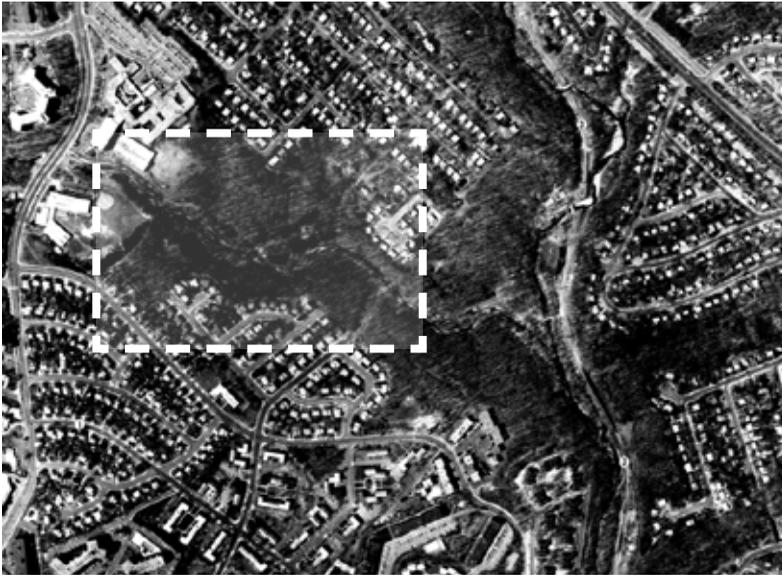


fig. 10 [fair use]

context 1983



fig. 11 [fair use]

context 2011

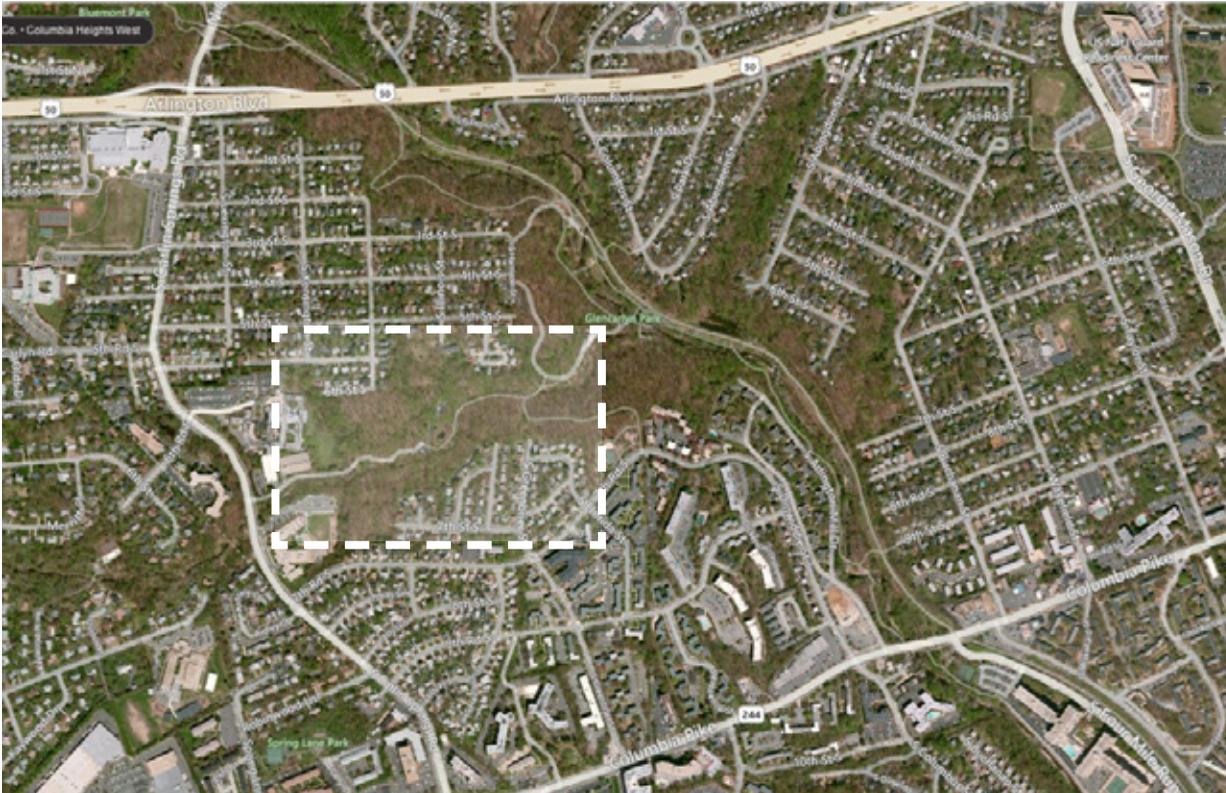
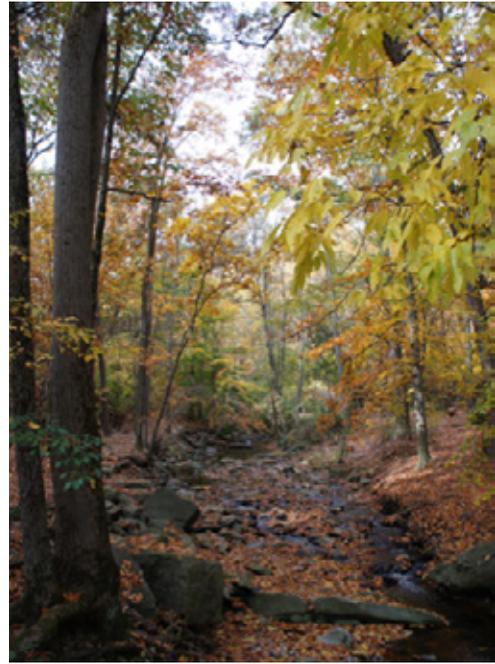


fig. 13 [fair use]



glencarlyn forest



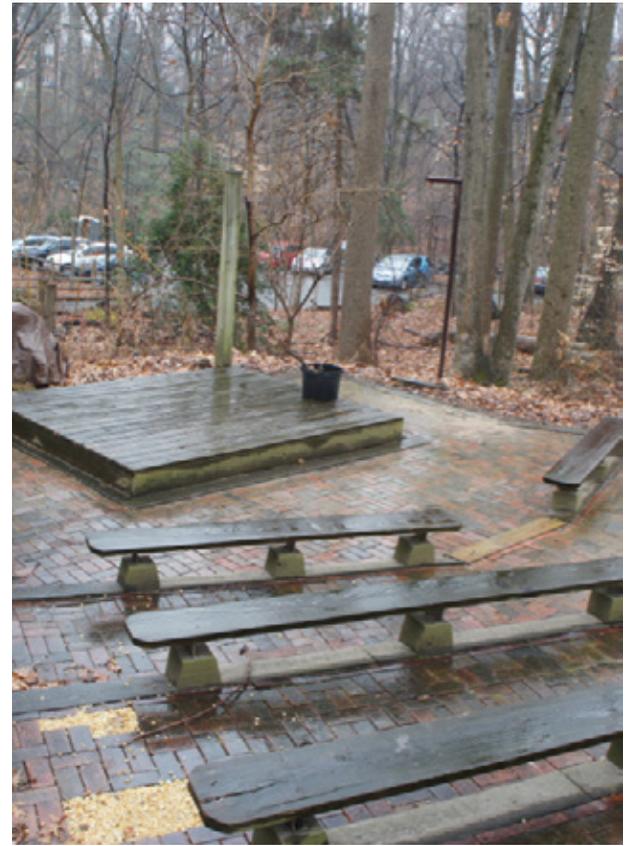
The existing Long Branch Nature Center is a single story +-3,500 sf gable roofed, wood structure sited on a relatively flat bluff within the scenic sloped forest hills along Long Branch Stream.

The building's orientation faces towards the view of the stream and the approach of the existing asphalt parking lot accessed via Carlin Springs Road.

Existing site facilities include a demonstration wetlands area and an amphitheater gathering area

The existing building and surrounding utility storage structures add visual clutter and disharmony to the valued naturalistic landscape.

long branch nature center



long branch nature center grounds



long branch nature center grounds



long branch nature center interior

The existing nature center is a lost opportunity in establishing a harmonic relationship between the strong visual scenery of the surrounding natural with the necessary man-made structural and programmatic elements of a building intended to serve the needs of group gathering and informative display.



## long branch nature center grounds & network

Connecting to the existing nature center is a network of defined pedestrian and bicycle pathways along with other outdoor recreation activities. Inadequate public restroom facilities are evident. With the existing network in-place, there is great potential to de-emphasize the site's vehicular access and strengthen the connection to the existing bike and pedestrian paths as well as the greater overall mass-transit network of the region.



**context** mass transit network



**context** bicycle pathways

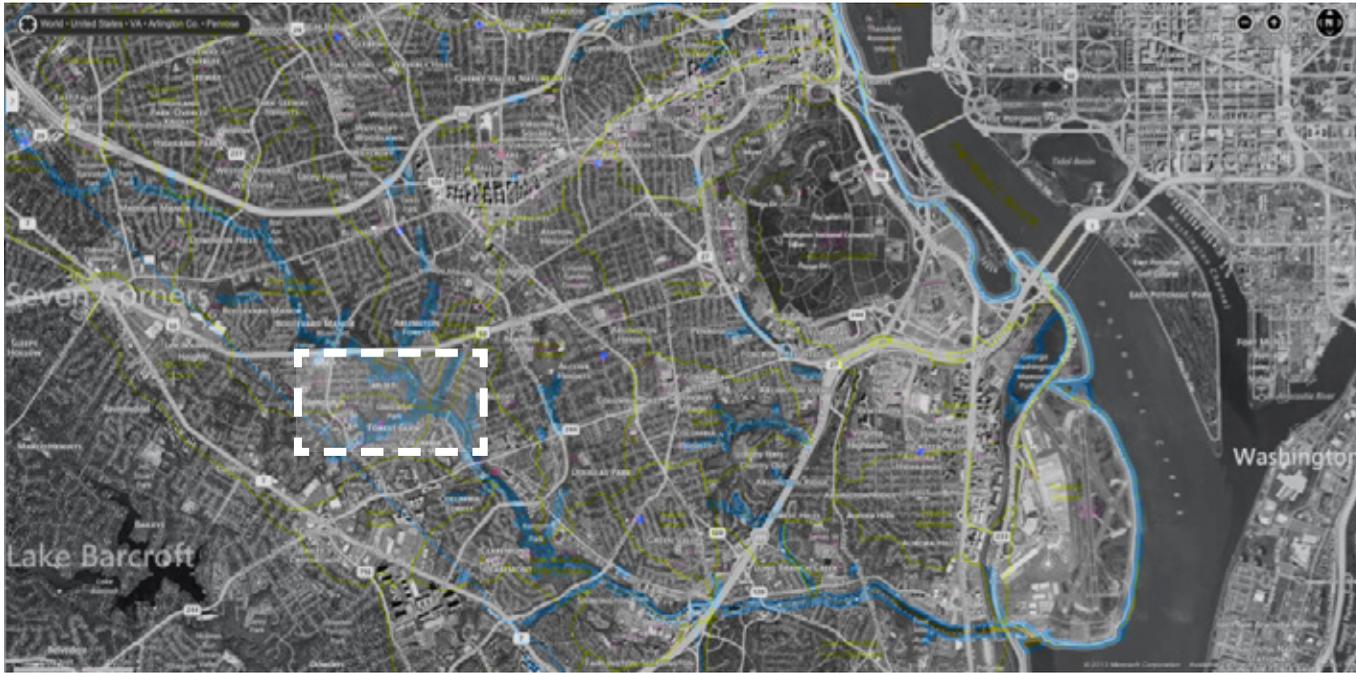


There are several means to access Glencarlyn Park. The Four Mile Run and Washington Old Dominion trails (shown in blue in the upper right hand corner) offer bicyclists and pedestrians an interconnecting trail system to Arlington and beyond.

Vehicular access (shown in yellow) is achieved mainly via paved roadway (shared with the Virginia Hospital Center parking structure) off of Carlin Springs road and secondarily within the Glencarlyn neighborhood.

Mass transit options (shown in orange) include a bus route that passes along Carlin Springs Road and stops directly in front of the paved main entry access road into the site.

The variety of entrance points, non-typical lot shape and size, and lack of neighboring building context within the project site offers both the freedom and challenge of determining building orientation and accessibility point(s).



context watersheds

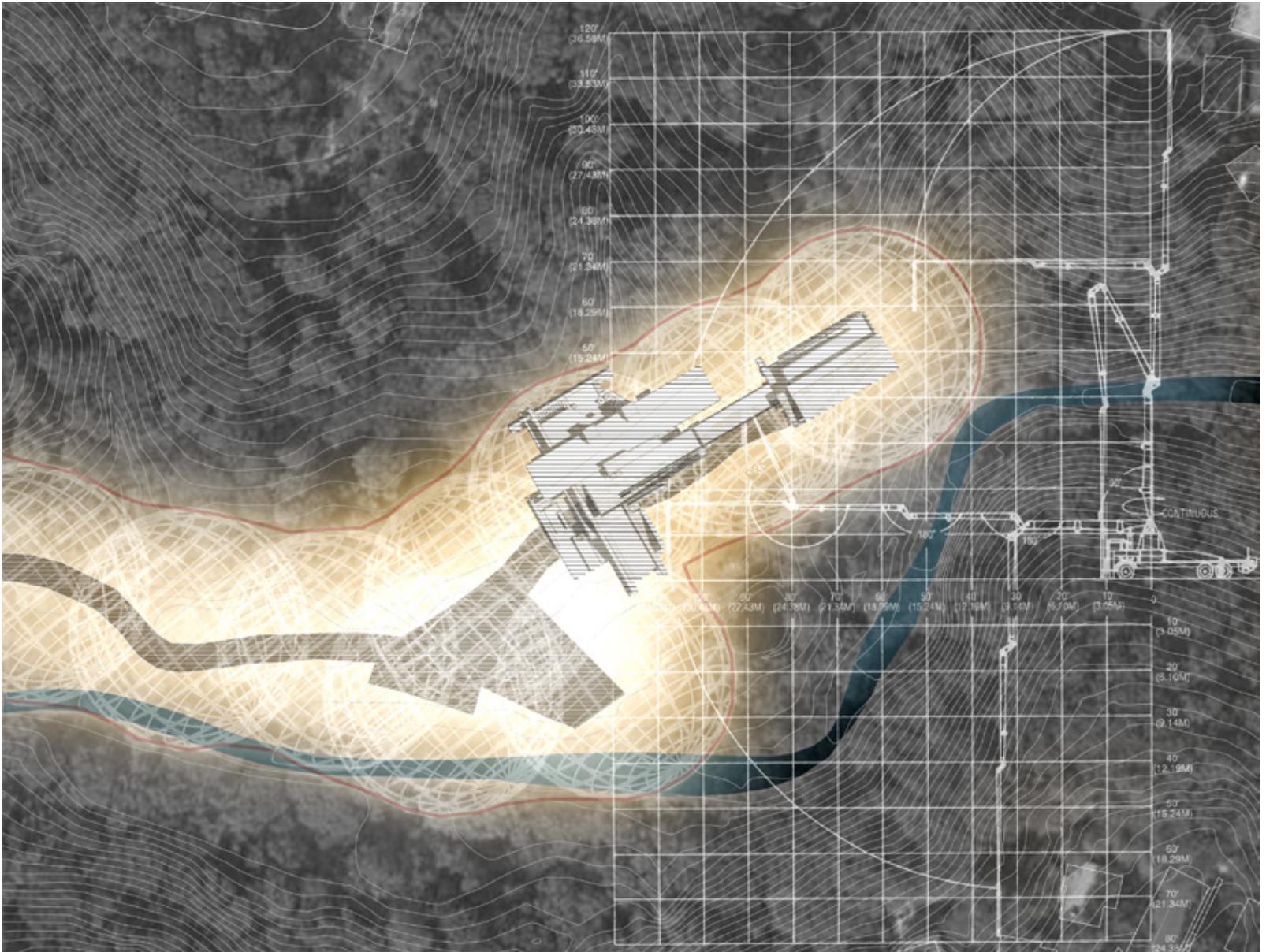


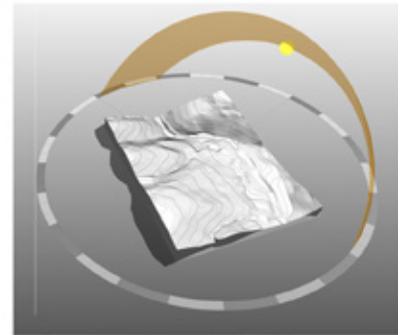
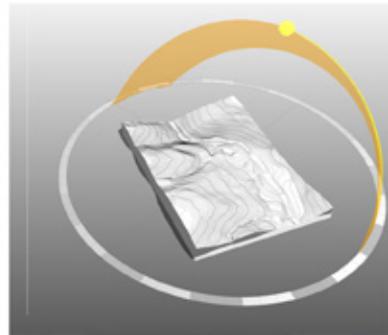
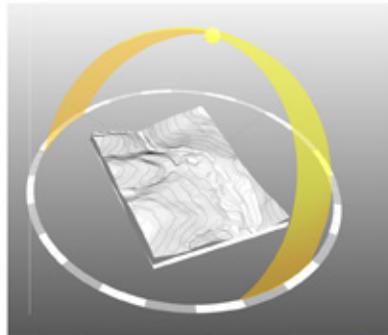
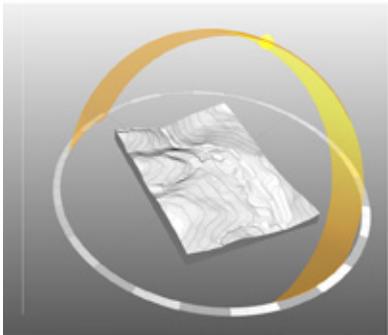
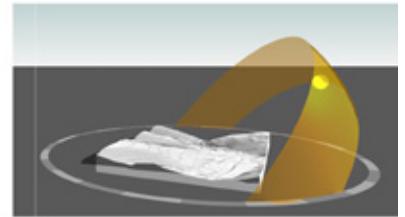
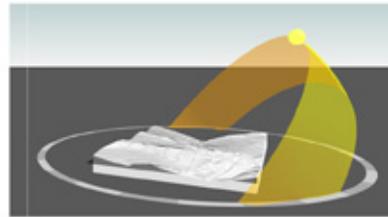
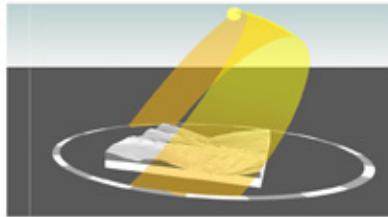
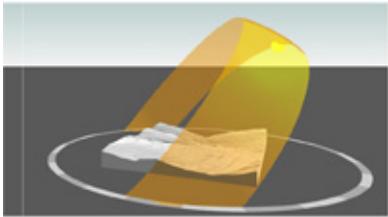
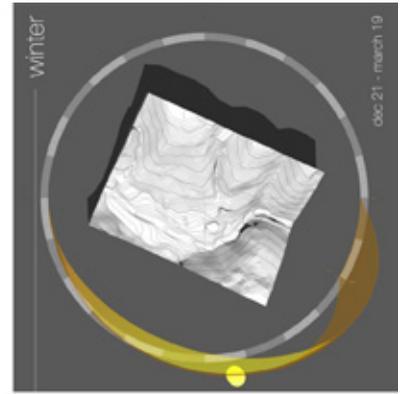
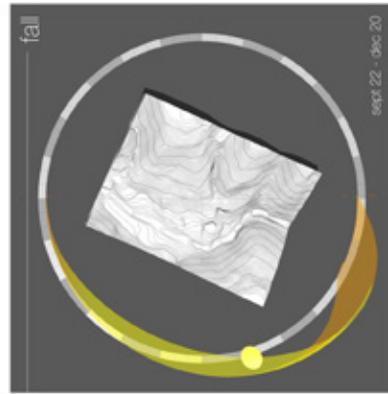
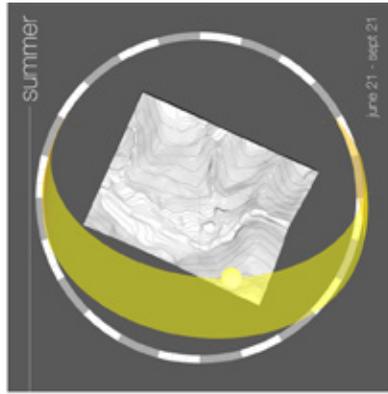
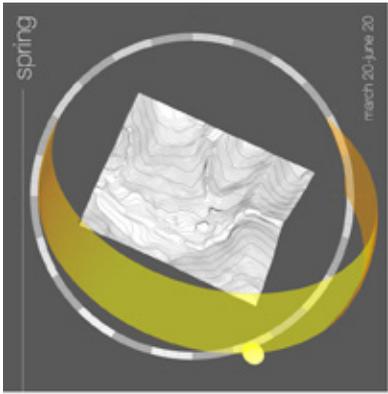
As a means to define the building site parameters of within the 17 acre wooded forest area, 2 overlay drawings were developed that effectively define the buildable area on the site.

The first lens is within the natural realm. While the Long Branch Stream is the only constantly flowing source of water, the topography and hydrology of the site include significant valleys in the landform that collect sheet flow and connect to the flowing stream. The prevailing flow of water was intended to be both preserved and celebrated through the expression of architecture itself.

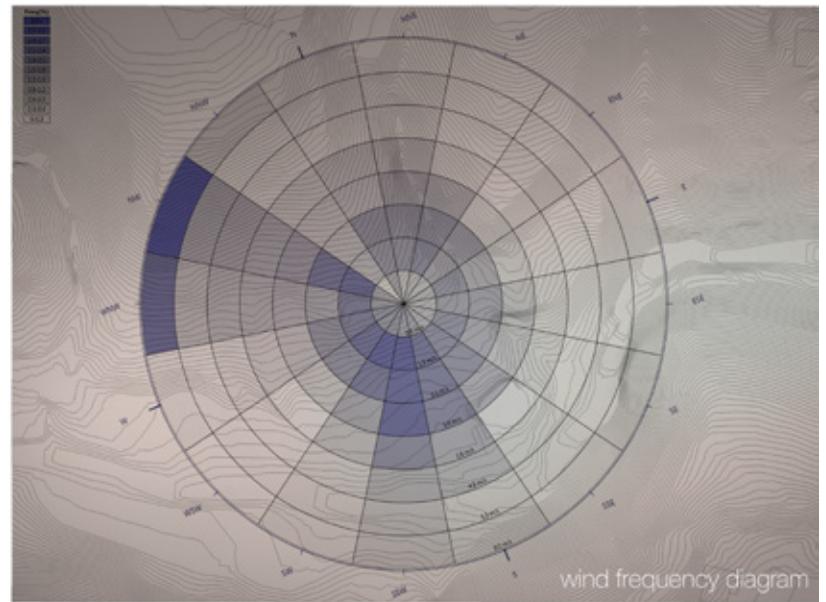
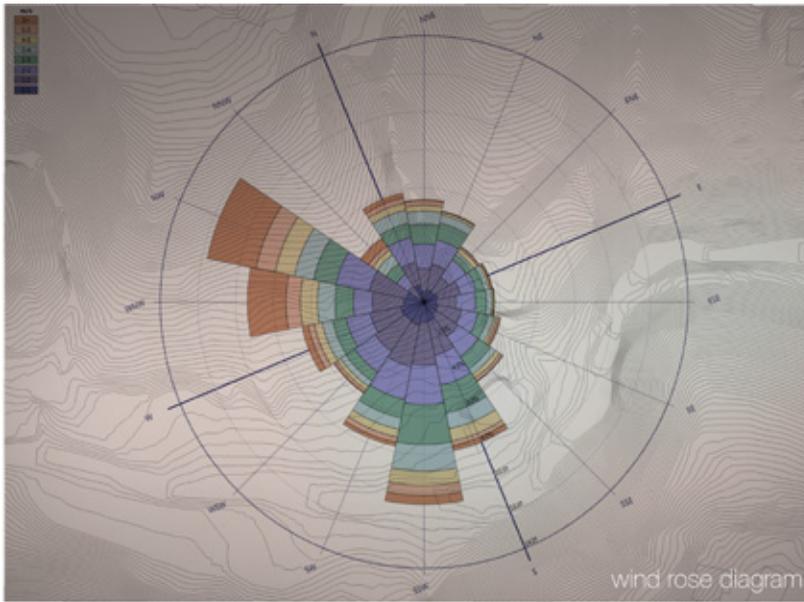
A secondary lens for determining building envelope constraints was developed through an examination of the practical constraints of the act of construction. In this instance, the physical limitations of a concrete boom crane were overlaid along the existing roadway to determine the most appropriate building location that would both minimize both regrading and deforestation.

context construction limits

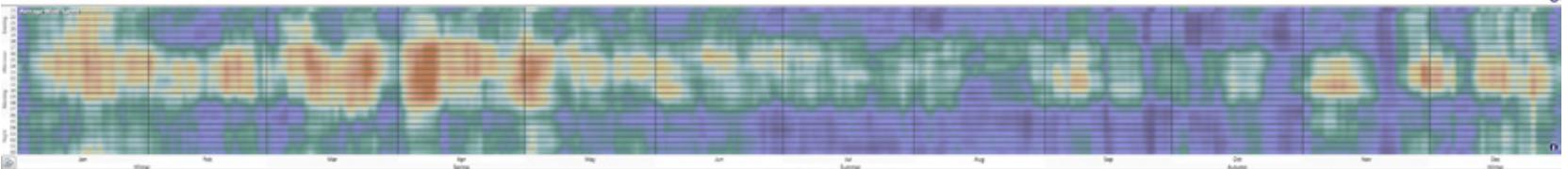




site solar study



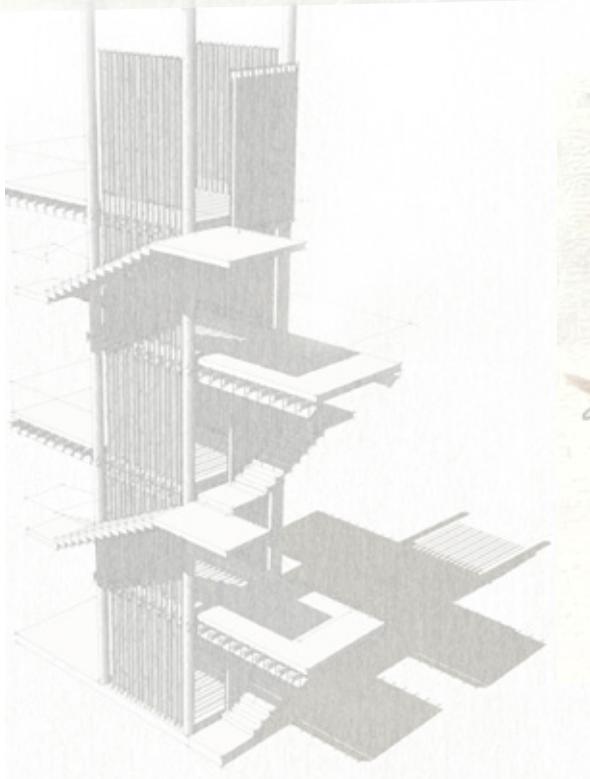
wind calendar

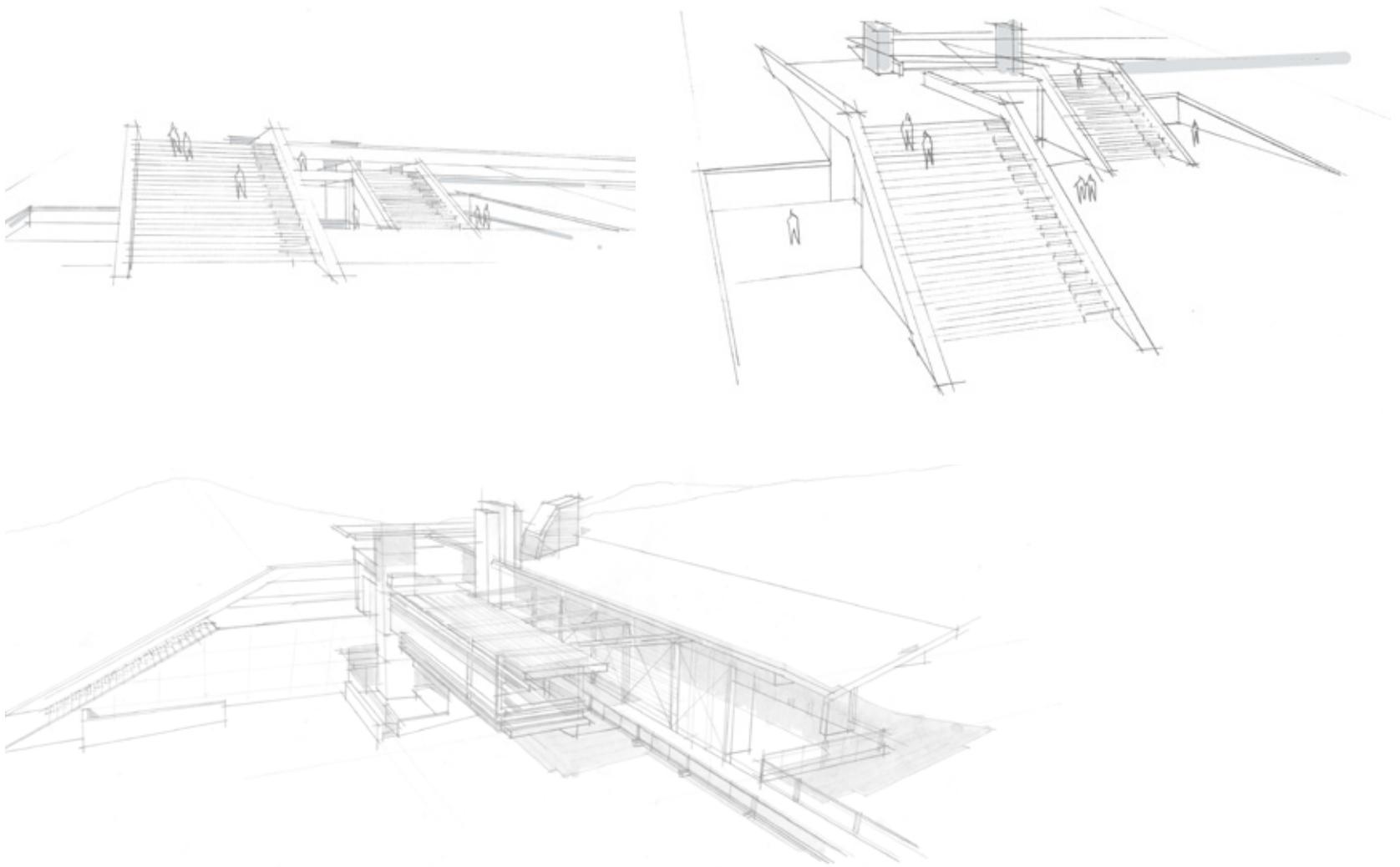


## prevailing wind analysis

Building orientation, massing, enclosure, and fenestration were evaluated against the solar orientation and prevailing wind data available for the site.

The data informed the design of passive solar and ventilation strategies.





Preliminary conceptual studies in building materials, construction methods, indoor-outdoor relationships, massing, and site adaptation strategies.

Early on, the goal of the design was to avoid the convenient ideology of the building as a singular destination. Instead it is a sequence of opportunities to explore the setting of nature through different vantage points and frames. The boundaries between exterior and interior are intentionally blurred to remove the threshold that separate human existence and the natural world habitat. The paradigm conceptual shift is the objective that the form should be derived by means to navigate the site rather than enclosure derived from programmatic functions.



The challenge for the inquisitive designer, after the harvesting of data and preliminary design concepts stages, is determining which ideas have merit and are worth exploration and refinement and which are novel, but cannot contribute as a sum of the whole.

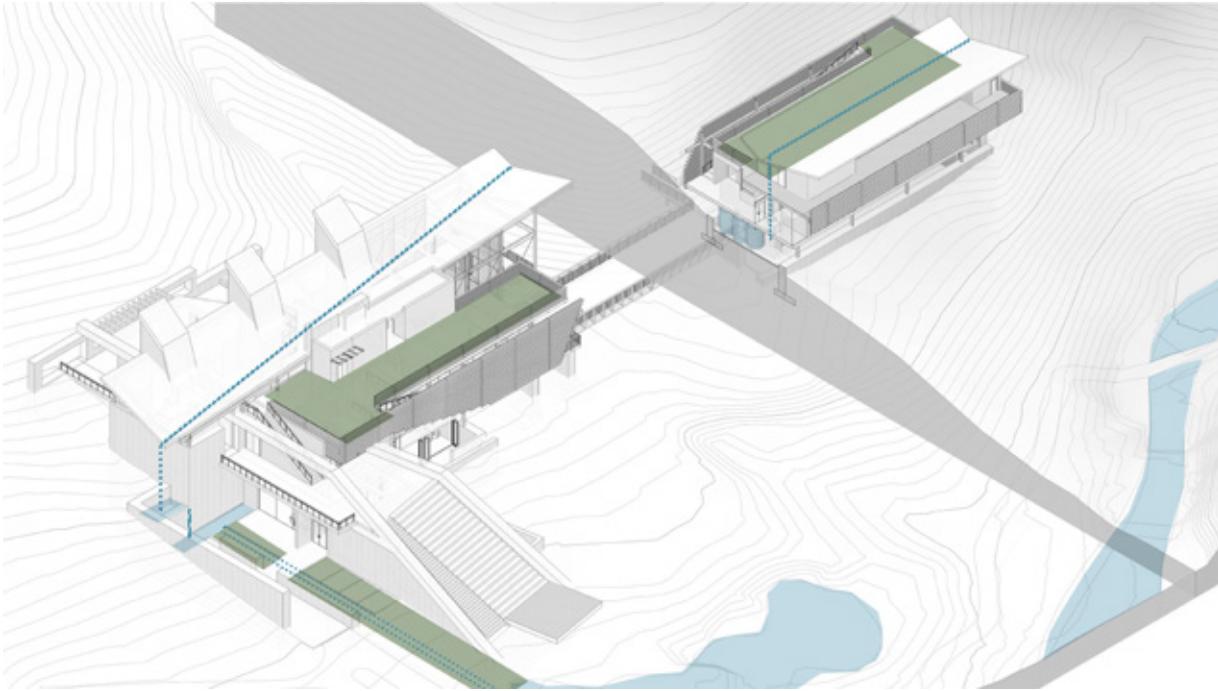
As metaphor to a working organism or ecosystem, the Darwinian concept of survival of the fittest serves as the ultimate test and balance to the complexity of a collection of ideas. That which cannot survive on its own volition extinguishes, and thus is part of the natural selection process. Evolutionary principals show that the more complex a system, the more stable and viable.

Yet complexity does not always yield synthesis in design. Gottfried Semper's *The Four Elements of Architecture* discusses the origins of architecture through the lens of anthropology. In it he defines the essential elements of architecture as the *mound, hearth, enclosure, and roof*; each derived from their primordial functions and available craft of delivery. **The hearth, being the primary element, and establishes a radiating point of human existence and social gathering.**

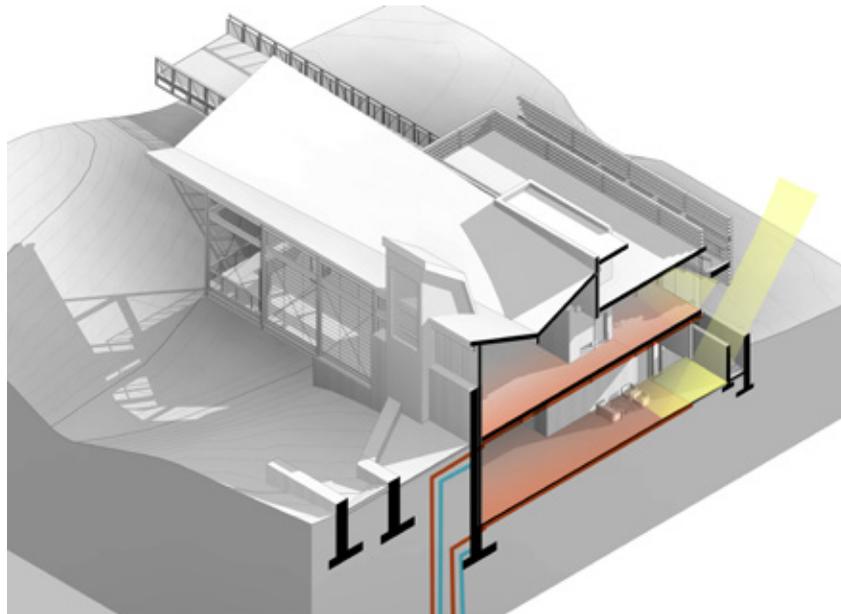
By categorizing and diagramming through a modern interpretive Semperian lens - refinement and rationalization are possible. Design is organized by an innate material and elemental process rather than the applique of sustainable features.

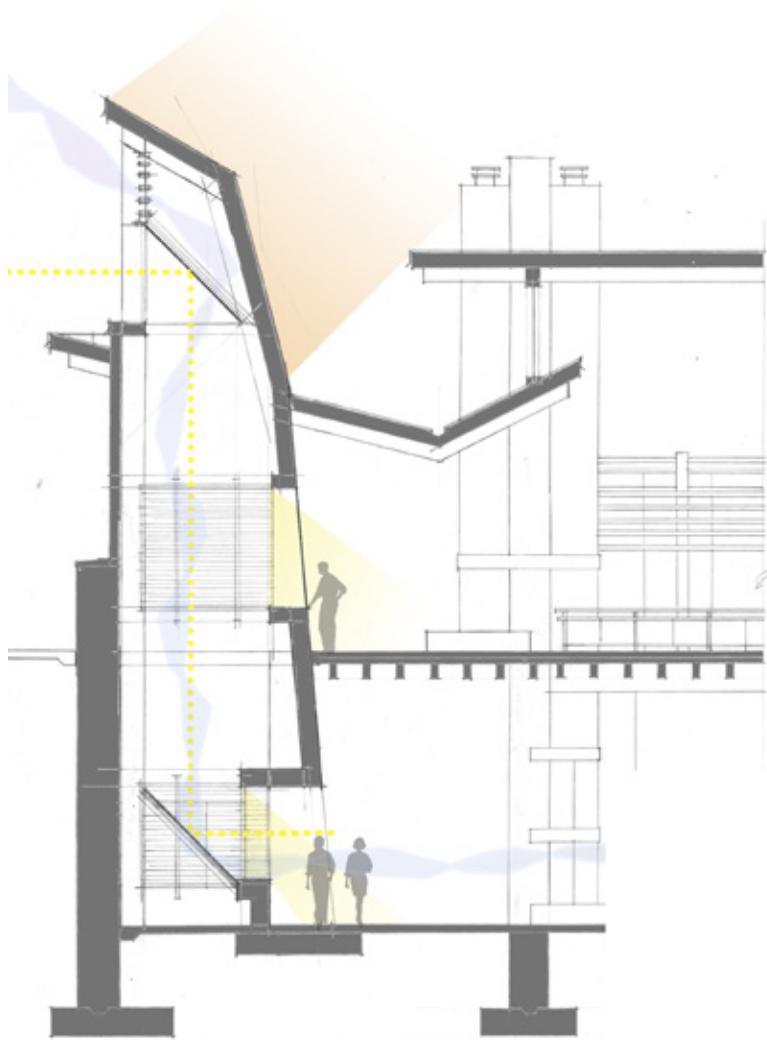
Additionally, counterbalancing the wisdom of the written word and hand sketching with the expanding capacity of the digital realm offers an expanded vocabulary of design tools that informs the design process. Images shown on the following pages include sustainable investigations achieved through the manipulation of a three-dimensional parametric modelling study.

bio-filtration & water harvesting

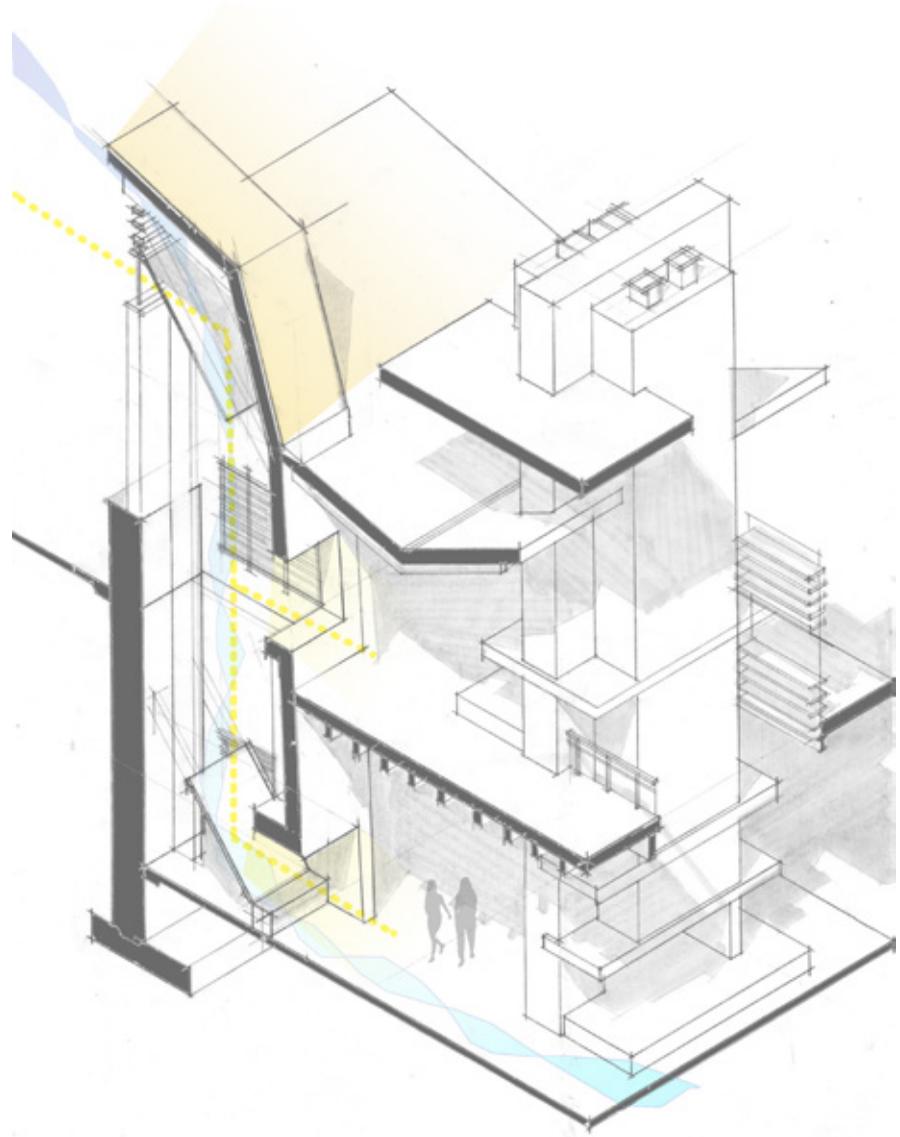


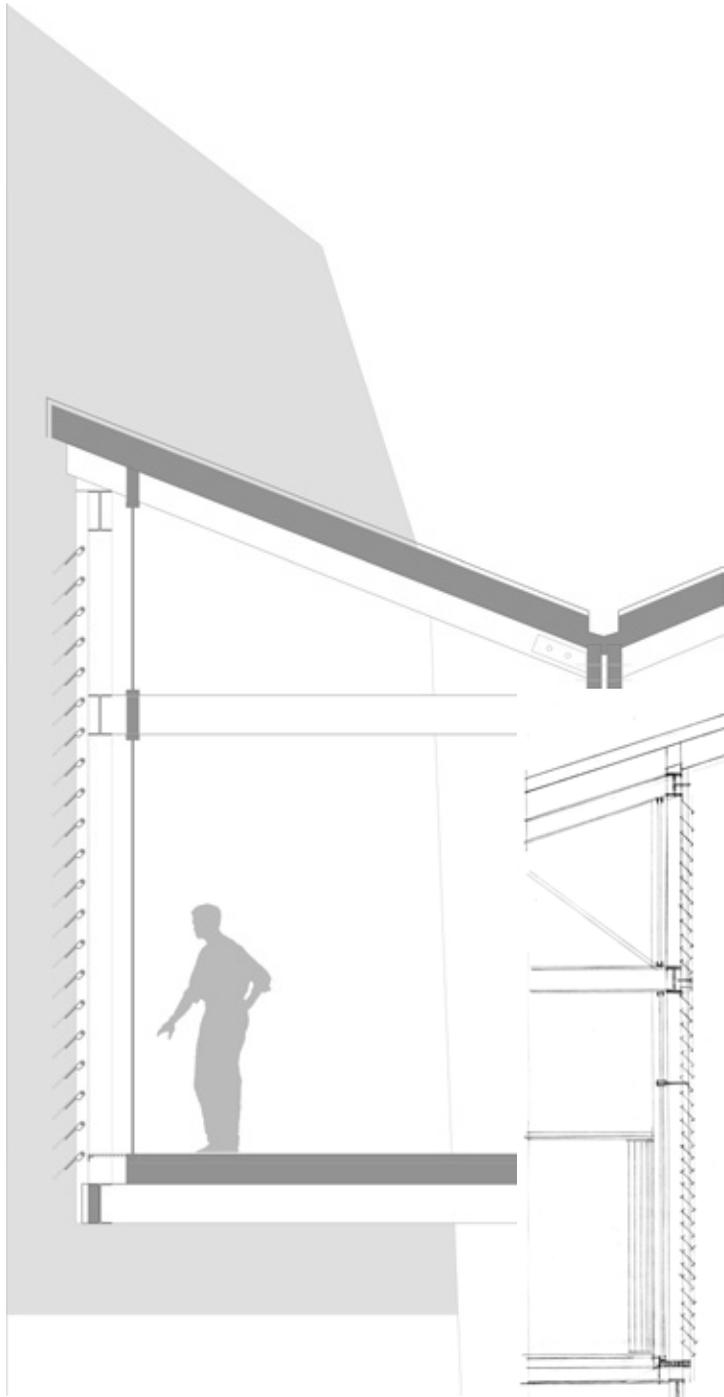
geothermal & thermal mass



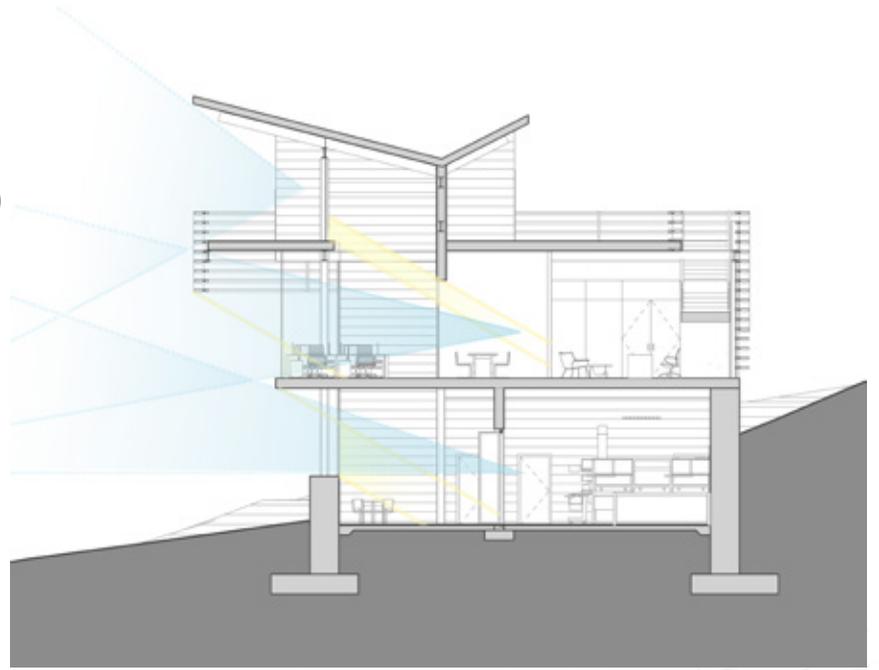


light & ventilation | thermal massing & water harvesting

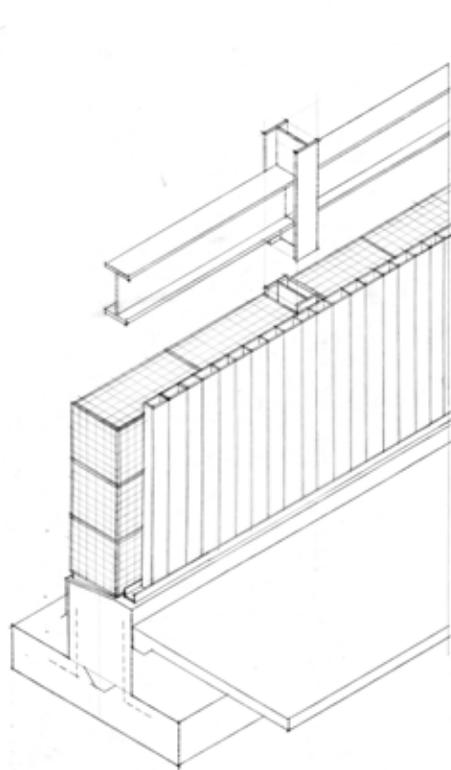




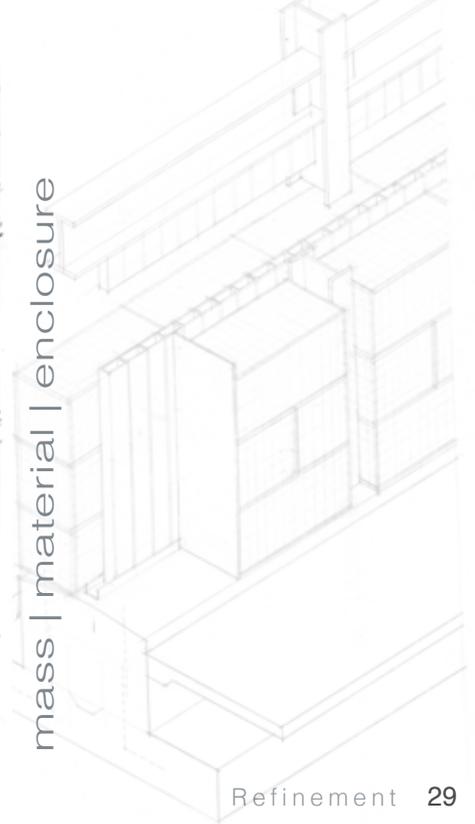
views & shading



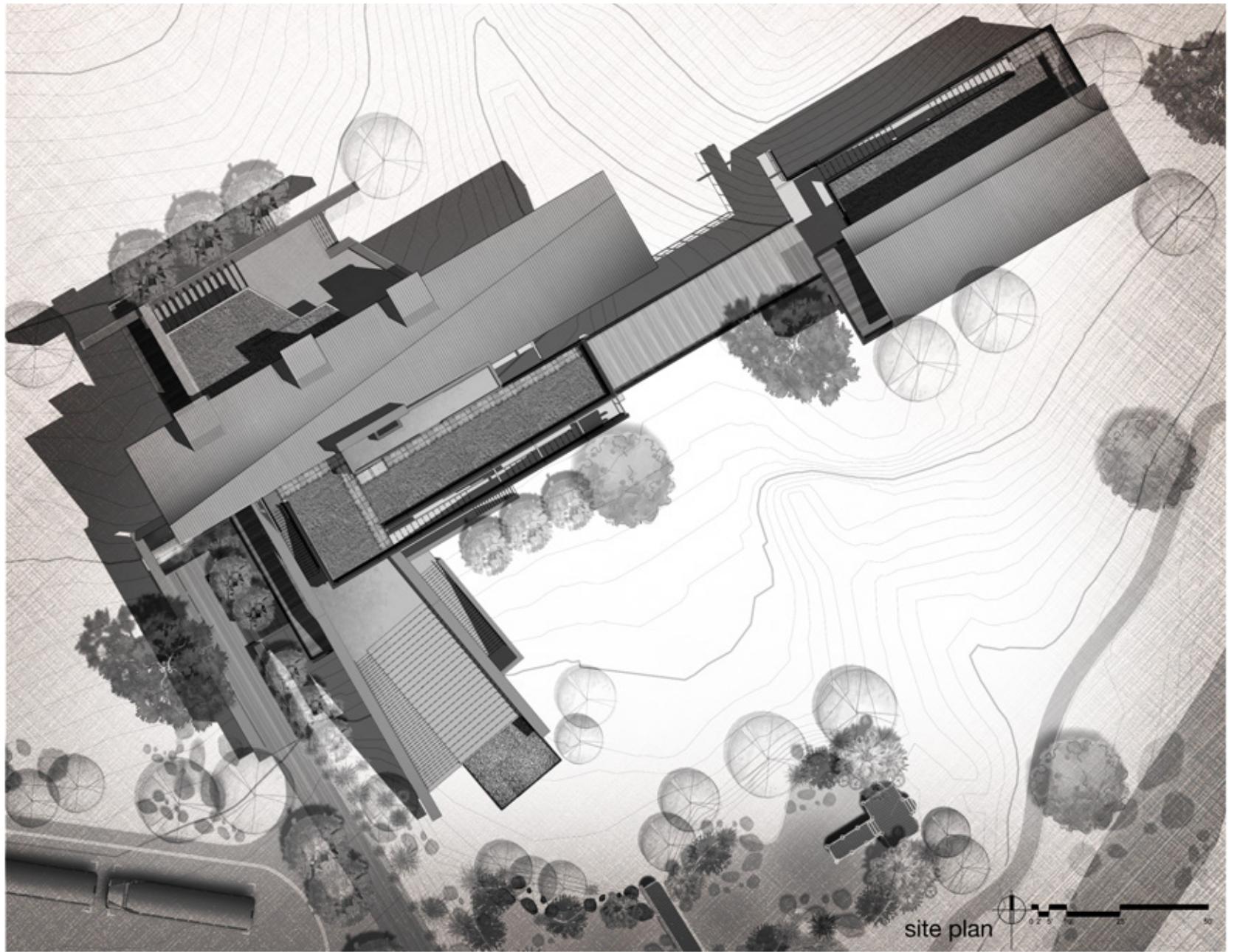
light & ventilation

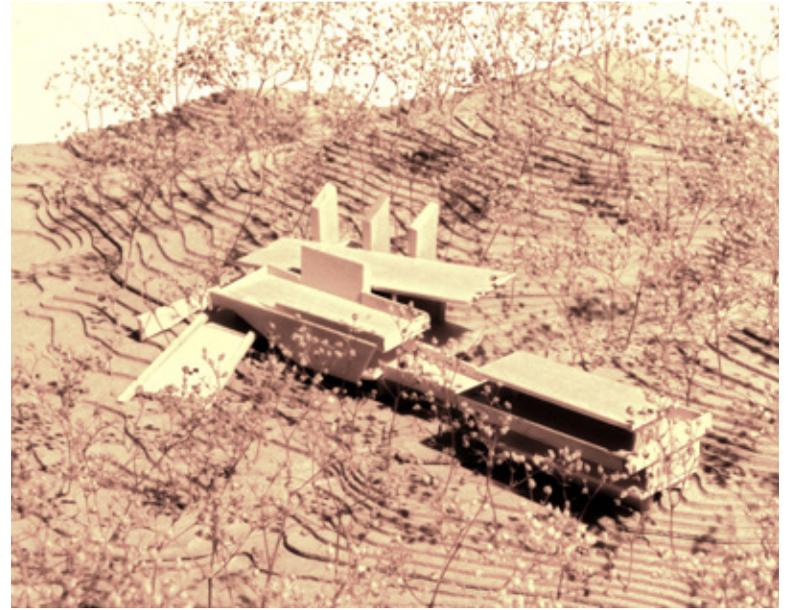
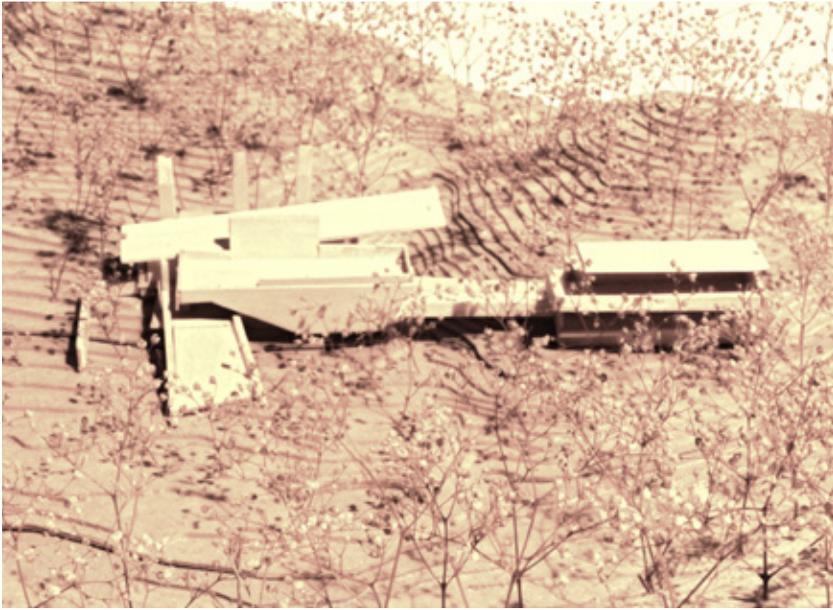


mass | material | enclosure





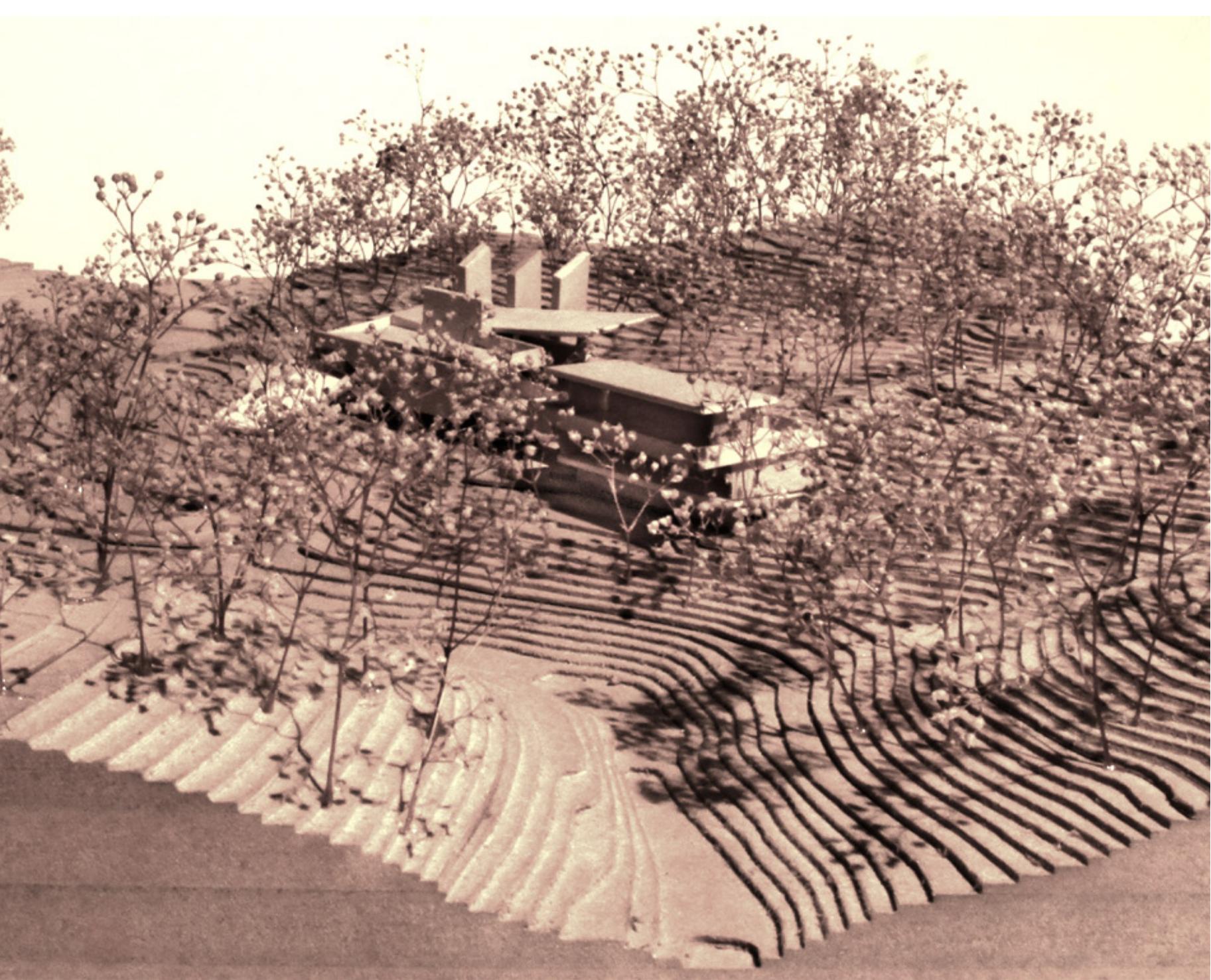


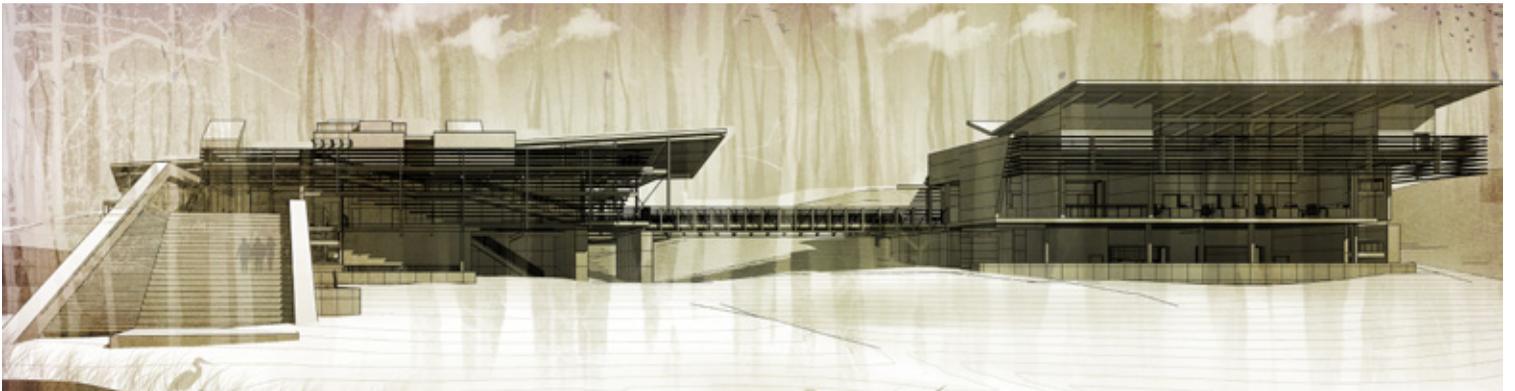
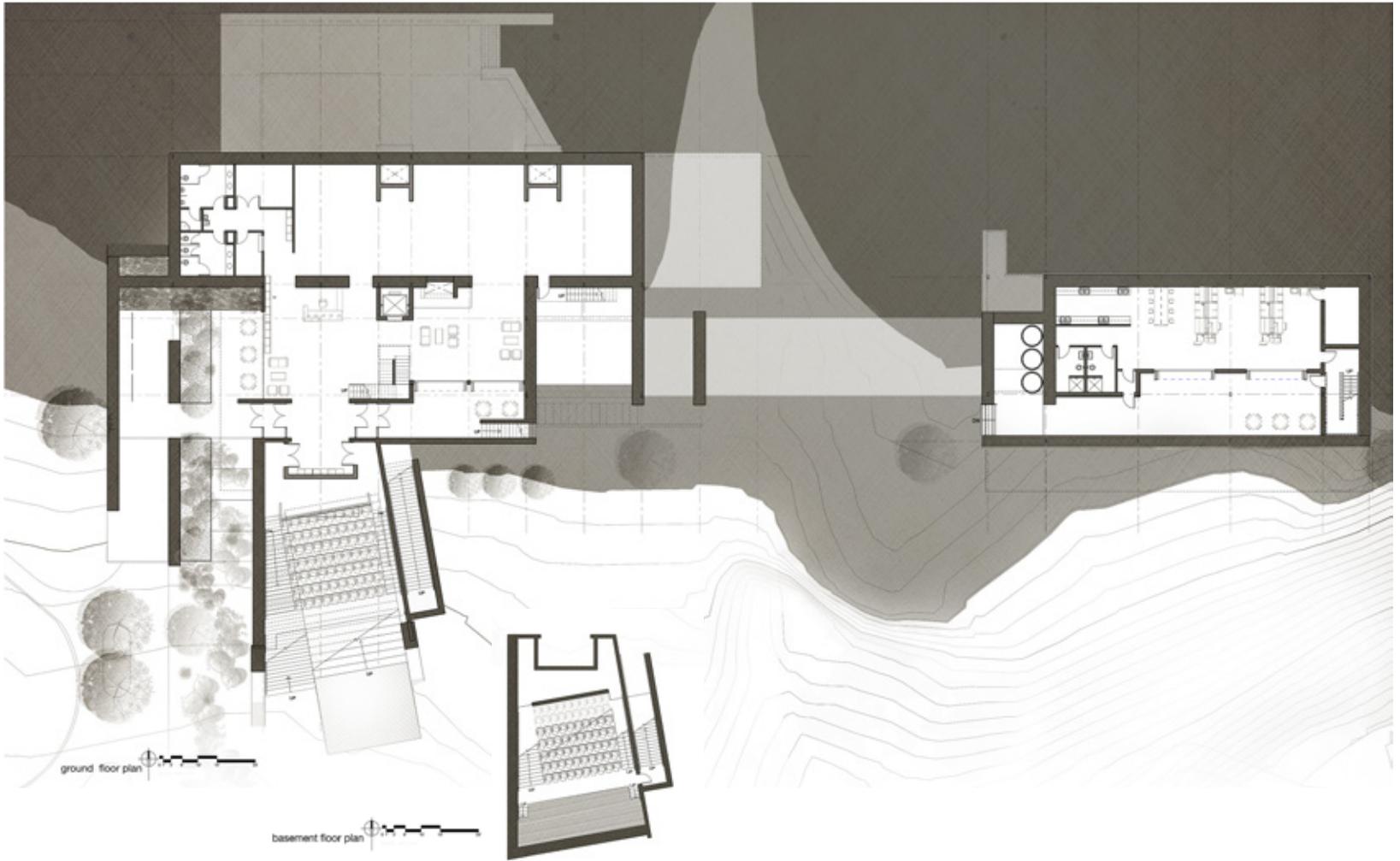


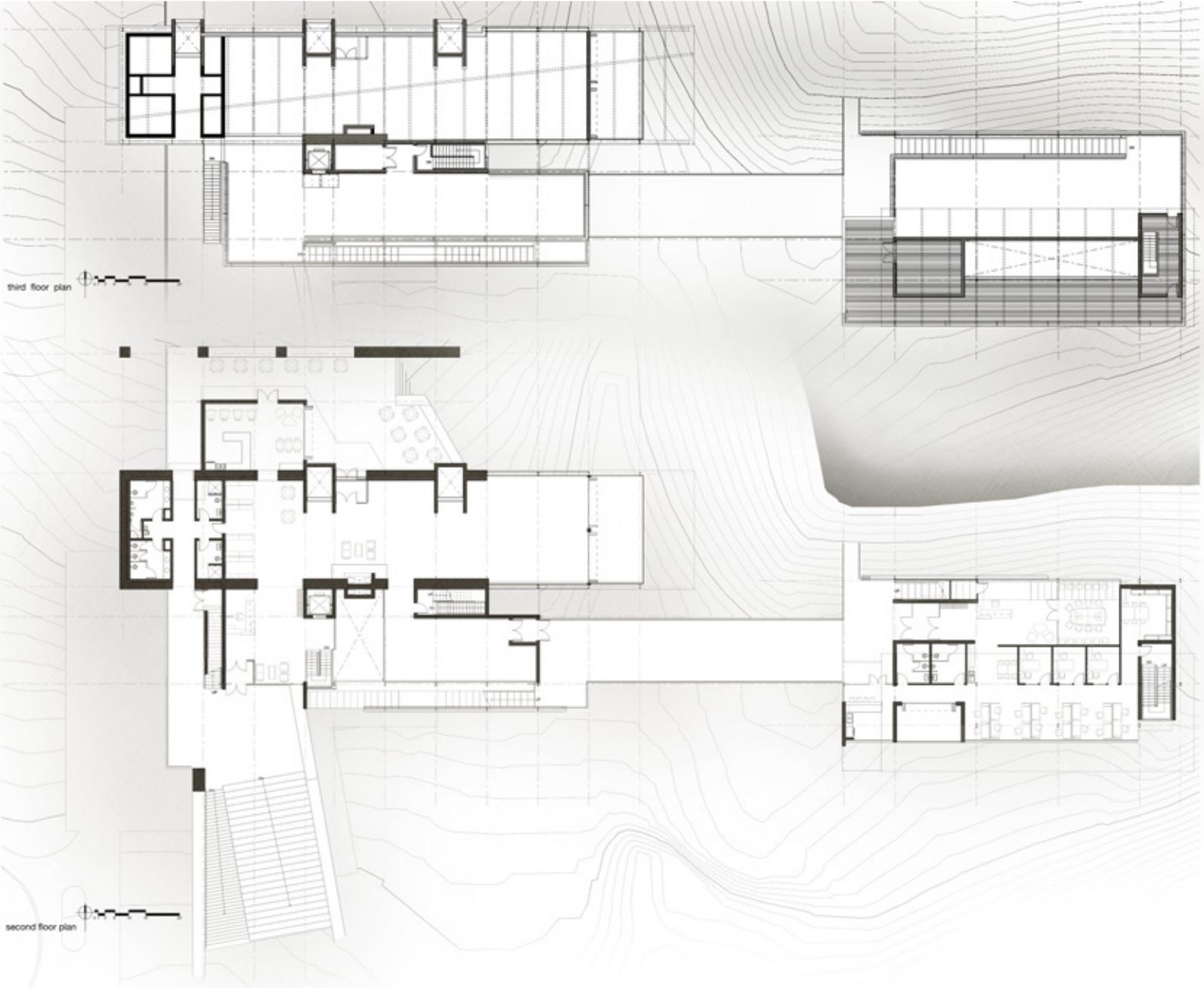
site model studies exploring the building's mass and form within the overall context of the surrounding site.

The relationship of topography and hydrology are examined and expressed in the bridging of two structures over an existing landscape valley. The gesture is both metaphorical as an expression of deference to the existing natural landscape as well as metaphysical as a destination point to observe nature itself.

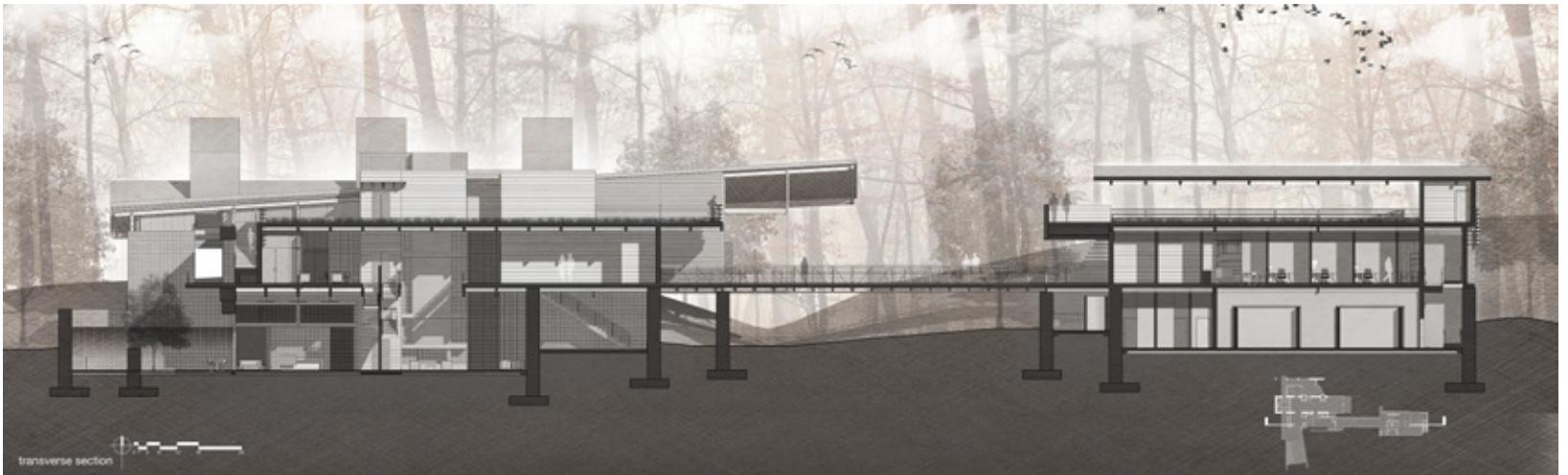


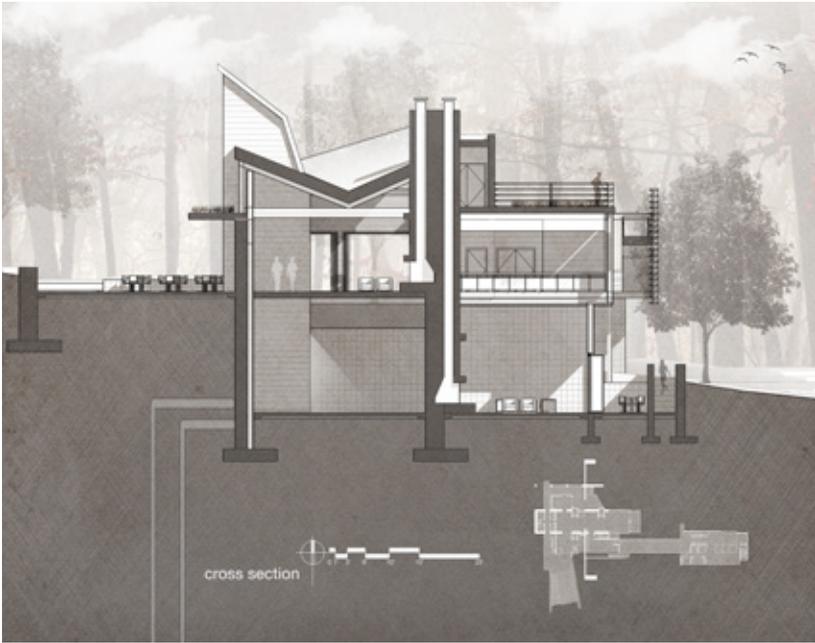
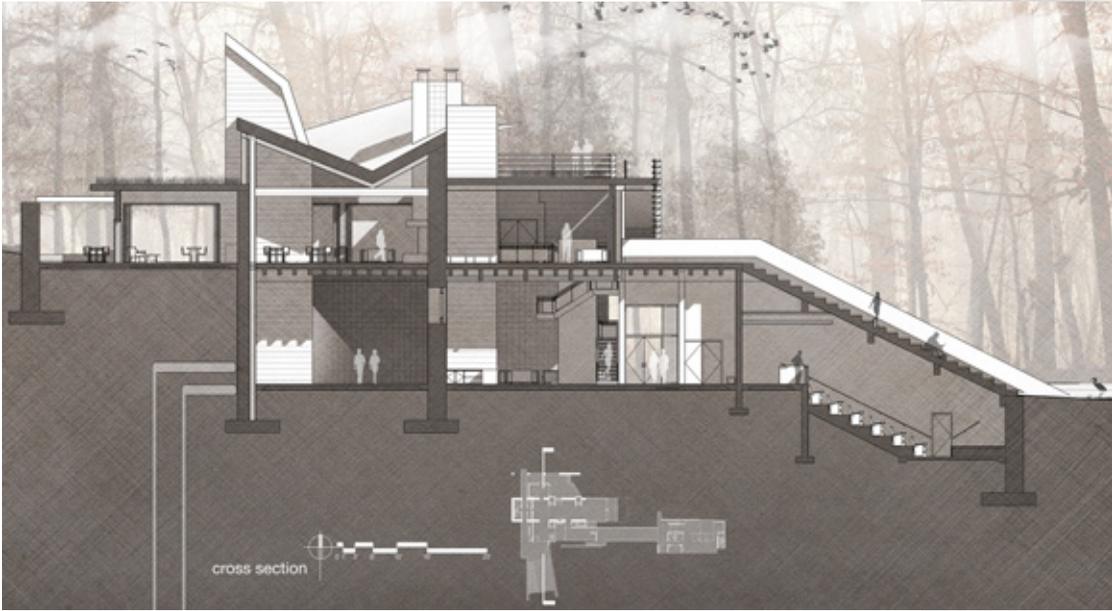


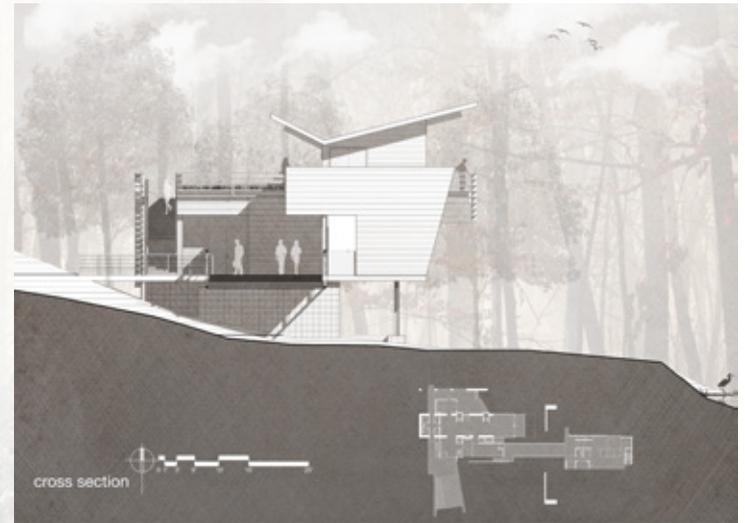


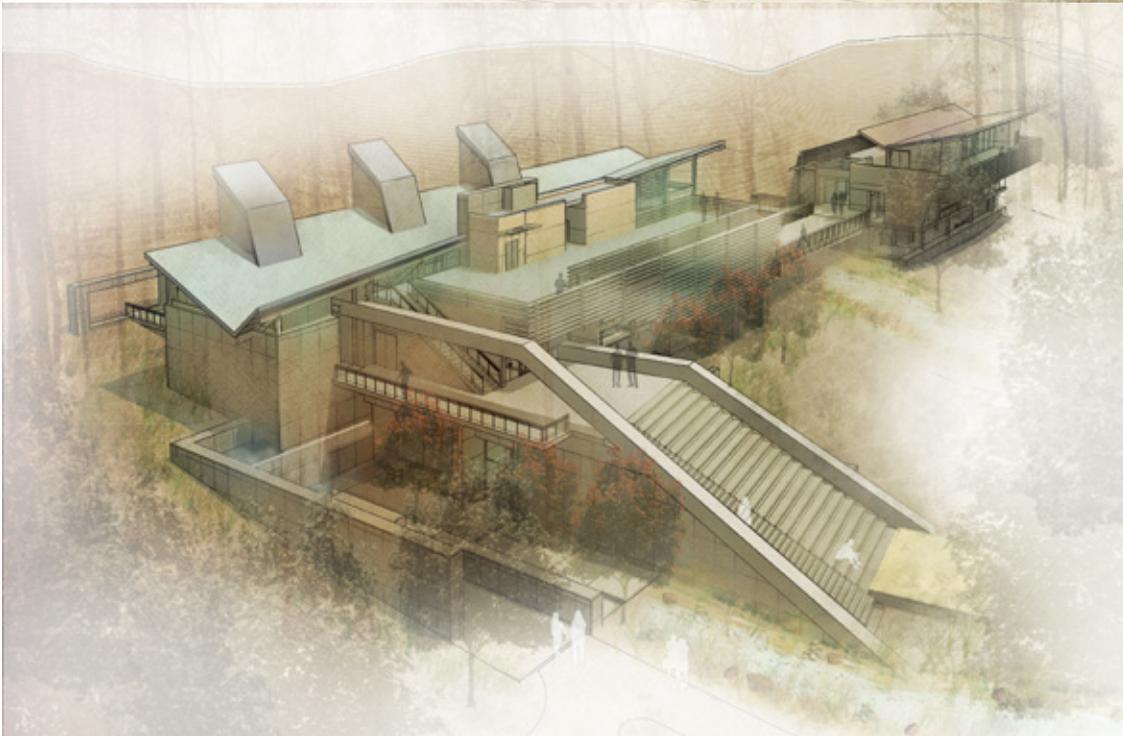
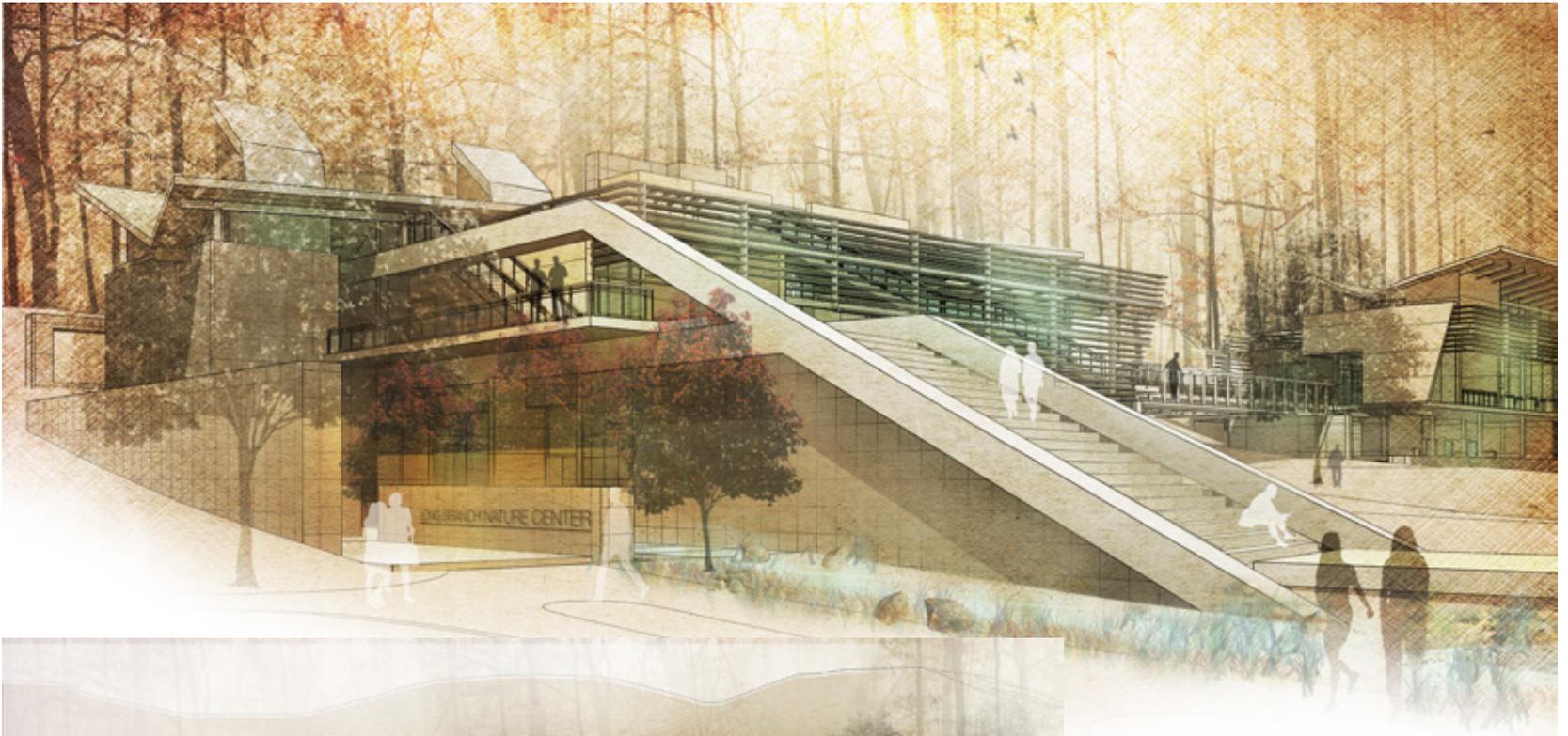




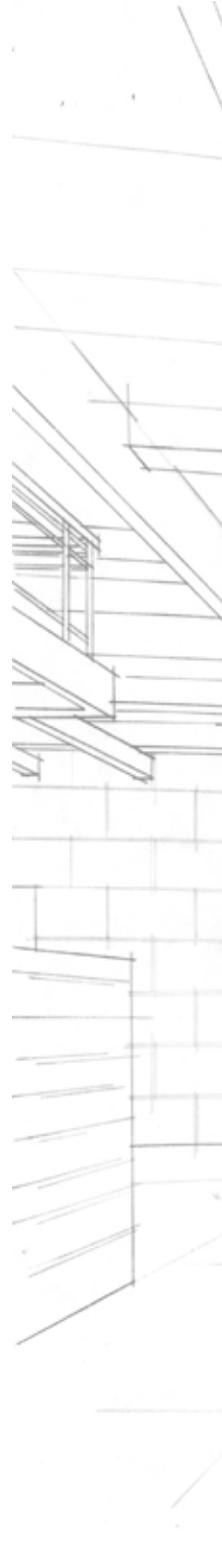


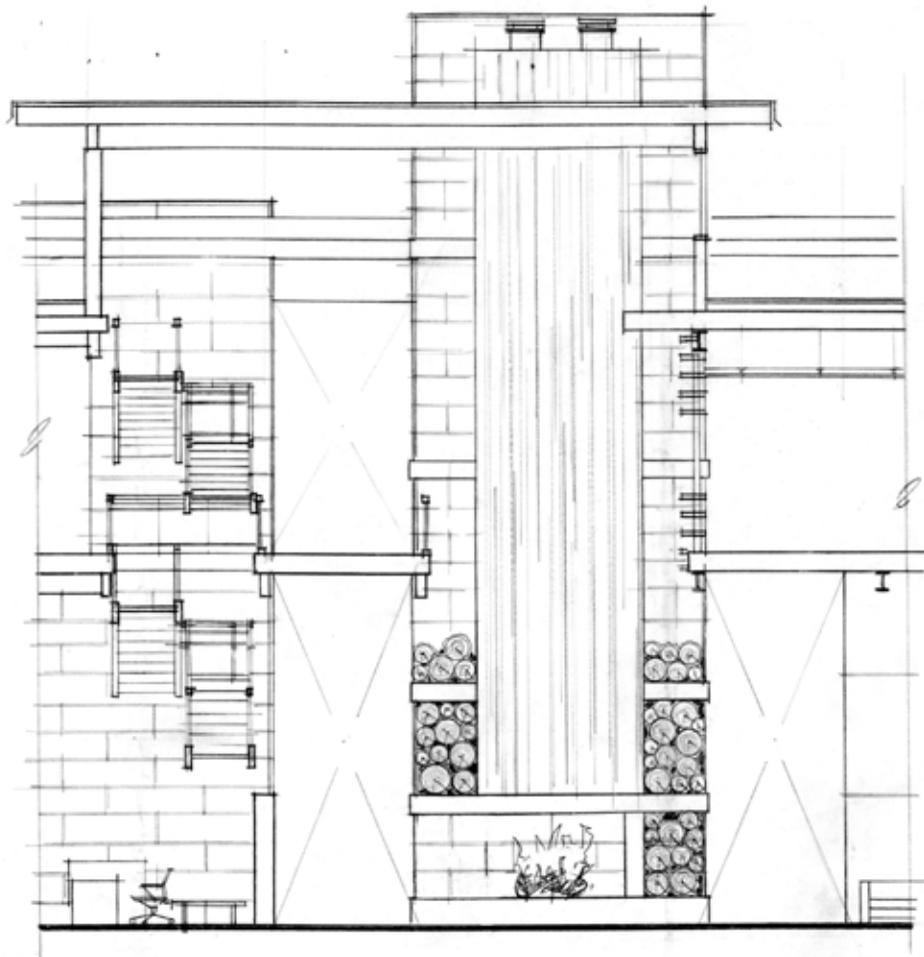
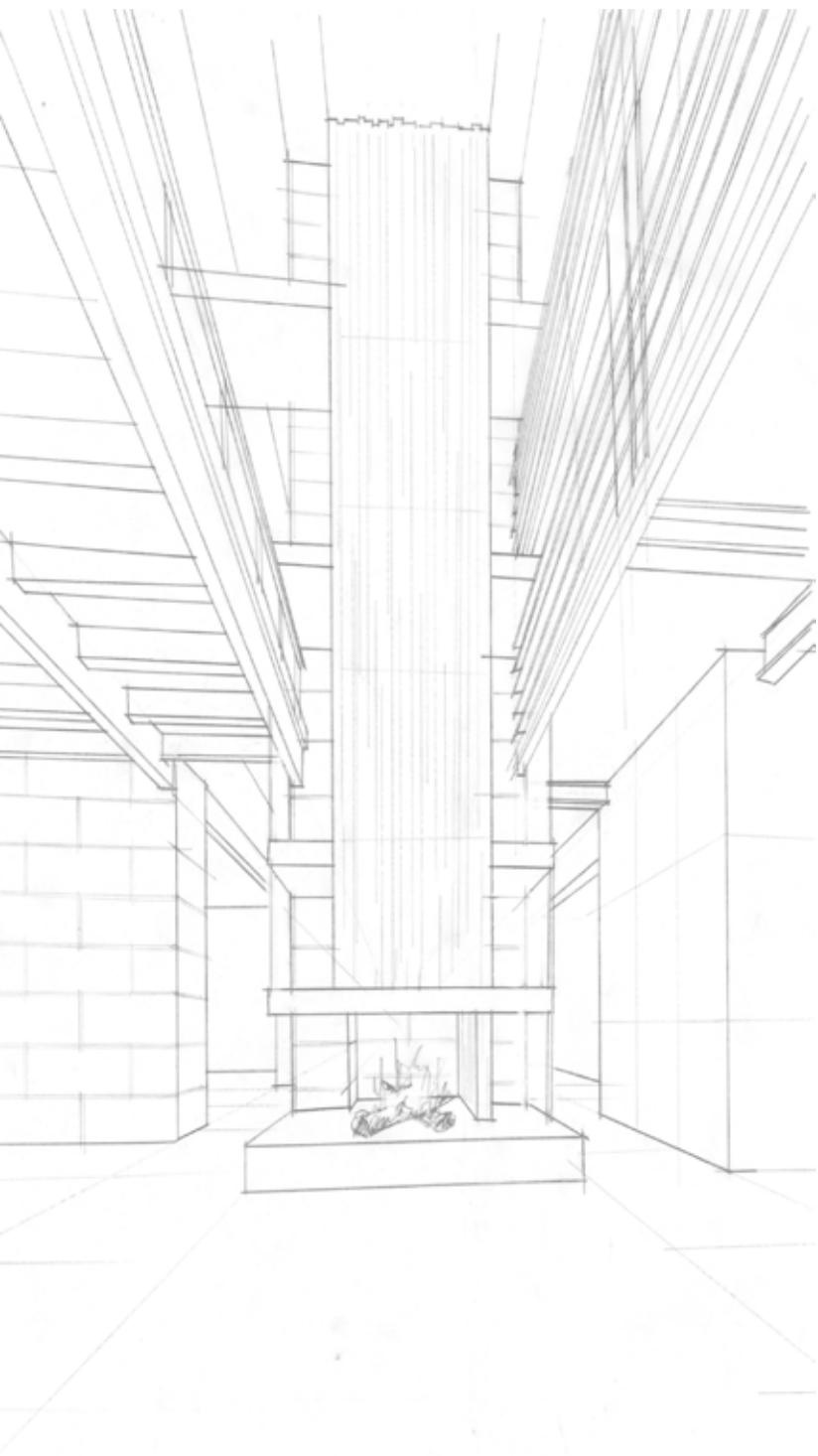


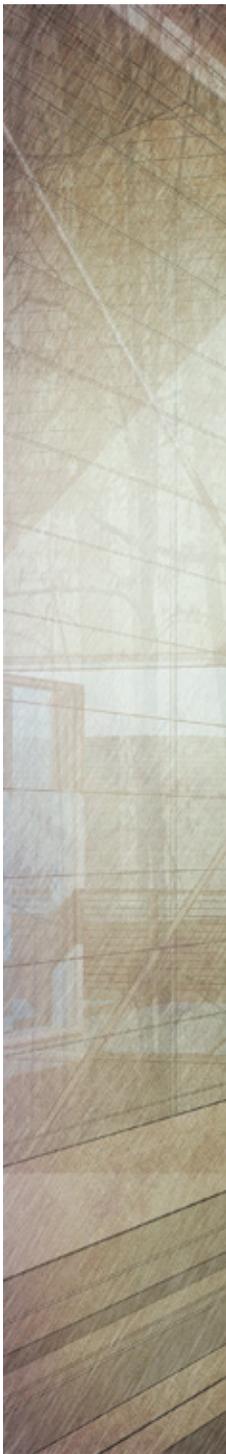


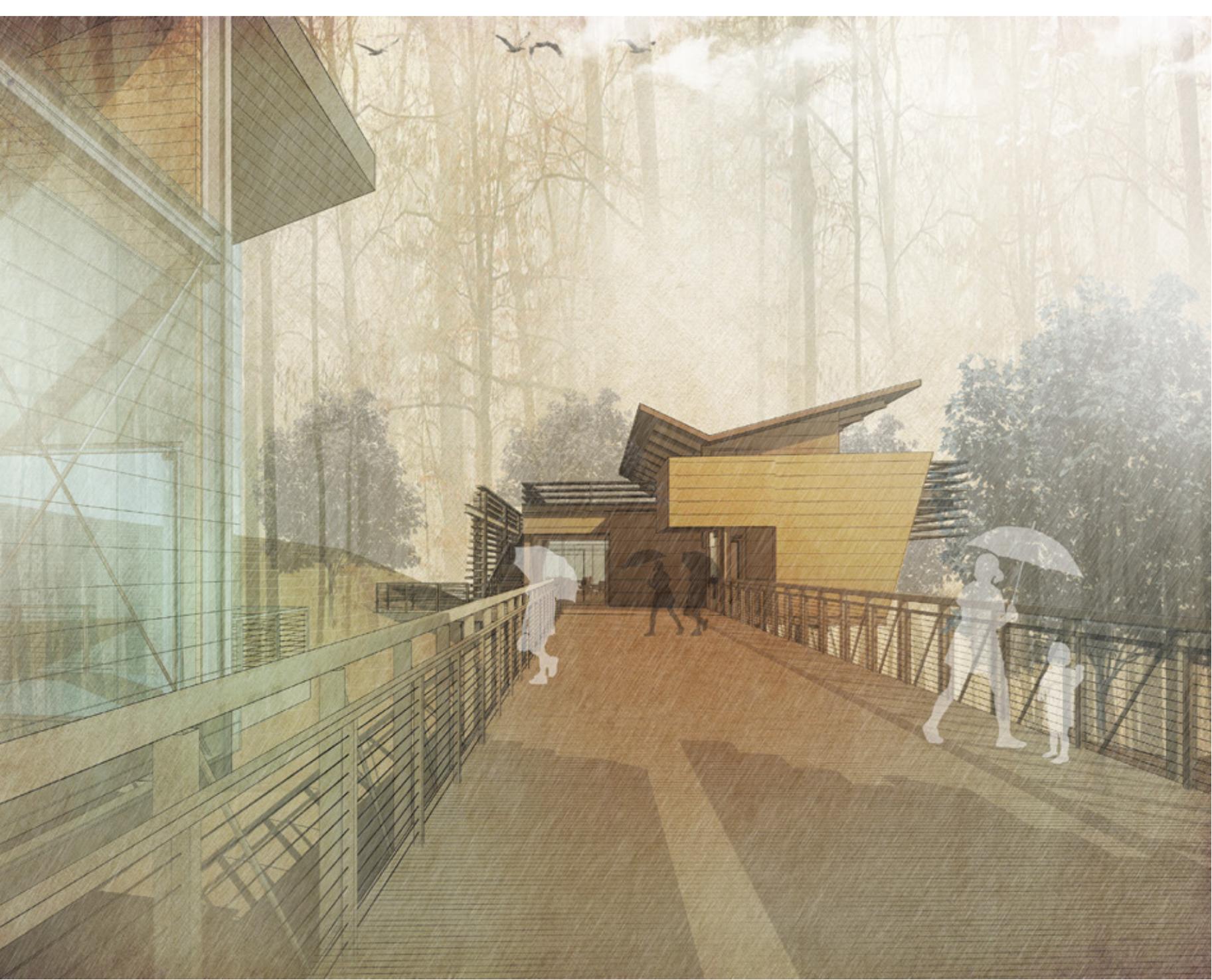




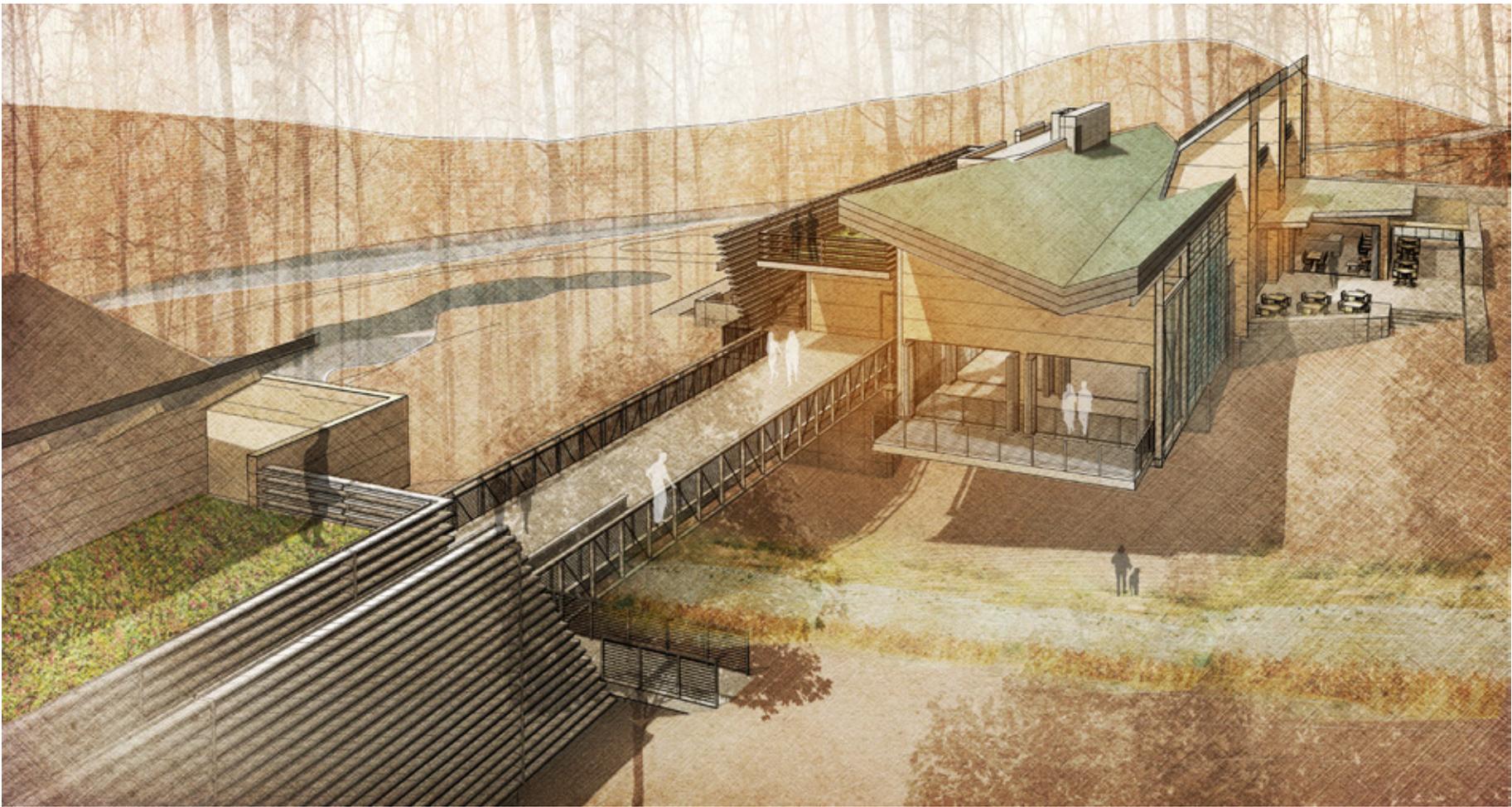
















## References

- Betsky, Aaron. *Landscapers: Building with the Land*. New York: Thames & Hudson, 2002.
- Cronon, William. 'The Trouble with Wilderness; or, Getting Back to the Wrong Nature.' *Uncommon Ground: Rethinking the Human Place in Nature*. New York: W. W. Norton & Co., 1995, 69-90.
- 'Crunched: Our Region by the Numbers.' *The Washington Post Magazine*. 7, September 2014: 8.
- Dalai Lama. *The Universe in a Single Atom*. New York: Three Rivers Press, 2005.
- de Botton, Alain. *The Architecture of Happiness*. New York: Vintage International, 2006.
- Fein, Albert. *Frederick Law Olmsted and the American Environmental Tradition*. New York: George Braziller, 1972.
- 'Glencarlyn Neighborhood Conservation Plan.' *Glencarlyn Citizens Association*. Arlington: 1977.
- Guptill, Neil. 'Placing Concrete by Pumping Methods.' *American Concrete Institute Committee Report 304.2R-96*. Farmington Hills: ACI, 1996.
- Hyde, Lewis. *The Gift: Creativity and the Artist in the Modern World*. New York: Vintage Books, 2007.
- Ivy, Robert Adams. *Fay Jones: the architecture of E. Fay Jones, FAIA*. Washington, DC: American Institute of Architects Press, 2001.
- Kelsch, Paul. 'Construction of American Forest: Four Landscapes, Four Readings.' *Environmentalism in Landscape Architecture*. Washington, DC: Dumbarton Oaks Research Library and Collection, 2000.
- McDonough, William and Michael Braungart. *Cradle to Cradle: remaking the way we make things*. New York: North Point Press, 2002.
- McHarg, Ian. *Design with Nature*. New York: Doubleday/Natural History Press, 1971.
- Rybczynski, Witold. *A Clearing in the Distance: Frederick Law Olmsted and American in the 19th Century*. New York: Touchstone Book, 1999.
- Semper, Gottfried. *The Four Elements of Architecture and Other Writings*. Cambridge: Cambridge University Press, 2011.
- Sutton, S.B. *Civilizing American Cities: A Selection of Frederick Law Olmsted's Writings on City Landscapes*. Cambridge: MIT Press, 1971.
- Wines, James. *Green Architecture*. Köln: Taschen, 2000. print.
- Zumthor, Peter. *Thinking Architecture*. Basel: Birkhäuser, 2010. print.

## Image Credits

Figs 1-3. [fair use]

'Glencarlyn Neighborhood Conservation Plan.' *Glencarlyn Citizens Association*. Arlington: 1977. Fair Use determination attached.

Figs 4-12. [fair use]

Arlington County Virginia. *Historic Aerial Photographs*. <http://gis.arlingtonva.us/gallery/map>. (accessed Feb. 22, 2013). Fair Use determination attached.

Fig 13. [fair use]

*Bing maps*. [www.bing.com/maps/](http://www.bing.com/maps/). (accessed March 6, 2013). Fair Use determination attached.

