

**AN EDUCATOR IN THE LANDSCAPE:
A NEW IDENTITY FOR AMERICAN WILDERNESS ARCHITECTURE**

by
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B. Design, University of Florida, 2004

Submitted to the Department of Architecture in Partial Fulfillment of the
Requirements for the Degree of

MASTER OF ARCHITECTURE
at the
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February 2008

Signature of Author: _____

Reilly Paul Rabitaille
January 17, 2008

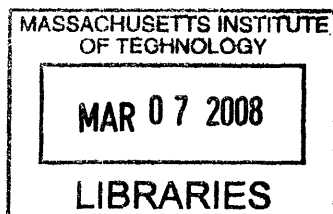
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ABSTRACT

This thesis dispenses with the traditional, now nostalgic, "rustic" style typically associated with the American wilderness, in favor of proposing a new identity – that of Educator in the Landscape. By blending bio-technology and local materials with a new architectural strategy, the resulting typology would serve as an interactive exhibition of the potential use of natural systems in the wilderness. The goal is to create as strong an architectural resonance with today's hiker as the rustic had for the wilderness visitor 200 years ago.

Thesis Advisor: Jan Wampler

Title: Professor of Architecture

Dad, this one's for you.
Thanks for hiking with me.

R.P.



ACKNOWLEDGMENTS

This thesis would not have been possible without the insightful advice offered me by my committee. Special thanks to **Jan Wampler, Andrew Scott,** and **Andrea Frank.** Additional thanks to Andrea for pushing my relationship with the “darker” side of nature.

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And while I thank every member of my family for the love and support they have always given me, in regards to this thesis, I wish to thank: **William and Rebecca Rabitaille,** my brother and sister-in-law, for accompanying me through the crowded Blue Hills Reservation; **Maureen Crotty and John Geoghegan,** my aunt and uncle, for opening their home to me over the last 2.5 years; **William and Patricia Rabitaille,** my grandparents, for their infinite affirmation; and **Greig and Elizabeth Rabitaille,** my parents, for everything.

Lastly, I would like to again extend my deepest gratitude to **Jan Wampler,** my advisor, teacher, mentor, employer/collaborator, and friend. Thanks for the unwavering support of my thesis.

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INTRODUCTION

HISTORY

The architecture that would eventually become synonymous with the American wilderness has its roots in both the American Picturesque movements of the 19th century and the writings of Andrew Jackson Downing.¹ In his description of "Wilderness" in *Montgomery Place*, Downing describes an architecture that is secondary to landscape, where minor man-made intrusions simply enhance the beauty of the natural environment and the experience of the person in it.² While a seemingly simple statement, the idea represented a delicate balance between man's intervention and restraint in regards to the wilderness. Competing schools of thought at the time argued between the manicured lawns put forth by Lancelot "Capability" Brown and the state of nature's raw sublimity celebrated by William Gilpin and Udevale Price. The resulting ambivalence played a major role in United States, where American's touted the cultural distinction of their wilderness while simultaneously disdaining its existence as a symbol of American underdevelopment. The balance of Downing's writing struck a chord with citizens seeking to establish a middle ground between their Romantic reverence of their wilderness and their pioneering desire to dismantle it.

- ¹ See Andrew Jackson Downing. "From *A Visit to Montgomery Place*." In *Pleasure Grounds: Andrew Jackson Downing and Montgomery Place*, Edited by Jacquetta M. Haley, 43-56. (Tarrytown, NY: Sleepy Hollow Press, 1988), 47.
- ² A. Jonic, "Interpreting Landscape: Understanding Through a Story of Architectural Experience." (M.Arch Thesis diss., Massachusetts Institute of Technology, 2001), 13.

³ Roderick Nash, *Wilderness and the American Mind*. (London: Yale University, 1982), 46.

⁴ Linda McClelland, *Building the National Parks: Historic Landscape Design and Construction*. (Baltimore, MA: The Johns Hopkins University Press, 1998), 3.

⁵ *Ibid*, 4.



Figure 1:
Thomas Cole.
The Oxbow. 1836.

AN ARCHITECTURE OF BALANCE

The conflicting emotions in regard to the American landscape defined the art of the American Picturesque movement. In his 1836 painting entitled "The Oxbow", Thomas Cole echoes the competing schools of thought. Rugged cliffs and violent clouds are juxtaposed with manicured farms and well-kept homes: indicating a desire for both the wild and the civilized.³ Downing's proposed solution to this, and the resulting tension developed toward wilderness as controllable/uncontrollable had great influence on architects and landscape architects such as H.H. Richardson and Frederick Law Olmsted Sr., Olmsted being a close friend of Downing's. Richardson and Olmsted's collaborative work on park architecture in the 1880's combines Shingle style architecture and Richardsonian Romanesque with rugged proportions, naturalistic siting and the use of native stone and timbers⁴, all of which seem to illustrate a reasonable solution to the dual mood towards the America's natural environment: an intervention into the landscape that establishes control or place while maintaining respect. This new style, with variations, was widely adopted in the design of shelters, bridges and other structures for urban parks and parkways and the earliest state parks in America.⁵

THE MISSION 66 MOVEMENT

The National Park Service was established in 1916, and in 1918, set down a Statement of Policy, enforcing the architectural values and cultural ideologies that were to be reflected in the wilderness under their jurisdiction. According to the Policy, the construction of improvements within the national parks must be "devoted always to the harmonizing of ...the landscape".⁶ Yet, these sentiments were reinterpreted during the mid-1950's. American prosperity following World War II saw the advent of Modernism and the increased ability and desire to engage more leisure activity. This resulted in a significant increase in park visitation, which, provided with gross under funding over the last 40 years, prompted the National Park Service to introduce a new renovation program to be completed in time for the 50th anniversary of their establishment. The program, entitled Mission 66, was characterized architecturally by an experimentation with new structural forms, modern materials – glass, concrete, and steel – and machine driven methods of construction for sturdy, low maintenance, permanent structures that could serve the modern day needs of the traveling public on a large scale.⁷ Although in some cases an epitome of human technological prowess for the period, the projects were often criticized by conservatives for their lack of sensitivity

- ⁶ National Park Service, *Statement of Policy 1918, 1918* Quoted in Linda McClelland, *Building the National Parks: Historic Landscape Design and Construction*. (Baltimore, MA: The Johns Hopkins University Press, 1998), 123.
- ⁷ Linda McClelland, *Building the National Parks: Historic Landscape Design and Construction*. (Baltimore, MA: The Johns Hopkins University Press, 1998), 464.

Figure 2:
Clingman's Dome
Great Smoky Mountain
National Park, TN



8 Ibid, 464.

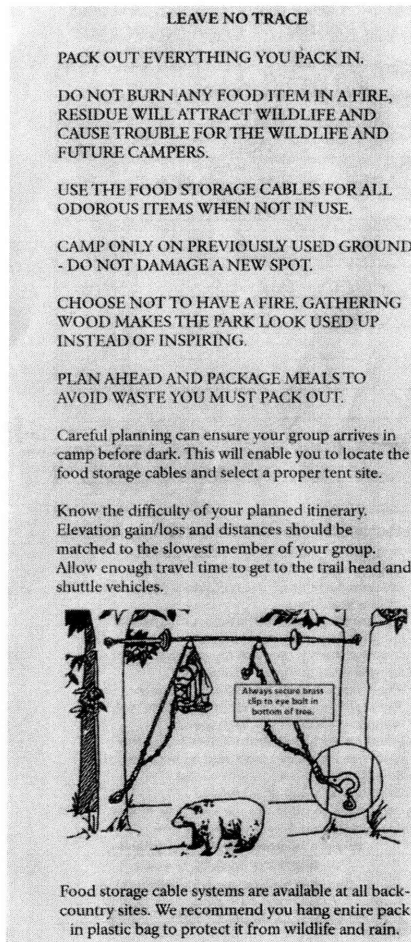


Figure 3: Reverse side of Backcountry Permit featuring Leave No Trace guidelines.

to the environment. Despite this, director Conrad Wirth defended the project on the grounds that such facilities were needed to direct and control visitor use, and that such designs and construction helped in preserving the natural resources of the nation's parks.

LEAVE NO TRACE

Running parallel with (and probably partially in response to) the Mission 66 Movement, the continued increase in visitors to the American wilderness in the 1960's and 70's heralded in the beginnings of what would be today known as the "Leave No Trace" Program. The program today operates under a policy of minimum impact to the wilderness for the purposes of preserving it for future visitors. Relying on a platform of education and preparation, as well as other forms of new technology, the Program received much attention by the United States Forestry Service during the 1990's. An official program was organized in 1994, and elements of its policy can be found in many aspects of today's wilderness experience.

THE VAIL AGENDA

25 years later, in preparation for its 75th anniversary, the National Park sought to revisit issues brought forth by programs such as Mission 66, as well as those implied by budding programs such as Leave No Trace. In an implied rejection of

Mission 66, the 1991 Vail Agenda specified that public access within the park should be on “the park’s terms”, and that education, entertainment and recreation within the park should be “with meaning”.⁹ In architectural terms, the means to that end encouraged a “generation of state-of-the-art” designs for park facilities, emphasizing a basis on encouragement of exploration and the “unique values of each site”.¹⁰ Seemingly coming full circle, the Agenda seeks to strike a balance between that which is characteristic of human development and that which is considered “wild”.

PRECEDENTS

PARTNERSHIP SHELTER

The Partnership shelter, located along the Virginia leg of the Appalachian Trail is one such example of architecture that presumably fits into the model of the post-Vail Agenda. Built in 1997, the shelter was designed to accommodate hikers traveling the Appalachian Trail. The shelter features timber cladded walls in a rustic, “log cabin” appearance that attempts a harmonious connection to nature reminiscent of bygone pioneer days. Ultimately, however, the project’s disproportionate number of amenities to a typical structure of this type – such as hot/cold running water, electricity and weatherproofing – present an invitation out of nature rather than an enhanced connection with it. While shelters like

⁹ National Park Service. *National Parks for the 21st Century: The Vail Agenda*, 1991. (Post Mills, VT: Chelsea Green Publishing Company, 1992), 20.

¹⁰ *Ibid*, 83.

Figure 4:
Partnership Shelter,
Appalachian Trail,
Constructed 2000.



this often receive praise from the weary hiker traveling the Trail, this praise is often for the latter qualities than the former.

- 11 Rodd L. Wheaton. "Architecture of Yellowstone: A Microcosm of American Design." Fall 2000, 18-19. <http://www.cr.nps.gov/history/hisnps/NPSHistorians/wheaton.pdf>.
- 12 A. Jonic, "Interpreting Landscape: Understanding Through a Story of Architectural Experience." (M. Arch Thesis diss., Massachusetts Institute of Technology, 2001), 34.

NEW OLD FAITHFUL VISITOR CENTER

The new Old Faithful Visitor Center, slated to open in Yosemite National Park in 2008 represents another example of architecture's manifestation after the Vail Agenda. This project, like Partnership shelter duplicates the Adirondack style of early American park architecture in what Rodd L. Wheaton refers to as the "Neo-Rustic" style.¹¹ However, also like the Partnership Shelter, the project seems to go little beyond stylistic representations when it comes to addressing or enhancing nature. According to Andrew Jonic, the project actually represents a "missed opportunity" to provide visitors with a unique natural experience, as it "appears to be a simple copy of an out-dated style".¹² Jonic even goes so far as to say that in some cases the Mission 66 methodology would have been stronger in this arena, as at the very least it did not try to imitate the past.

CONCLUSION

These precedents show a contemporary structure draped in a rustic style attempting to establish a sense of place within the natural environment by means of cultural familiarity and nostalgia. While this strategy may have its benefits in other areas, it fails to address either the

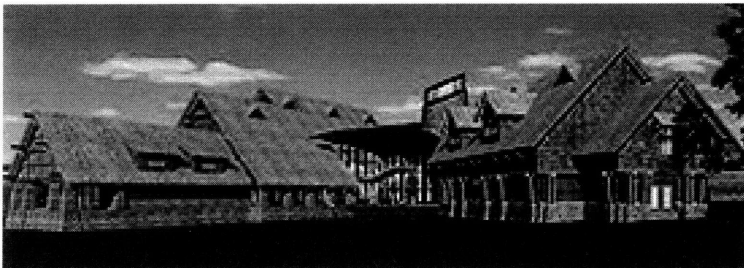


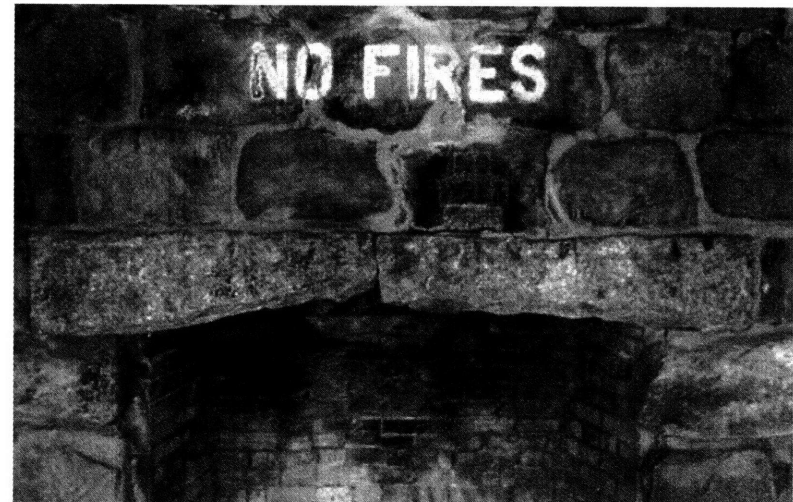
Figure 5:
New Old Faithful
Visitor's Center,
Yellowstone National Park,
opening 2008.

National Park Statement of Policy's "harmonizing with landscape" or the Vail Agenda's site "meaning" and uniqueness, as the nostalgically "rustic" façade has very little to do with the American Picturesque and the concepts (i.e. site specificity, truth in construction and an existence secondary to, yet enhancing the quality of the landscape) that initially accompanied it.

This new perception again illustrates not only the difficult challenge of creating an architecture that identifies with the man-nature relationship, but also the tenuous role of technology in the wilderness. With each advent of new technology - the symbol of human development - the relationship to nature changes. In American terms, the relationship has usually been one of competition, with development seeking to remove the wild, for better or worse. Even the Leave No Trace program advocates the use of portable stoves over fire, and its very name implies a passive movement through the wilderness as opposed to an active interaction.

Yet, the popularity of such programs, as well as the popularity of the parks themselves, indicate a desire for balance with nature again. And as the current the architectural identity of the American wilderness has been compromised, an opportunity for a new identity can now arise...

Figure 6:
Fireplace,
Eliot Tower,
Blue Hills
Reservation, MA



SITES

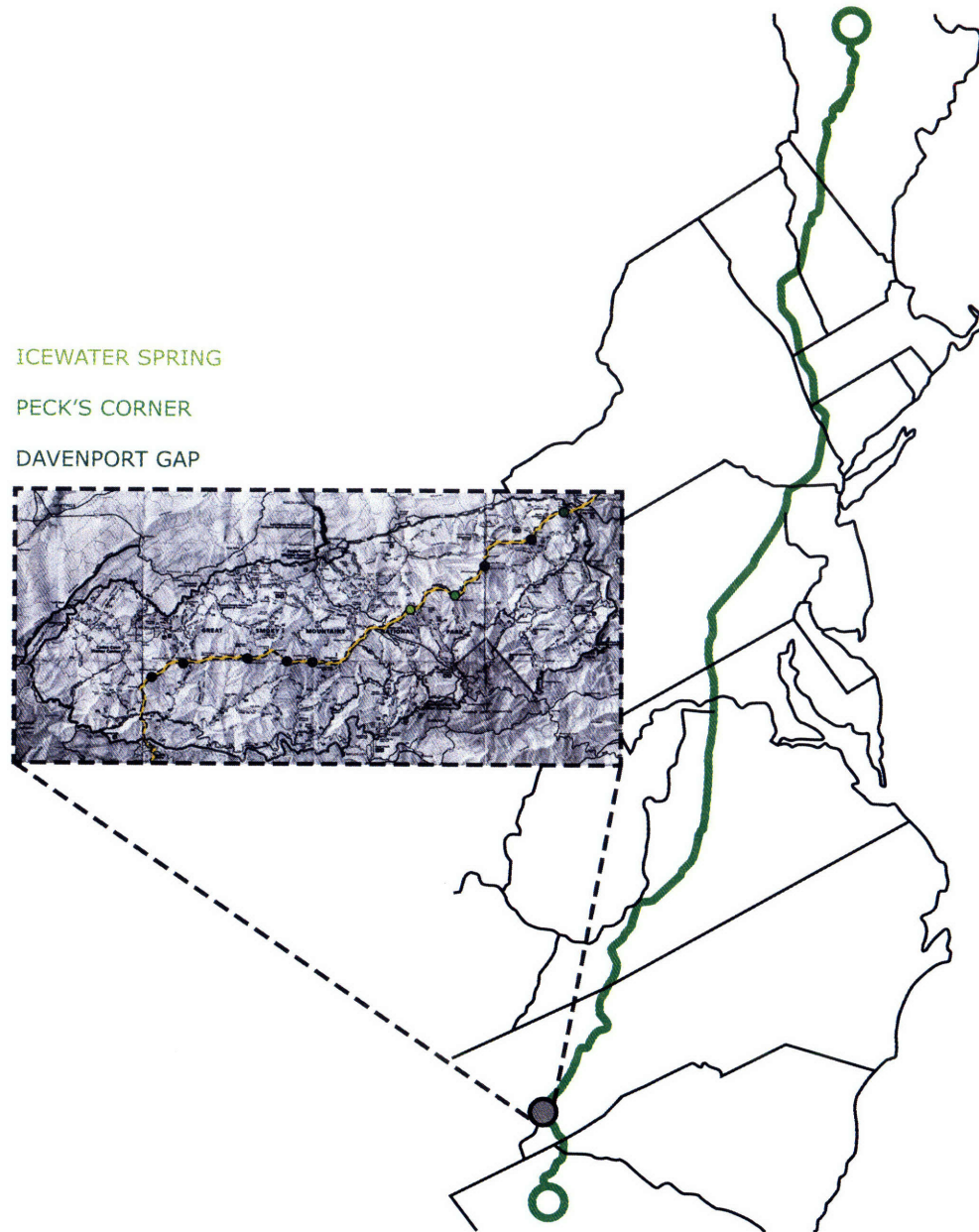
THE APPALACHIAN TRAIL

The Appalachian Trail is not only one of the oldest and longest trails of its kind, but also one of the most popular. Officially completed in 1937, the Appalachian Trail comprises 2,174 miles of hiking path from Georgia to Maine. Along that route, small hiking shelters (approximately 250 in all) comprise the only architectural clue of human inhabitants for days at a time. As such, the shelters transcend their physical nature to become instruments of measure and communication, in addition to respite.

GREAT SMOKY MOUNTAIN NATIONAL PARK

30 miles and 15 shelters of the Appalachian Trail bisect The Great Smoky Mountain National Park along the Tennessee-North Carolina State line. The Park is further bisected transversally by U.S. 441, making it extremely accessible by both motorists and hikers alike. Thus, The GSMNP stands as one of the most visited National Parks in the United States, with approximately 10 million visitors last year alone.

The Trail and the Park were chosen because their combined popularity would indicate a wide variety of users.

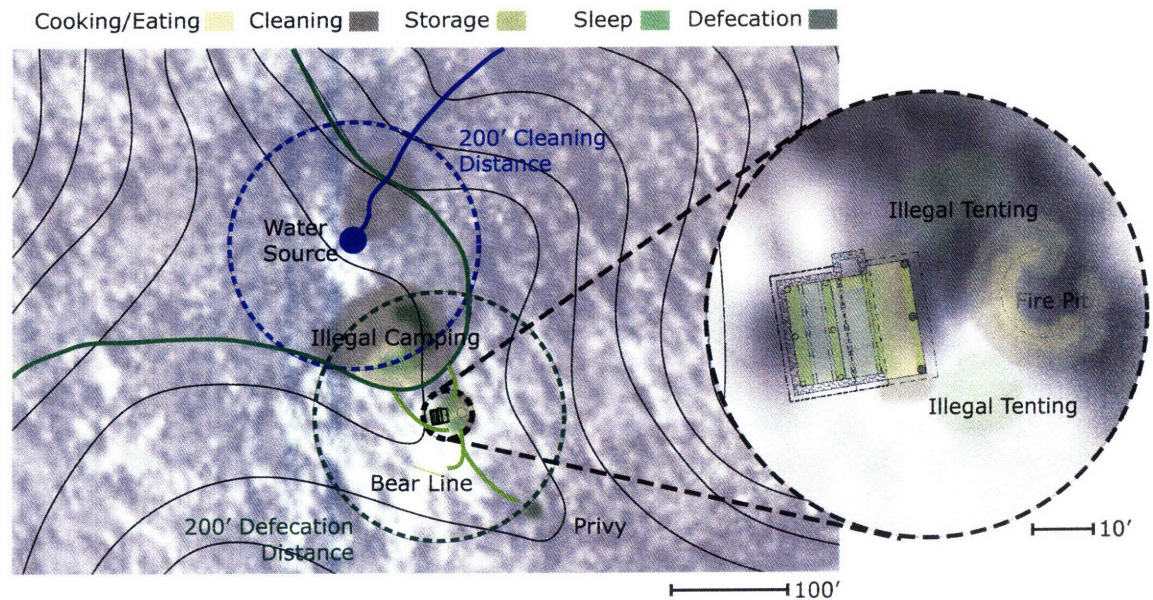
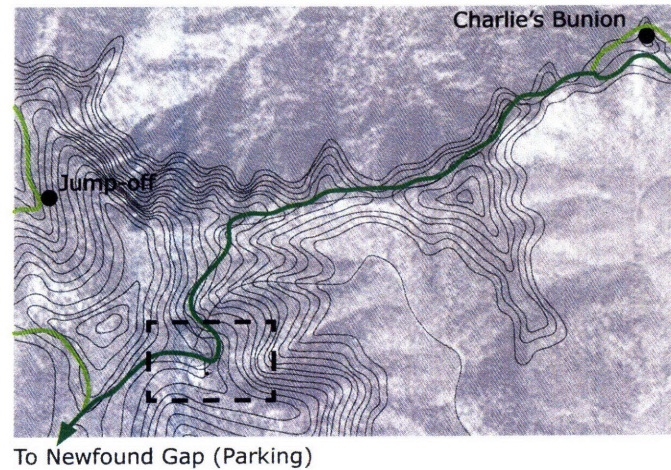


ICEWATER SPRING

The Icewater Spring shelter is located a little over 3 miles from where U.S. 441 crosses the Appalachian Trail at Newfound Gap. It's close proximity to both a major highway and two geographic features (the Jump-off and Charlie's Bunion), make Icewater extremely popular, taking in roughly 2,700 hikers/year, and seeing the widest variety of hikers of the sites visited. The site itself is also very pleasing, with breathtaking views towards Charlie's Bunion, making it additionally popular among dayhikers.

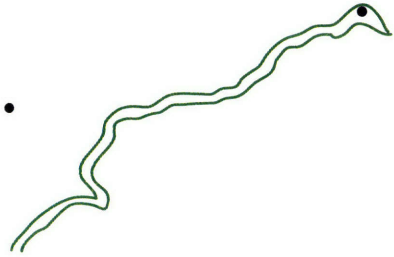
Due to its heavy traffic flow, the site showed the most wear of the shelters visited, despite its very recent renovation. Trash and defecation were found outside of the appropriate areas of disposal, and the surrounding area has been used for illegal camping.

The misuse of the site has been known to attract bears, mice, and other manner of unwanted wildlife. However misuse here also could potentially contribute to contaminated water from the local "spring". Fortunately, the large popularity of the site also means that there is a strong chance that an experience hiker will be present to educate more novice hikers.

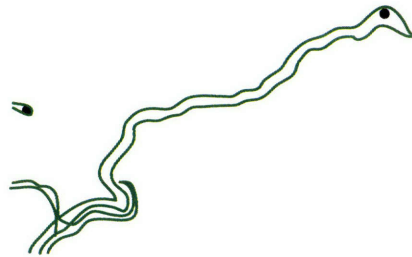


EXPERIENCE ROUTES

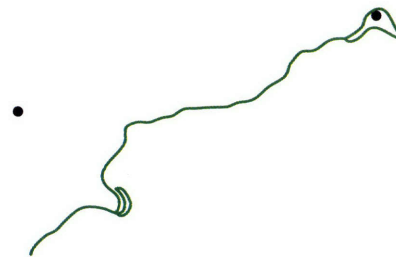
DAYHIKER



WEEKENDER



PARK HIKER



THRU HIKER

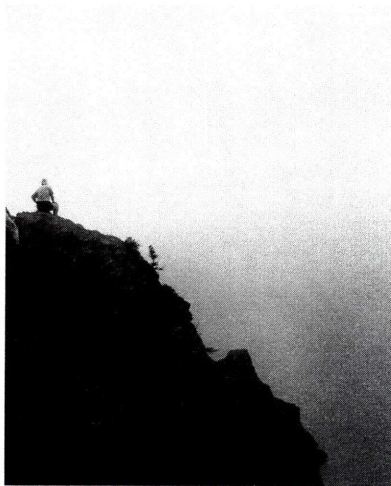
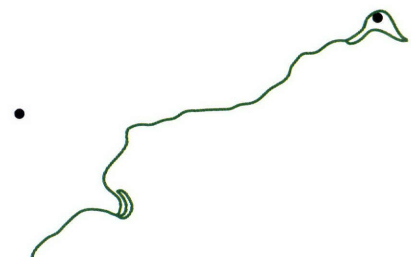


Figure 7:
Charlie's Bunion
Great Smoky Mountain
National Park, TN/NC

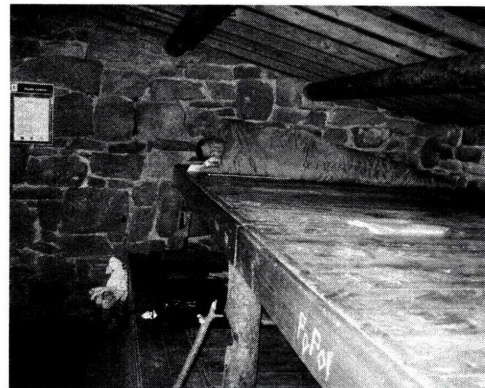


Figure 8:
Sleeping area,
Icewater Spring shelter,
Great Smoky Mountain National Park, TN/NC



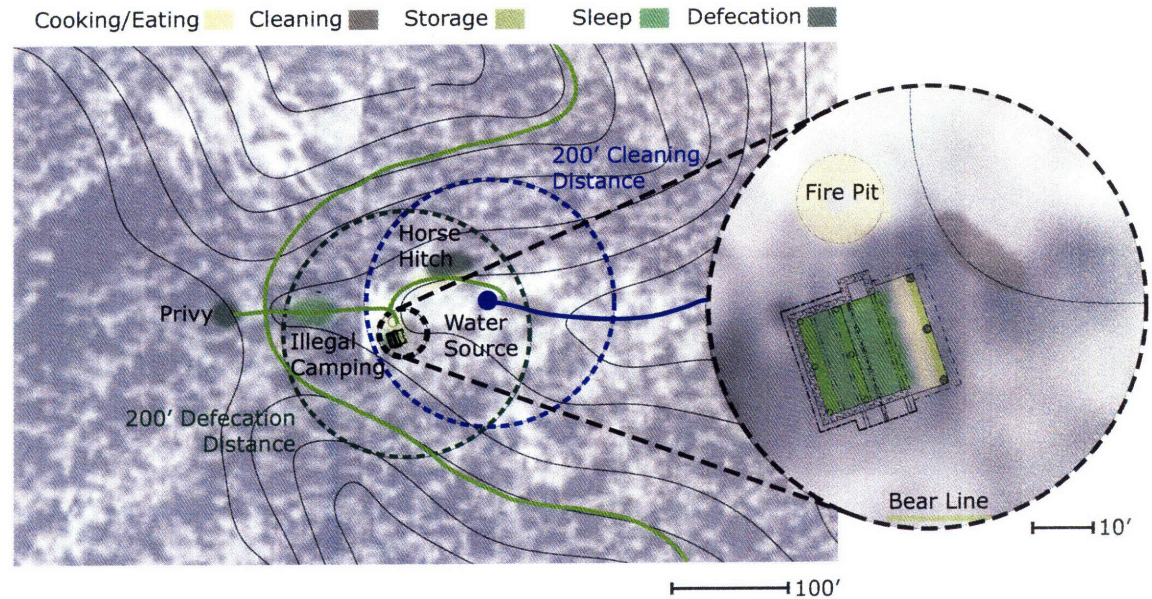
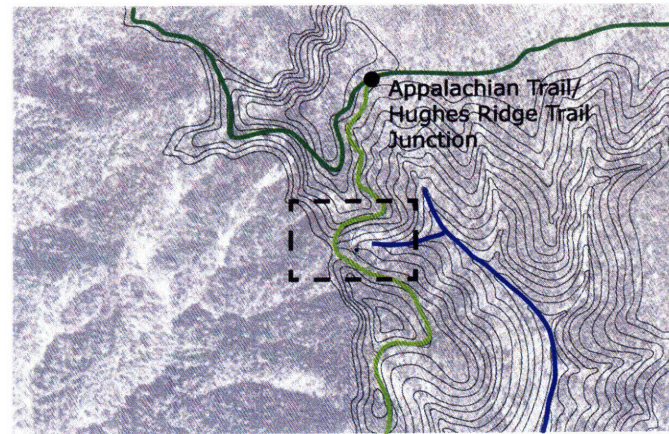
Figure 9:
Privy,
Icewater Spring shelter,
Great Smoky Mountain National Park, TN/NC

PECK'S CORNER

The Peck's Corner shelter is located about 0.4 miles off the Appalachian Trail, making it significantly more remote than the other sites visited. This, however, does not limit its accessibility, as it admits horse traffic, and thus day-trippers.

The shelter itself is located between both two mountains and two valleys, which makes for a dramatic topography that adequately separates the privy from the shelter and water source (although not the shelter from the water source).

Although clearly used, the Peck's shelter featured significantly less wear than Icewater. Horse defecation was a potential problem, as was the proper disposal of used water from cooking and bathing. The site also exhibited certain areas which would have been hospitable to illegal tenting.



EXPERIENCE ROUTES

HORSEBACK RIDER



WEEKENDER



PARK HIKER



THRU HIKER

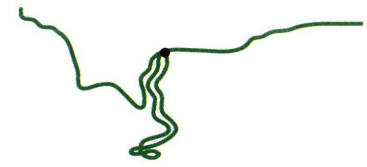


Figure 10:
"Spring",
Peck's Corner shelter,
Great Smoky Mountain National Park, TN/NC



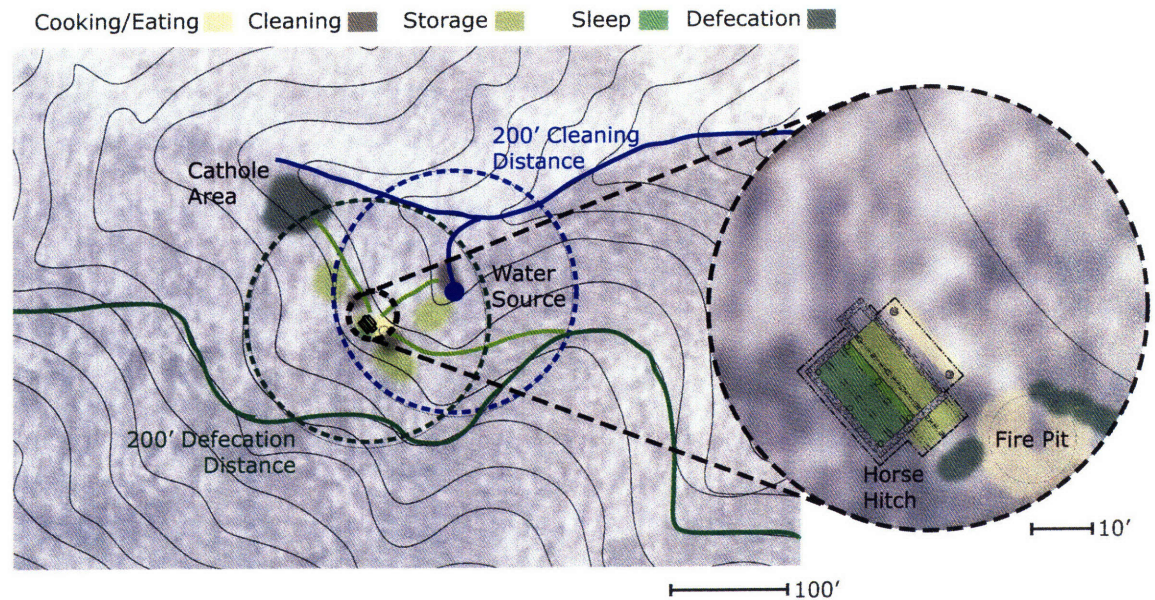
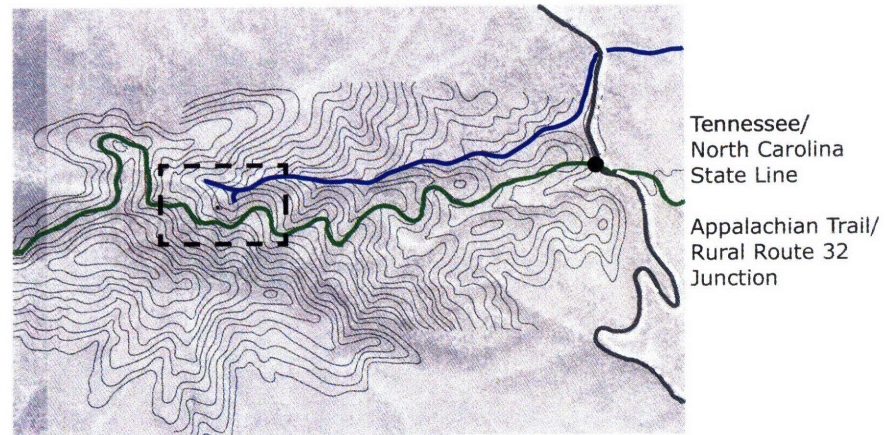
Figure 11:
Privy,
Peck's Corner shelter,
Great Smoky Mountain National Park, TN/NC

DAVENPORT GAP

While the Davenport Gap shelter is located within a mile of the park boundary at I-40, it feels decidedly less populated than Icewater Spring or Peck's Corner. The shelter here is the smallest of the three sites, and the site features no privy. The shelter is also features a chain-link fence across its front (a typical feature of shelters in the GSMNP until very recently).

No parking lot exists at the I-40 entrance, which means relatively few dayhikers are visiting the park unless by horseback. Yet the shelter lies too close to a take-out point to be of much use to someone hiking only through the GSMNP. Further, the site, like the shelter, allows for little space for recreation and gathering among larger hiking parties, which ultimately suggests that the shelter is primarily used by locals and thru-hikers: people more experienced with the outdoors.

Because of its perceived lack of popularity, the site also seems to suffer from neglect rather than wear. However, visiting the shelter felt the most "authentic", in that it gave you the most intouch feeling with your environment.



EXPERIENCE ROUTES

HORSEBACK RIDER

WEEKENDER

PARK HIKER

THRU HIKER

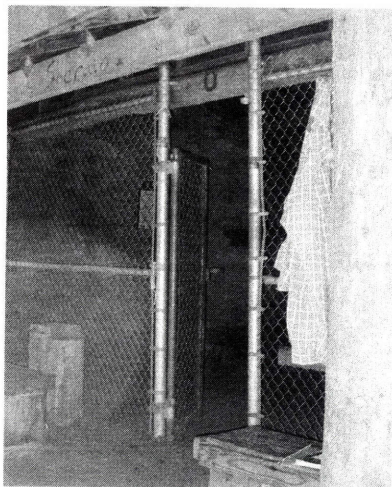
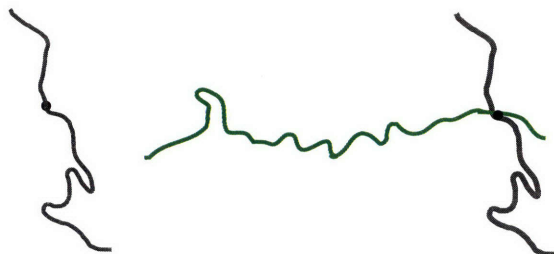
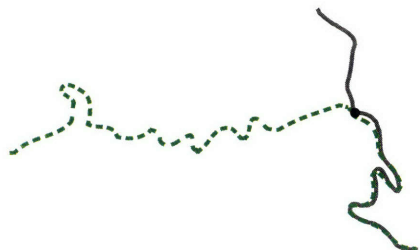


Figure 12:
Chain-link fence, Davenport Gap
shelter, Great Smoky Mountain
National Park, TN/NC



Figure 13:
Unburied horse waste
Davenport Gap shelter,
Great Smoky Mountain National Park, TN/NC

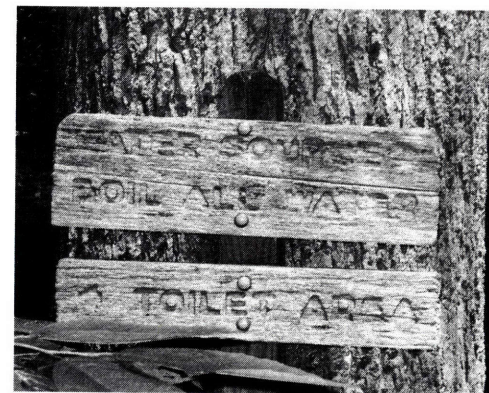


Figure 14:
Direction to cathole area,
Davenport Gap shelter,
Great Smoky Mountain National Park, TN/NC

A NEW IDENTITY

EDUCATOR IN THE LANDSCAPE

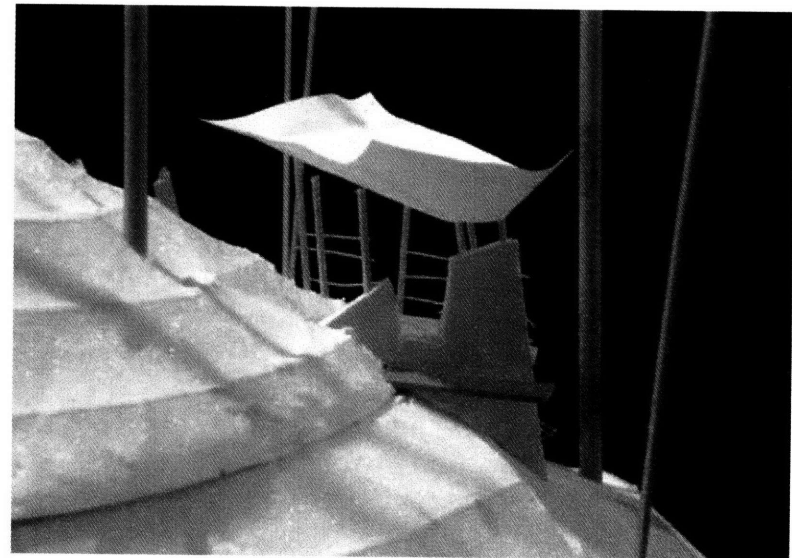
Taking cues from the values put forth by the hiking shelter's employment as both a singular element to be enjoyed for a single day or night AND as a linking element along a 2000 mile stretch of hiking path, this thesis seeks to establish the shelter as the testing ground for a new identity for American wilderness architecture: That of an Educator in the Landscape.

The shelters will draw from contemporary issues effecting both the hiking population and the average park visitor or tourist. As such, they will become interactive exhibitions illustrating the value of sustainable energy sources, thus creating an appreciation of the wilderness and natural environment on a global, local, and individual scale.

OBJECTIVES

1. To Create an Awareness of the Beneficial Uses of Natural Systems.
2. To Illustrate a Non-Oppositional Relationship Between Technology and the Landscape
3. To Create an Interactive Wilderness Experience on a Personal Level

Figure 15:
Early shelter study model.



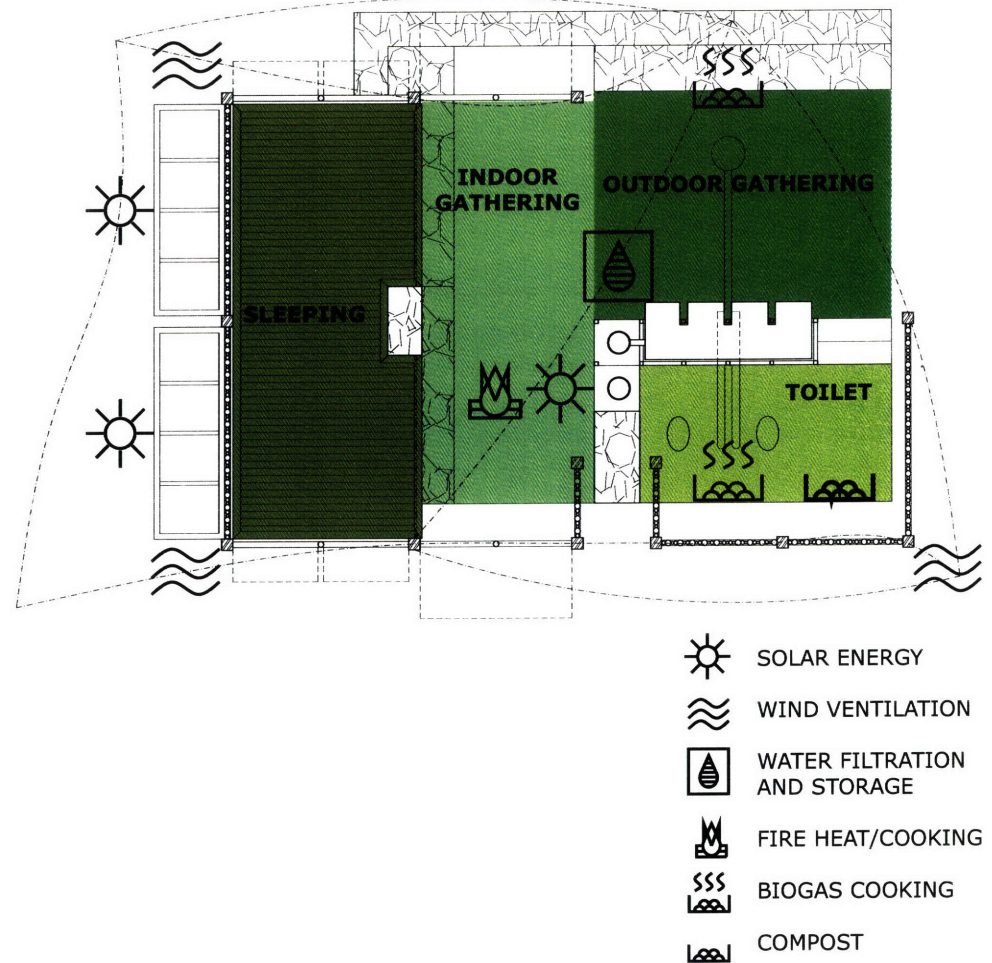
OBJECTIVE 1: CREATING AN AWARENESS OF NATURAL SYSTEMS

The first objective aims to illustrate the ease with which we can work with the natural environment to create energy and live comfortably, inspiring the visitor to want to apply some of the exhibited systems to their own home.

Technological systems ranging from the extremely passive to the exotically interactive would be on display to either supply or enhance a certain amenity currently debated between "purist" hikers and tourists. For example, GPS and cell phones (for emergencies) might be supplied through solar energy. Or alternatively, the methane gas from human and animal waste could be harvested as a replacement fuel for wood or introduced gas stoves.

Much of the technology is employed in a specific core "technology wall" - featuring water filtration, bio-gas/compost, solar exhibition, and efficient wood burning. Thus, in addition to creating a gathering point for the variety of activities, the technological exhibitions also become a spatial device, providing partial privacy from others as well as partial weather protection from the elements.

ENVIRONMENTAL SYSTEMS BY ACTIVITY SPACE



OUTDOOR GATHERING

The outdoor gathering space provides for remote or communal cooking from either a bio-gas stove or firewood from the surrounding site. Using a bio-sand filter and storage tank, the water here will be clean and reliable, as well as educational, thus bringing together a variety of people performing a variety of activities.

INDOOR GATHERING

The indoor gathering space features wide shutters for the control of views and wind, as well as a stove for heat during a cold night. The introduction of the stove continues the encouragement of firewood, thus enforcing the timeless activity of gathering dried branches. The stations for charging emergency electronic equipment are also available here.

SLEEPING

Smaller shutters are employed in the sleeping spaces for individual control of light and air. Additional such control can be employed through the use of the operable corners of the roof. Also the location of the stove brings heat into the sleeping area as well.

TOILET

The water storage tank serves as a screening device between the toilet and the public spaces. If a compost toilet is employed, ash from the stove is readily accessible to facilitate decomposition. If biogas is employed, pipes are exhibited, illustrating the path from the waste reserve to the cooking station.

Figure 16

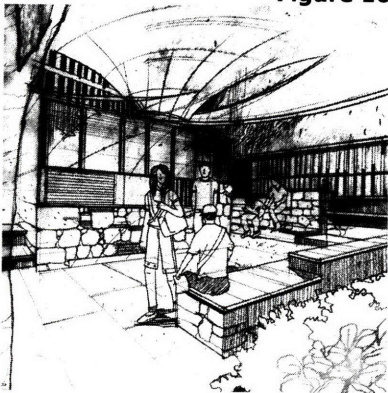


Figure 17

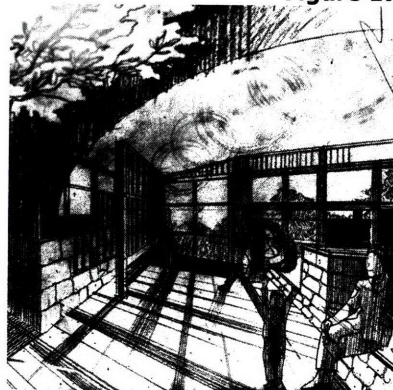
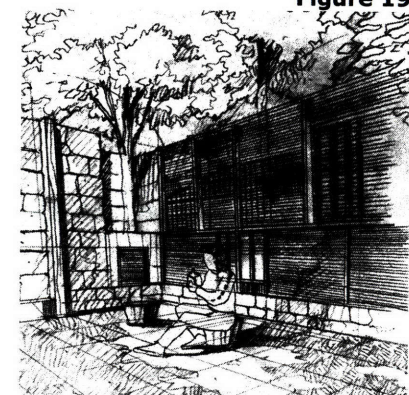


Figure 18

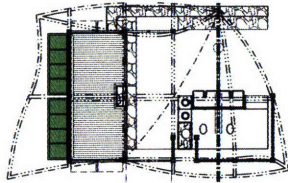


Figure 19



ENVIRONMENTAL SYSTEMS PALLETTE

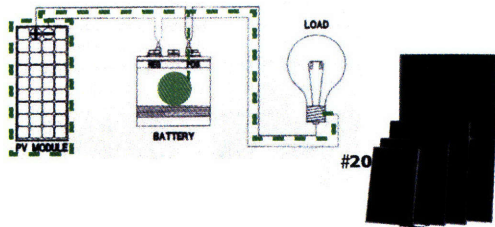
SOLAR ENERGY



For supplemental power to emergency equipment.

COLLECTION: Solar panels installed to south facing facade.

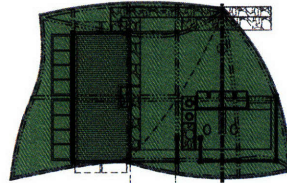
STORAGE: In battery on exhibition.



Watt	5W	10W	15W	20W	30W
Current (Peak Power)	1.00mA	2.00mA	3.00mA	4.00mA	6.00mA
Voltage	10V	10V	10V	10V	10V
Size (inch)	1.00 x 1.00	2.00 x 1.00	3.00 x 1.00	4.00 x 1.00	6.00 x 1.00
Weight	0.08 lbs	0.16 lbs	0.24 lbs	0.32 lbs	0.48 lbs
Item #	41-0210	41-0210	41-0210	41-0210	41-0210
Price	\$45	\$90	\$135	\$180	\$270

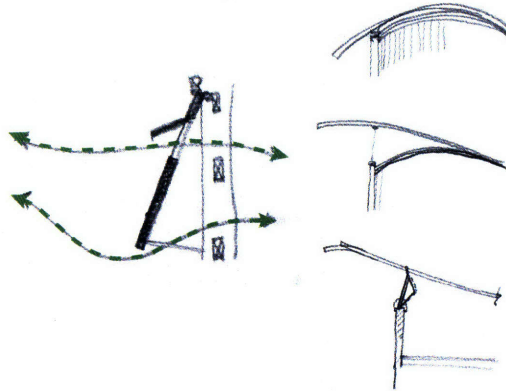
#21

WIND VENTILATION

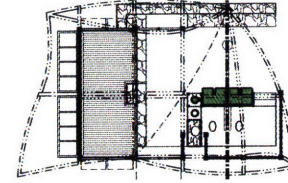


For temperature control and ventilation.

COLLECTION: Operable shutter and roof system.



WATER FILTRATION AND STORAGE

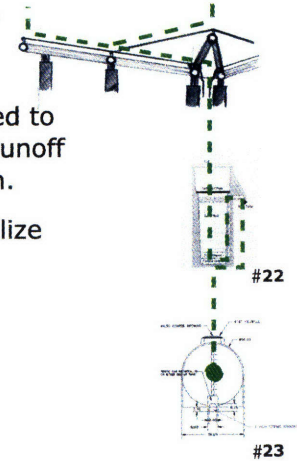


As a reliable alternative to current "spring" system.

COLLECTION: Membrane roof system positioned to facilitate water runoff to filtration drain.

FILTRATION: Utilize biosand filter.

STORAGE: 20 hikers/day for 1 week.

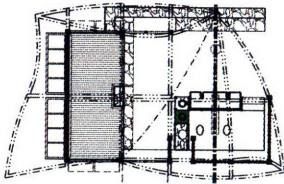


#22

#23



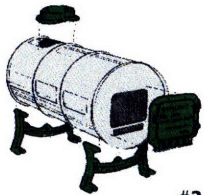
FIRE HEAT/COOKING



For efficient use of wood fuel.

COLLECTION: Hiker is responsible for harvesting firewood from downed trees.

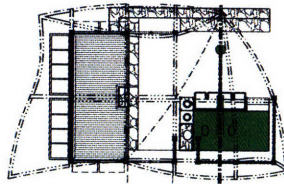
75% efficiency.
8-12 hour burning.
Multiple Re-use activities.



#24



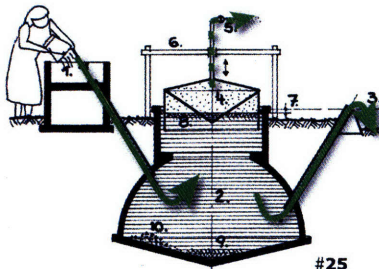
BIOGAS COOKING



As an alternative to wood fuel for cooking hot meals.

COLLECTION: Methane gas is harvested from decomposing human and animal waste.

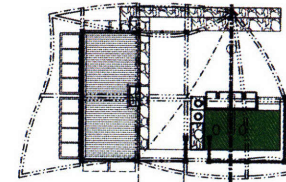
Appropriate only with high capacity.



#25

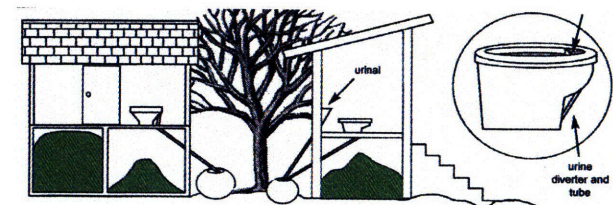


COMPOST



To responsibly return human waste to the environment.

Guatemala Toilet



#26

OBJECTIVE 2: TECHNOLOGY NOT IN OPPOSITION

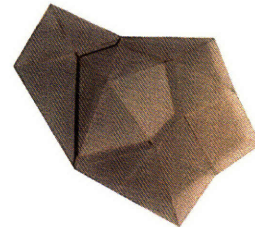
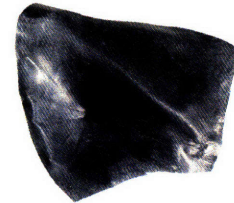
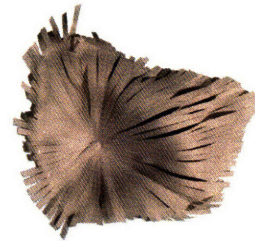
Technology as the symbol of human development has often seemed at odds with the natural environment. The new shelters are constructed on an understanding of the environment as a series of layers - Earth - Life - Sky - an understanding that relates directly to the individual sustainable techniques they exhibit.

Adaptation strategies to both the site and the population were considered for each shelter, with the sky element serving as a unifying device unique to each site. Thus, every shelter is completely unique and customized to its landscape while maintaining a consistent language.

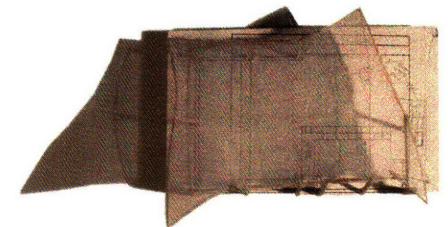
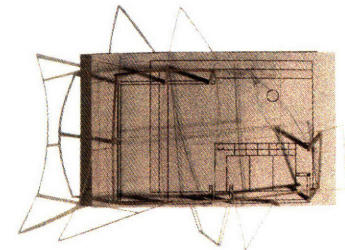
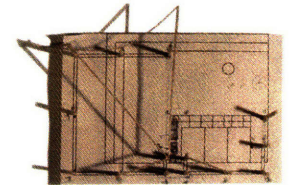
The Earth aspect is comprised of walls which shift in and out to relate to the surrounding topography and direct ground water runoff. They also serve to lift the site and protect it from smaller wildlife.

The Life or wrapping aspect is comprised of downed branches woven together and attached to series of steel columns. The flexibility of this "basket" approach helps to create spaces that can extend and shrink for a given site's anticipated population.

ROOF STUDIES I



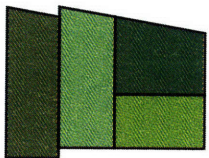
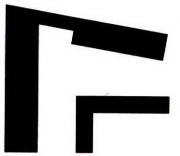
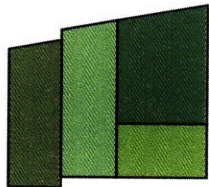
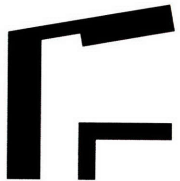
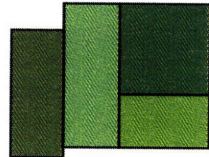
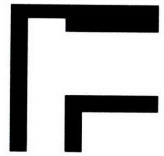
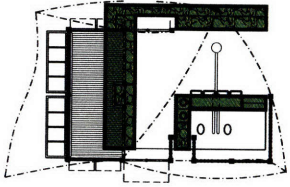
ROOF STUDIES II



ADAPTATION STRATEGIES

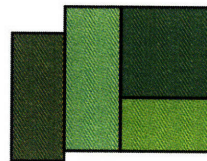
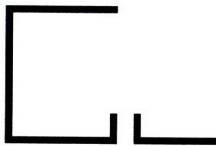
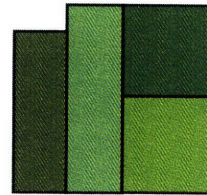
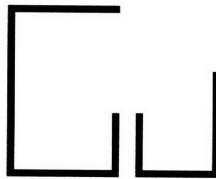
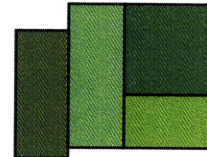
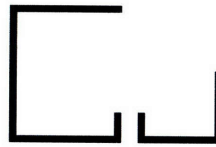
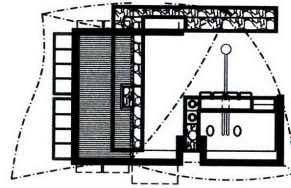
EARTH

Emphasis on Landscape.



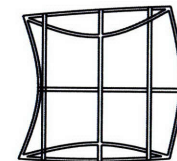
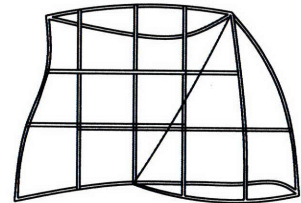
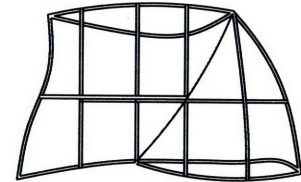
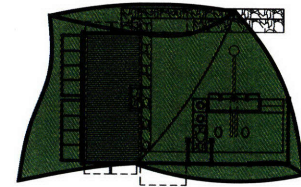
WRAPPING

Emphasis on occupation.



SKY

Emphasis on reflection.

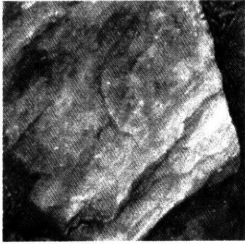


MATERIAL PALLETE

EARTH/STONE

RECYCLED STONE

In recycling the old shelters, a large amount of pre-used stone would become readily available for use in shelter construction.



#27

ECO-CEMENT

A newer material, eco-cement releases less carbon dioxide into the atmosphere, and it is also easier to recycle on its own.

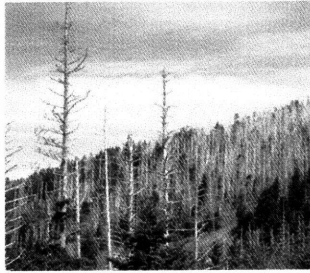


#29

WRAPPING SYSTEM

RECYCLED LUMBER

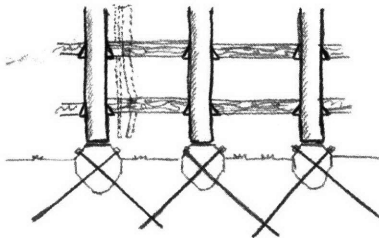
The balsam woolly adelgid blight decimated whole populations of spruce and fir trees. These ghost-forests could be used as a wrapping, creating a memory of what was lost.



#28

DIAMOND PIER SYSTEM ON STEEL COLUMNS

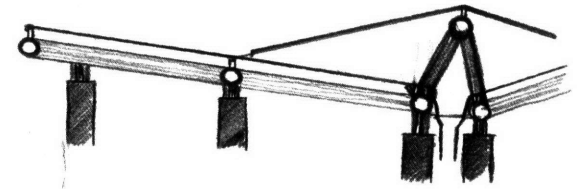
The Diamond Pier minimizes the impact on the site, while also being capable of implementation anywhere.



ROOF SYSTEM

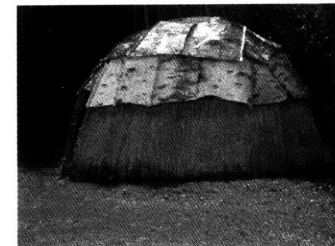
30' ASH BEAMS (IMPORTED)

Ash trees have long been prized for the elasticity of their material, thus being ideal for a roof designed to be flexible and operable.



CANVAS

Canvas is easily replacable and maintainable. It is also weather-proof while also being breathable.



#30

CONSTRUCTION METHODOLOGY

1. DECONSTRUCT



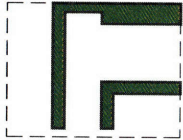
Recycle from existing shelter.
Prepare scrap for export.

2. IMPORT/EXPORT



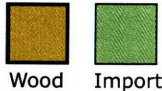
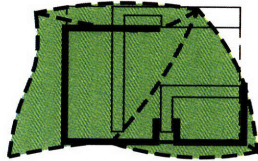
Helicopter in imported materials and infrastructure.
Helicopter out scrap simultaneously.

3. EARTH CONSTRUCTION



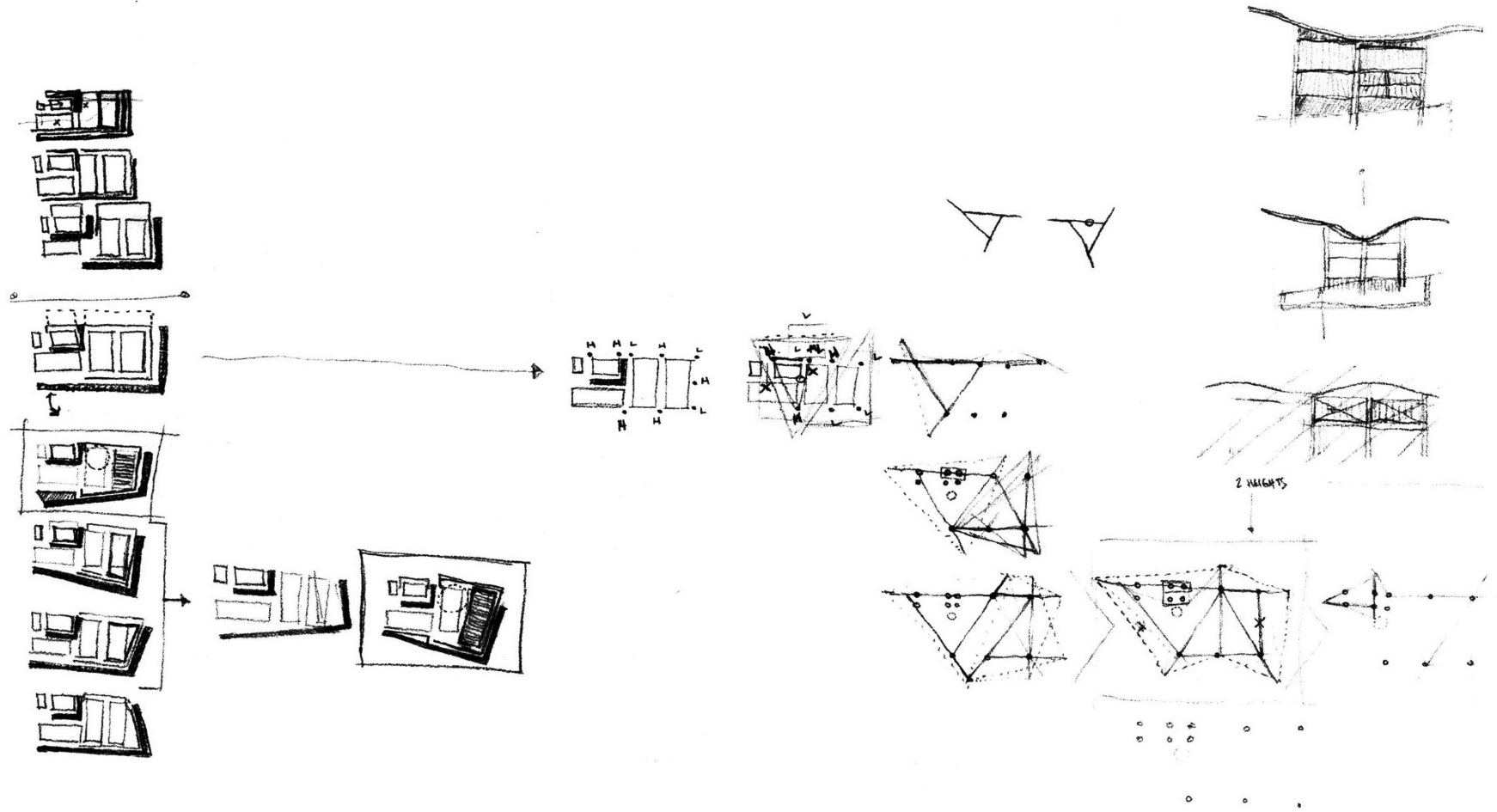
Assemble stone walls.
Install diamond piers/columns.

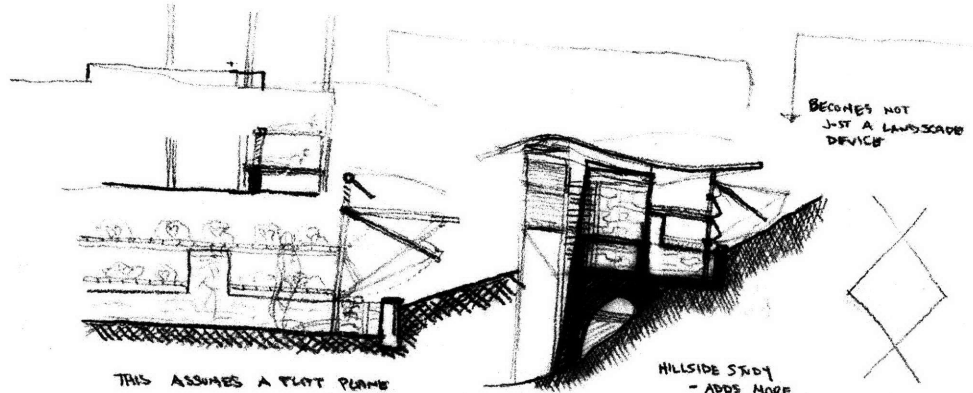
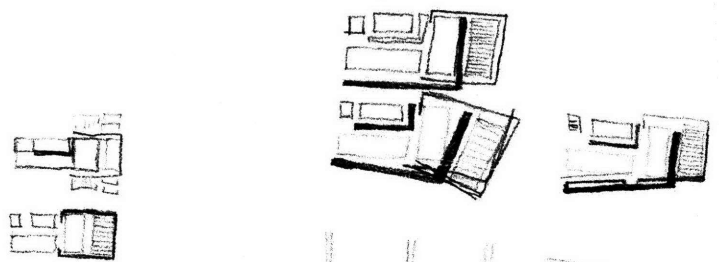
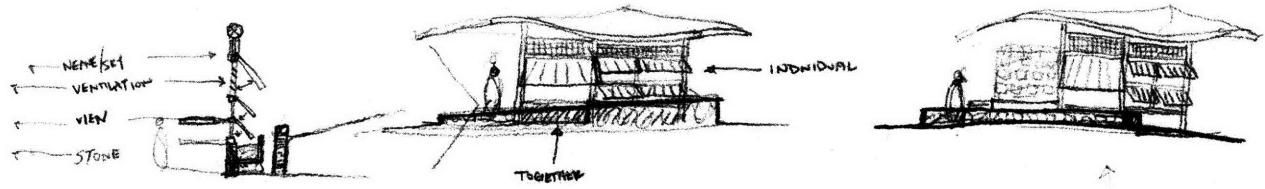
4. WOOD CONSTRUCTION



Install spacers.
Weave branches.
Install roof.
Excess wood for fuel.

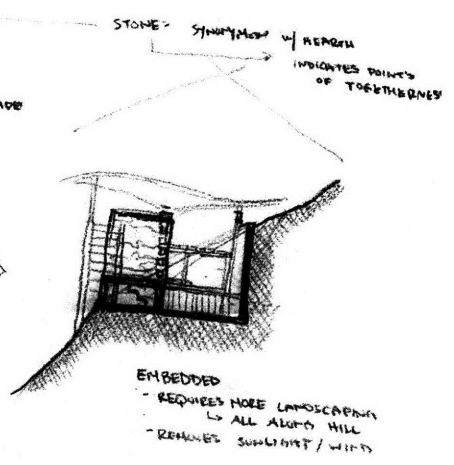
PROCESS SKETCHES





THIS ASSUMES A FLAT PLANE

HILLSIDE STUDY
- ADDS MORE
BUT EXAGGERATES
FEELING OF ON MOUNTAIN



EMBEDDED
- REQUIRES MORE LANDSCAPING
↳ ALL ALONG HILL
- REMAINS SUNLIGHT / WINDS

BECOMES NOT
JUST A LANDSCAPE
DEVICE

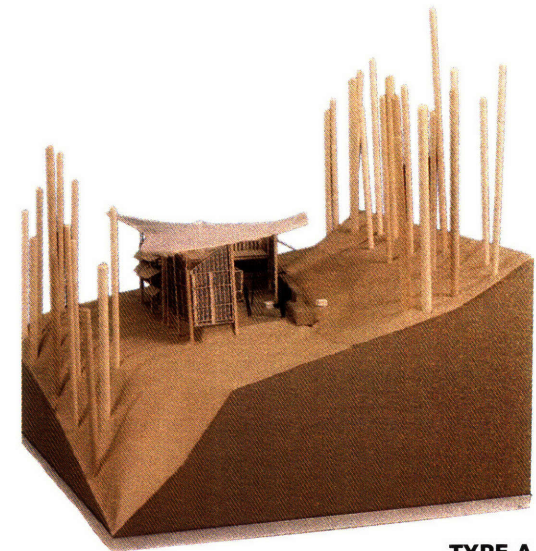
STONE = SYMBOL OF MEMORY
INDICATES POINTS
OF TOGETHERNESS

OBJECTIVE 3: DEVELOPING AN INTERACTIVE LANDSCAPE

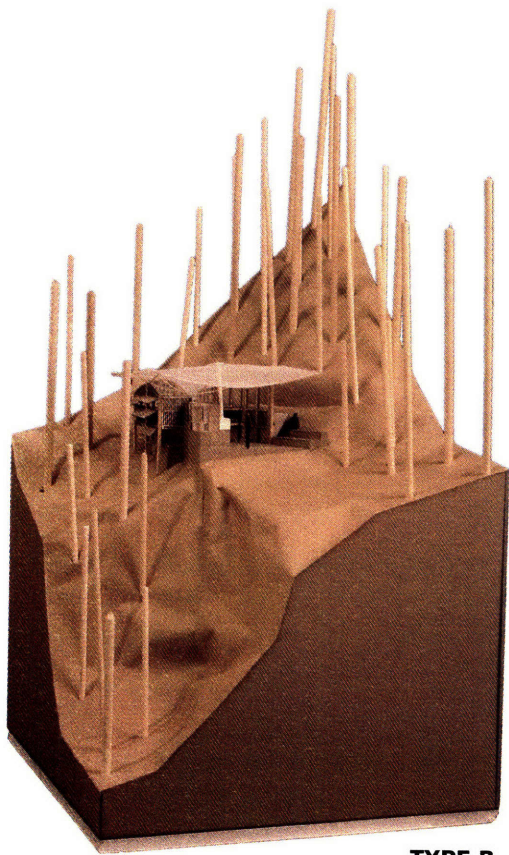
With a strategy of exhibition and spatial definition, and another strategy of adaptation and material methodology, the design of a vocabulary must also take place in order to make the difference between a singular "museum" shelter an interactive landscape of learning.

Four Types were developed in order to address again the problem of population and topography. These types add a new dimension to the hiking experience, as they move the experience from a single building element to the movement between them, either from one site to another, or from two different structures on the same site. This movement necessitates an engagement with the natural forces that goes beyond simply engaging exhibitions within a building.

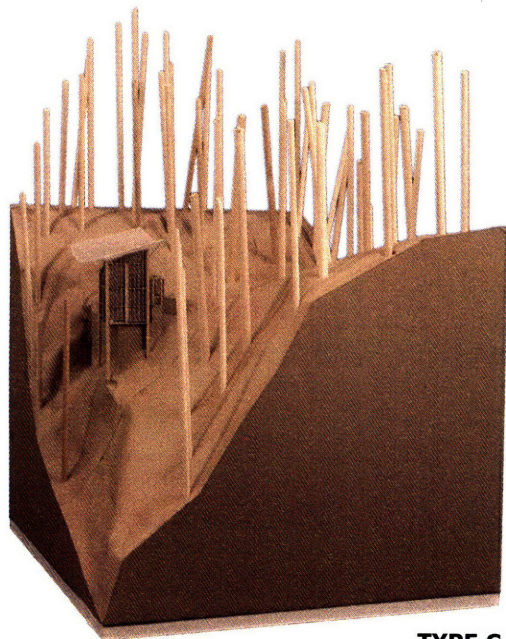
As a means of testing each type, the actual site conditions from one of the three previously investigated sites of Icewater Spring, Pecks Corner, and Davenport Gap were used as a basis for establishing design parameters.



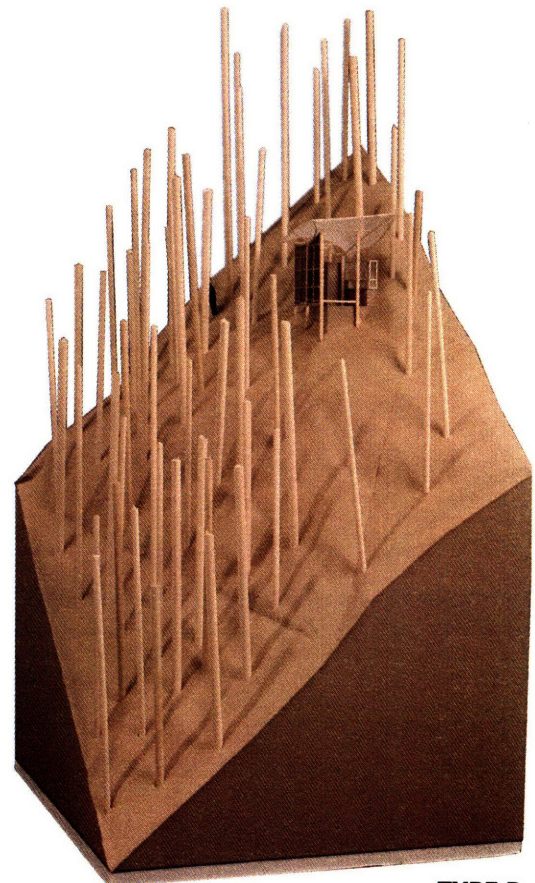
TYPE A



TYPE B



TYPE C



TYPE D

SHELTER TYPE "A"

The largest shelter type, Type A is designed for sites that combine a generous topography with a high traffic flow. The larger size facilitates interaction and relationships between all levels of hiking experience. Further, a singular shelter helps minimize the impact of large populations on the site.

Being the largest shelter type, Type A's would offer the largest number of exhibitions as well.

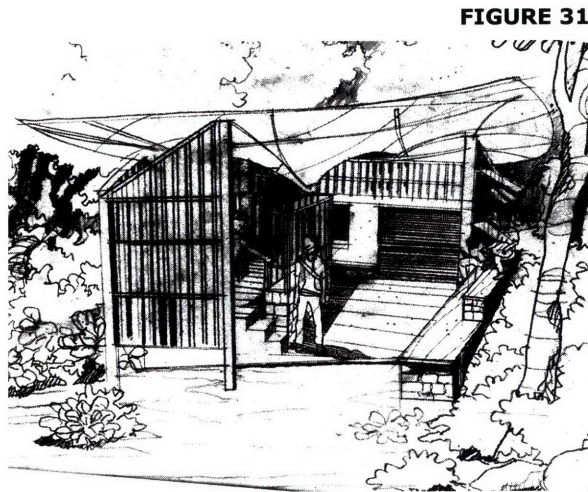


FIGURE 32-34:
Shelter Type "A"
Study Models

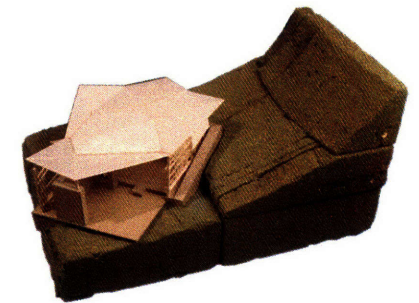
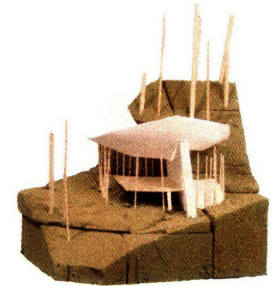


Figure 35:
Approach from the
Appalachian Trail
Icewater Spring Site

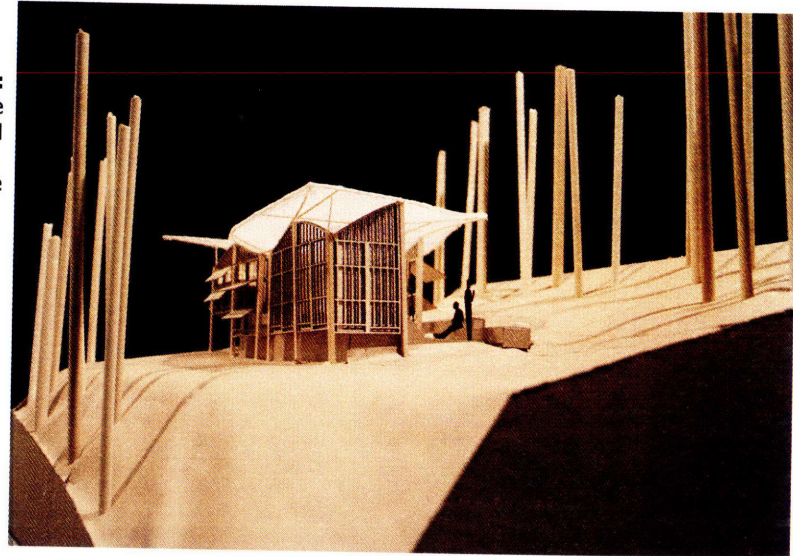
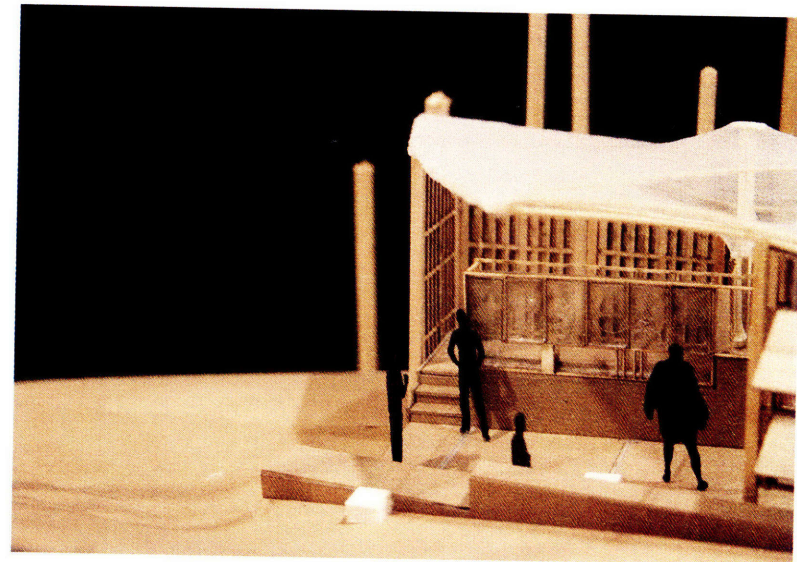


Figure 36:
Outdoor gathering
looking west
Icewater Spring Site



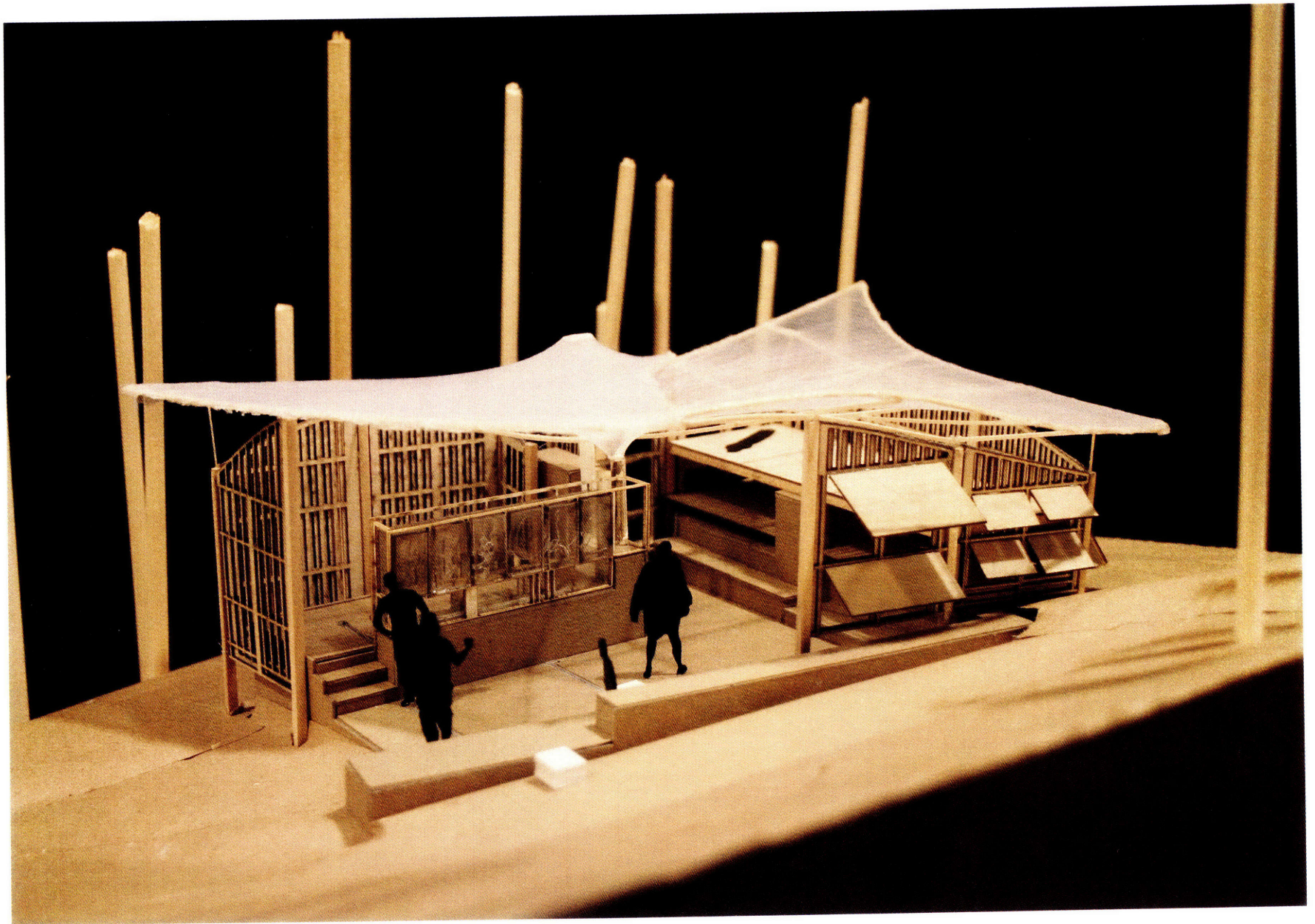


Figure 38:
Elevation

Icewater Spring Site

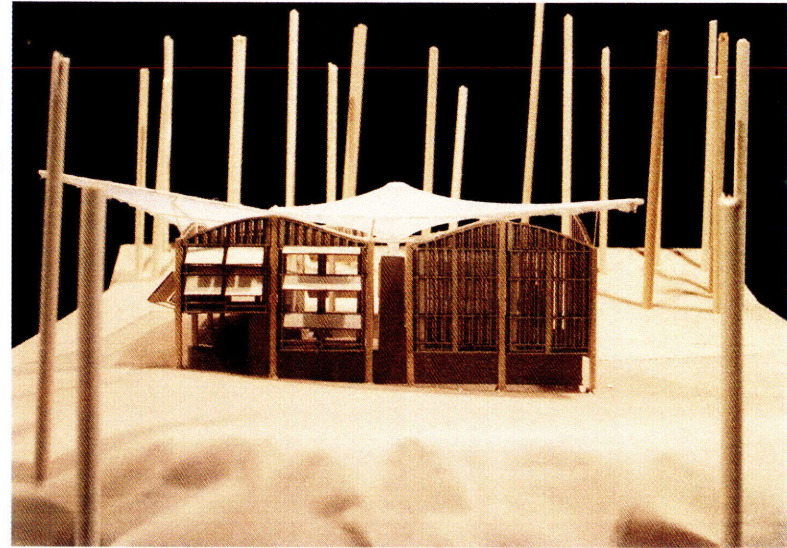
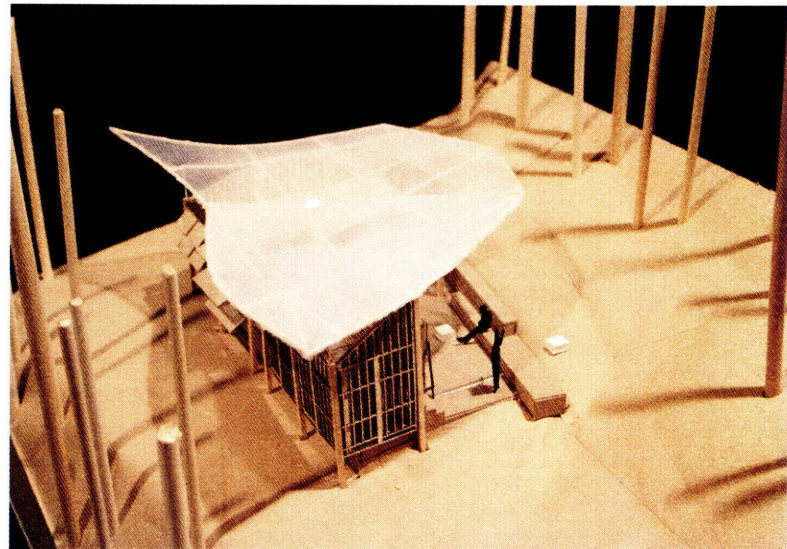


Figure 37:
Type A Shelter
looking southwest

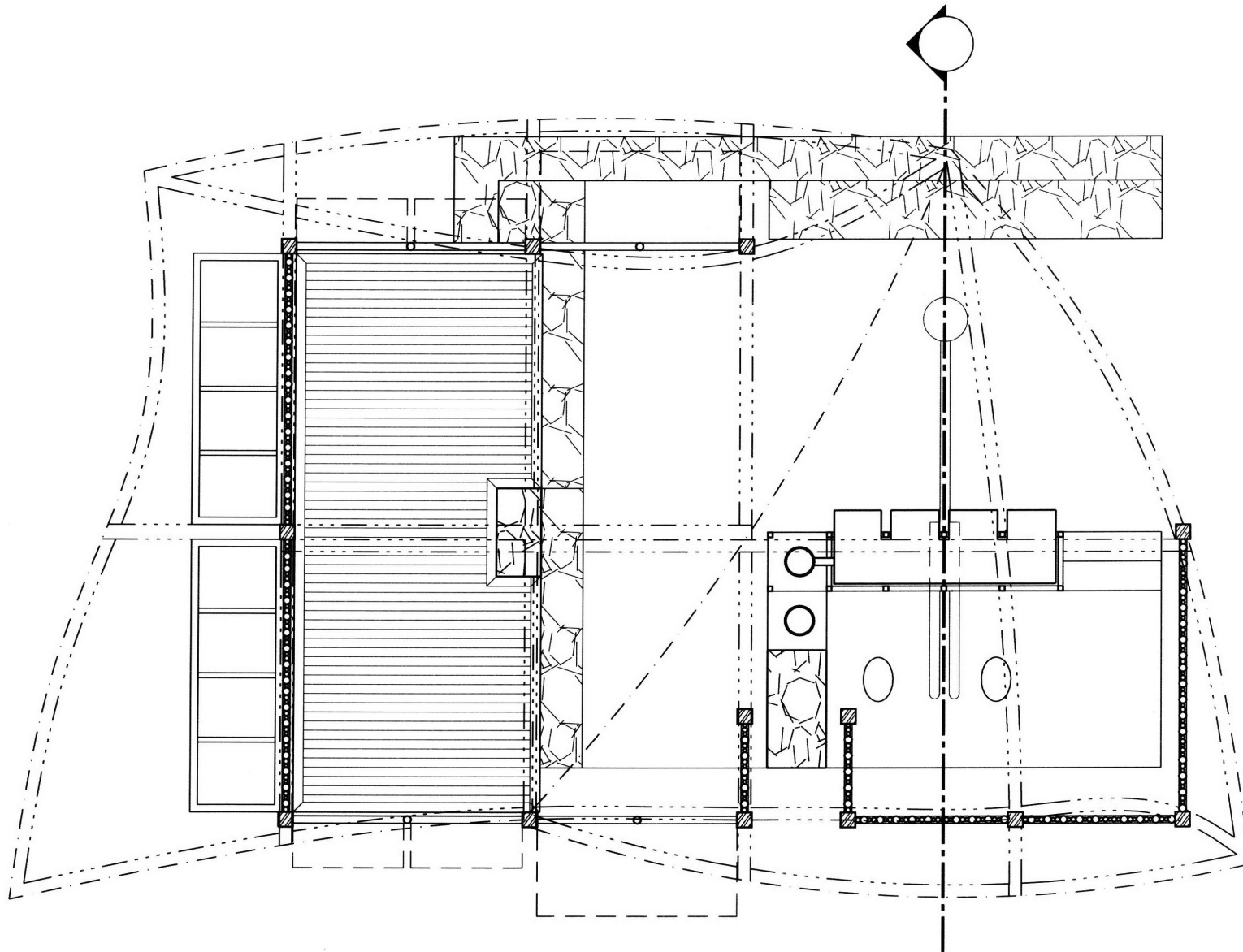
Icewater Spring Site

Figure 39:
Overhead view of roof

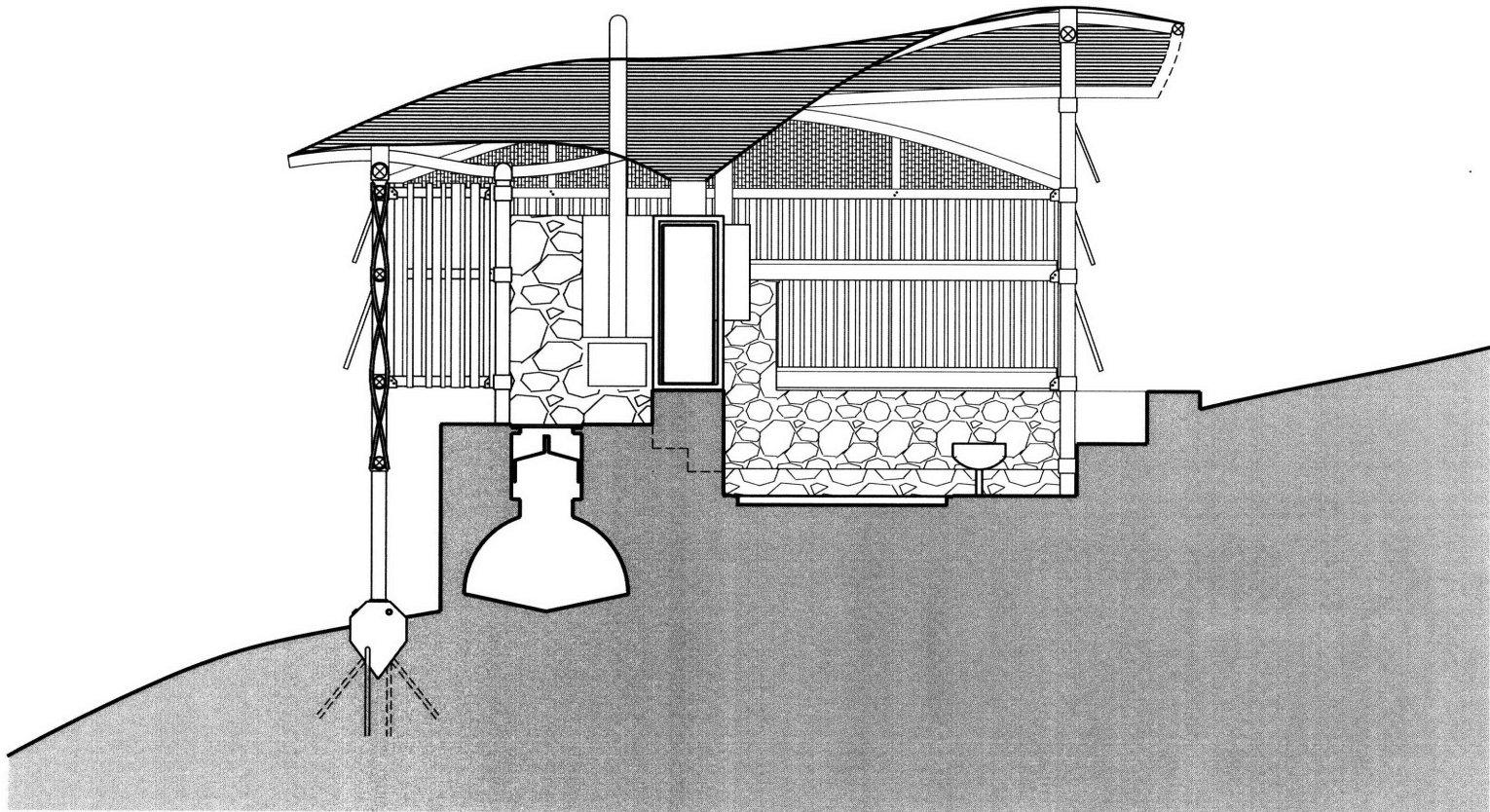
Icewater Spring Site



TYPE "A" PLAN 3/16" = 1'



TYPE "A" SECTION 3/16" = 1'



SHELTER TYPE "B"

Type B shelters provide the sleeping element for sites with little topographical space, however they can accommodate both large and small populations.

Typically without privy elements, the Type B can rely on either a cathole, a Type C or a Type D to serve this purpose. Thus Type B's serve as the most versatile and common of the shelter vocabulary.

FIGURE 40

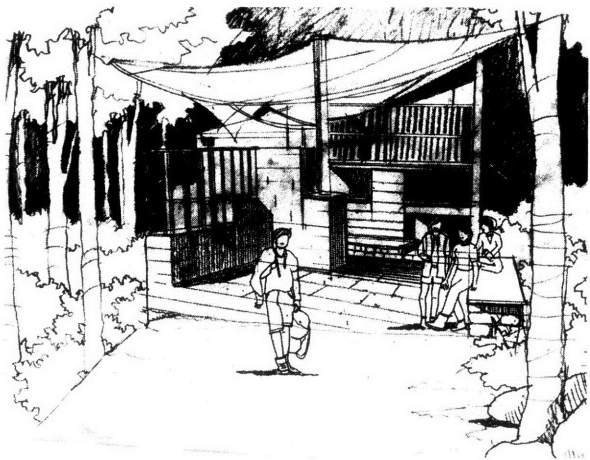


Figure 41:
Approach from
water source
Peck's Corner Site

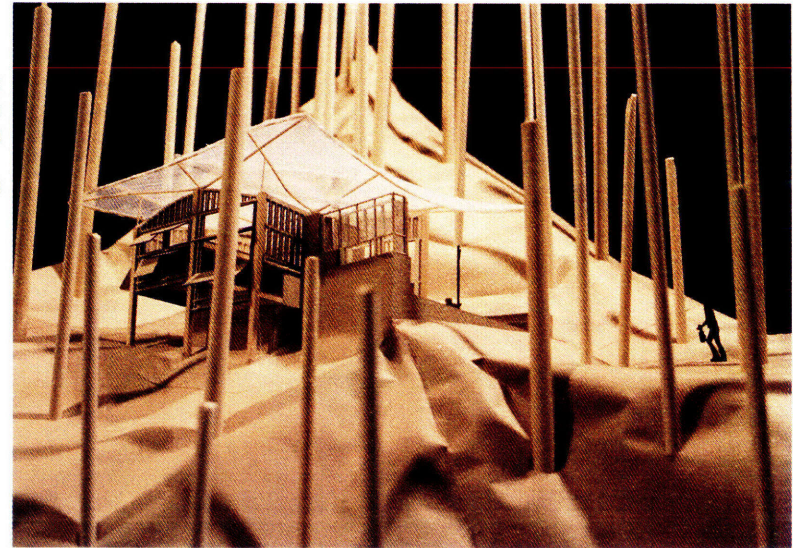
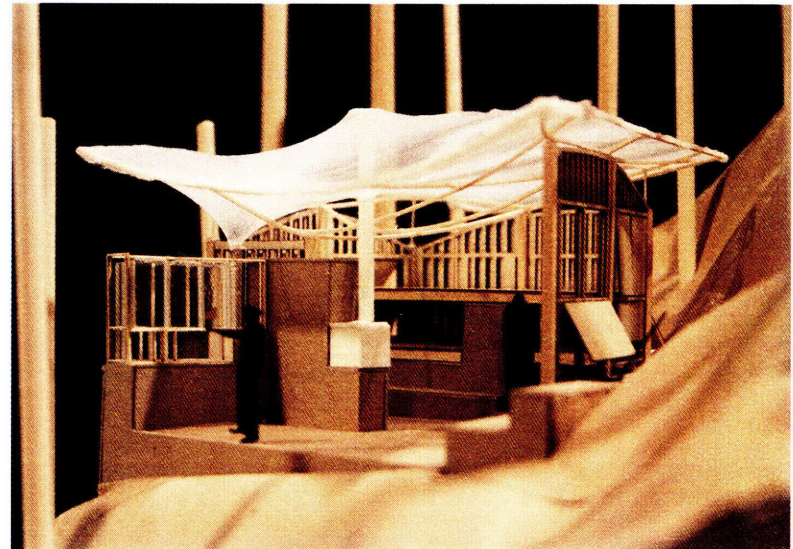


Figure 42:
Approach from the
Hughes Ridge Trail
Peck's Corner Site



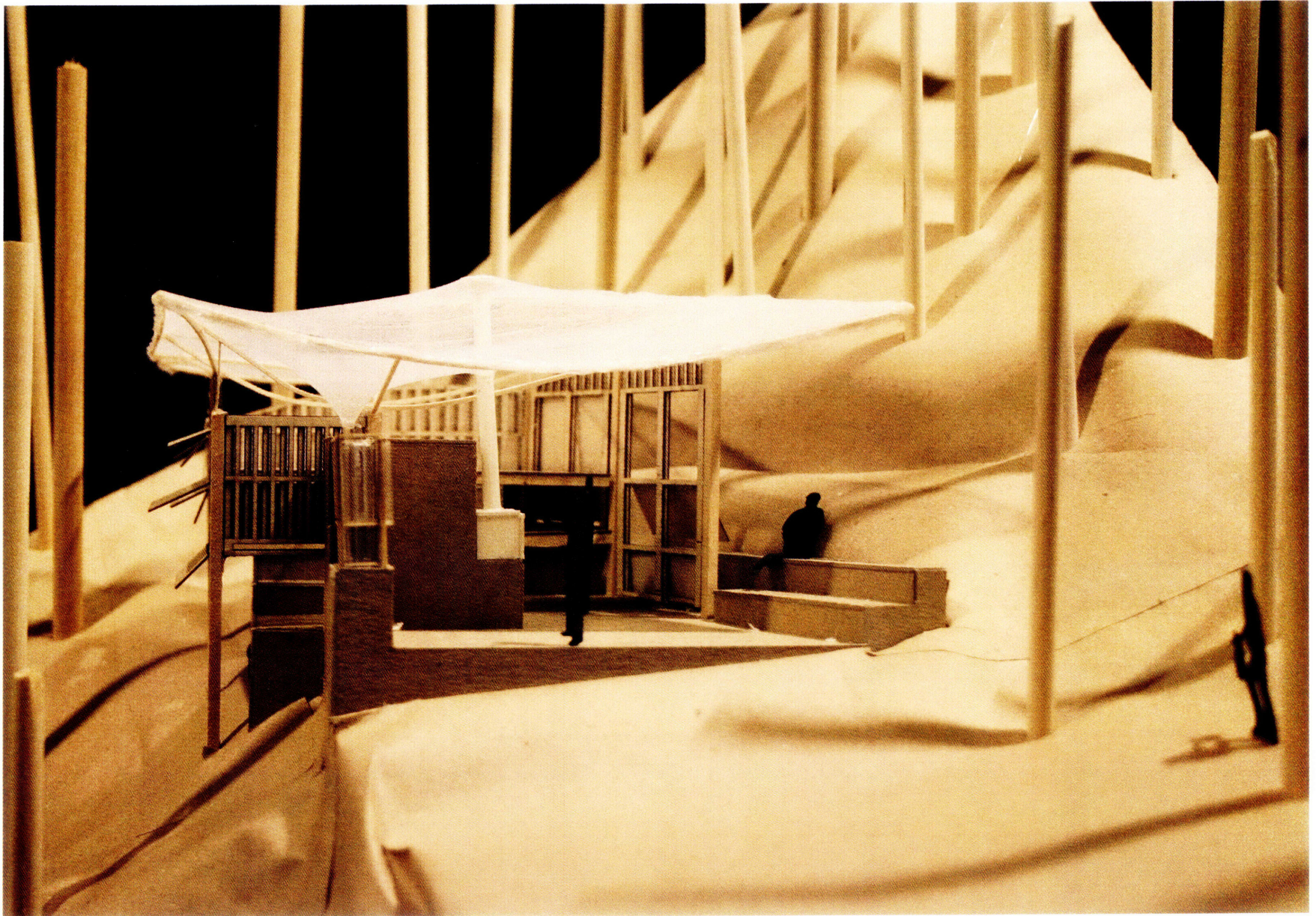


Figure 44:
Back view showing open shutter
and roof system

Peck's Corner Site

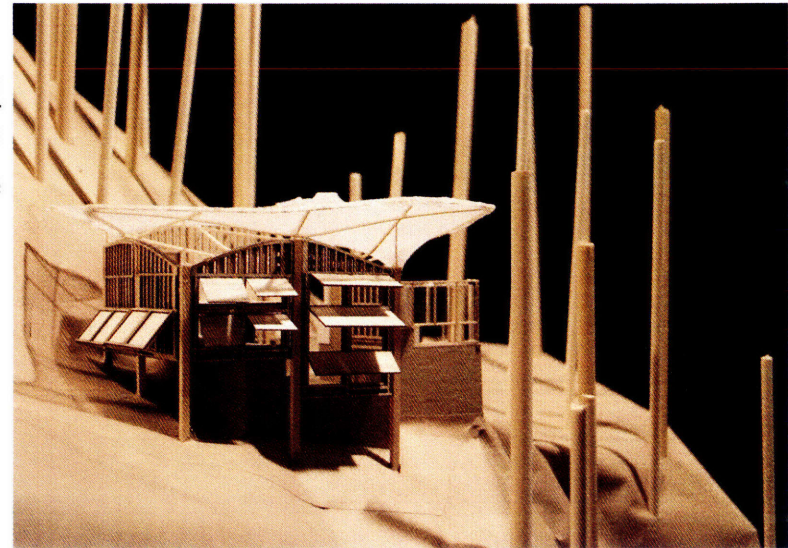
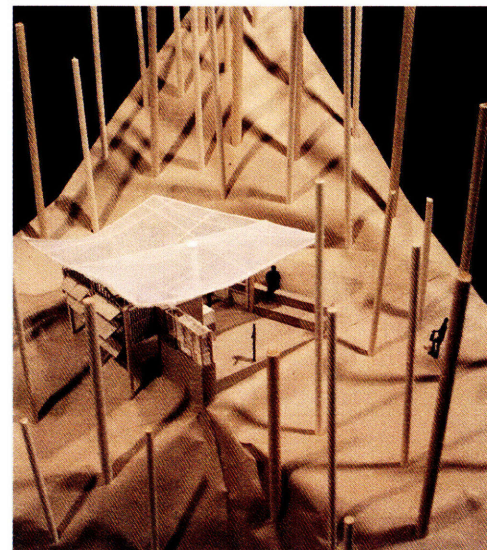


Figure 43:
Type B Shelter
Outdoor gathering space
with stove at center and
sleeping beyond

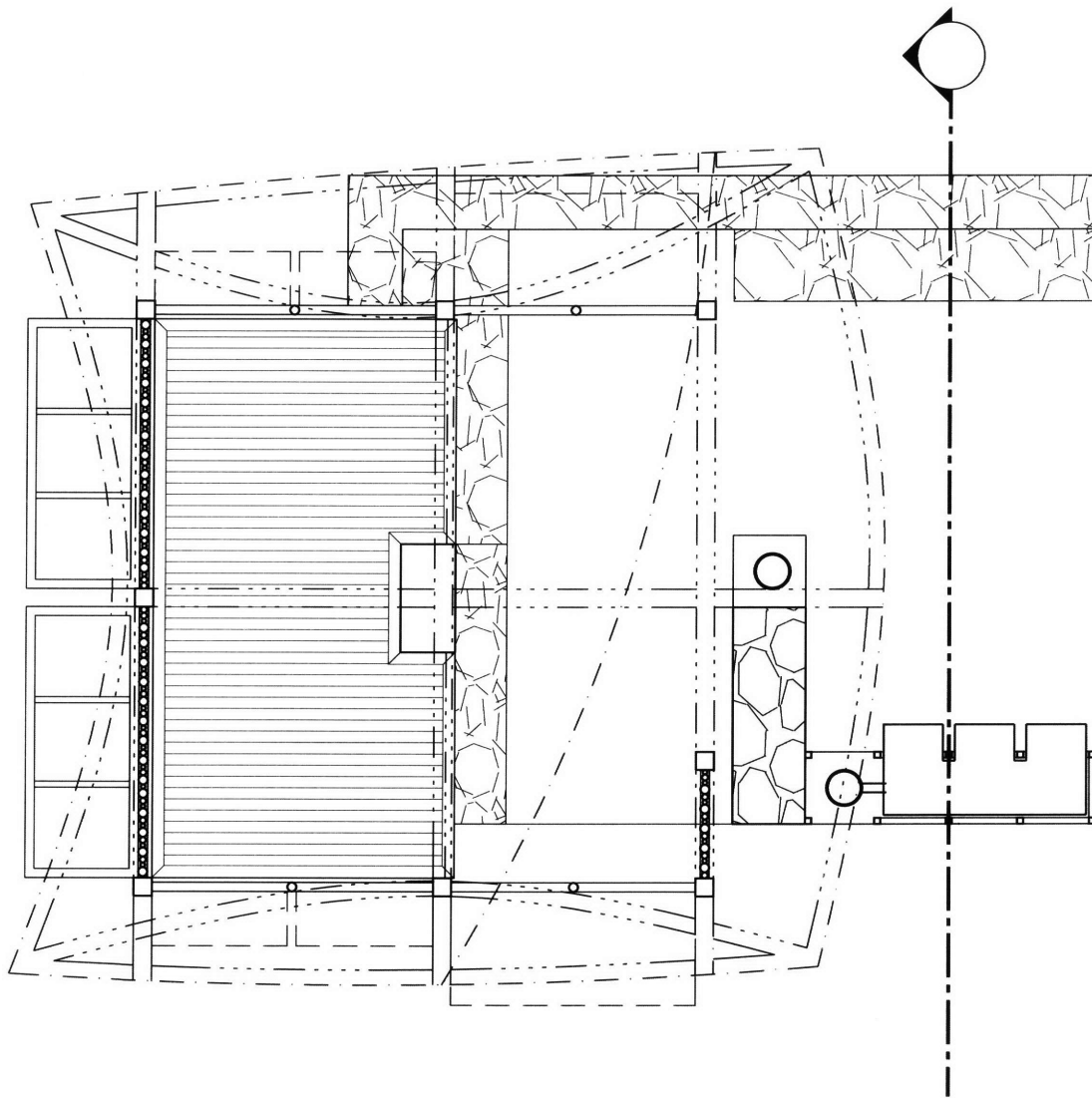
Peck's Corner Site

Figure 45:
Overhead view of roof

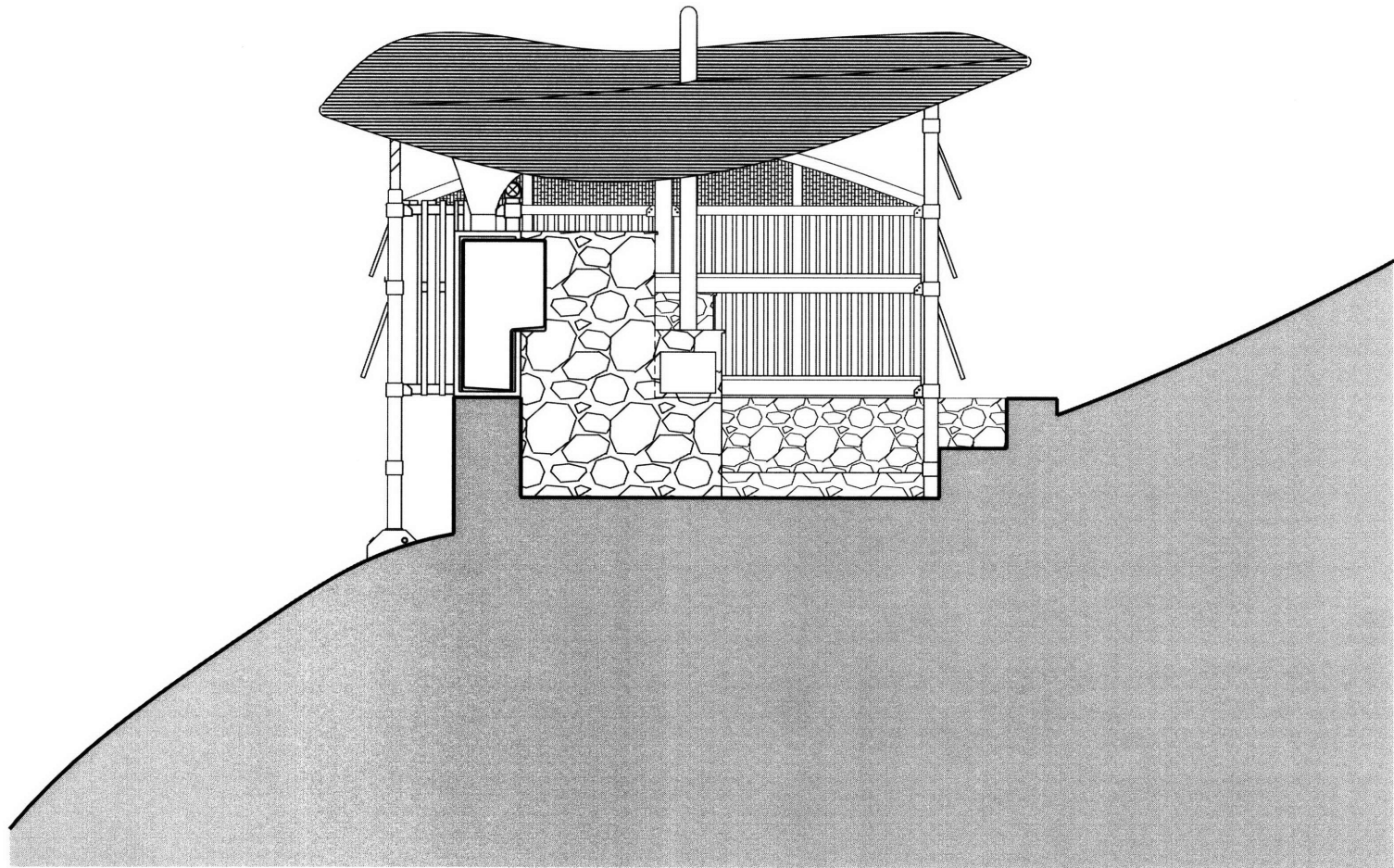
Peck's Corner Site



TYPE "B" PLAN 3/16" = 1'



TYPE "B" SECTION 3/16" = 1'



SHELTER TYPE "C"

Type C shelters feature a privy and outdoor gather combination, which works optimally with a bio-gas system. Thus, Type C shelters can be positioned at heavily use intersections that may have been adopted as makeshift campsites, or to mark a gathering point of interest along the trail. They can also be used in conjunction with a Type B on more difficult topographical sites.

FIGURE 46

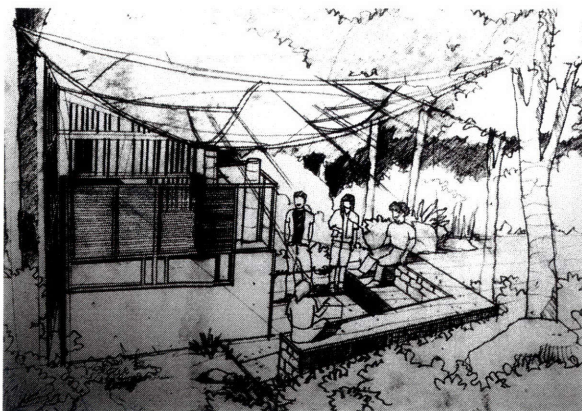


FIGURE 47:
Shelter Type "C"
Study Model

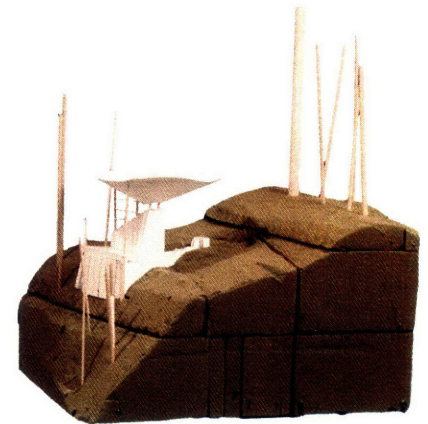
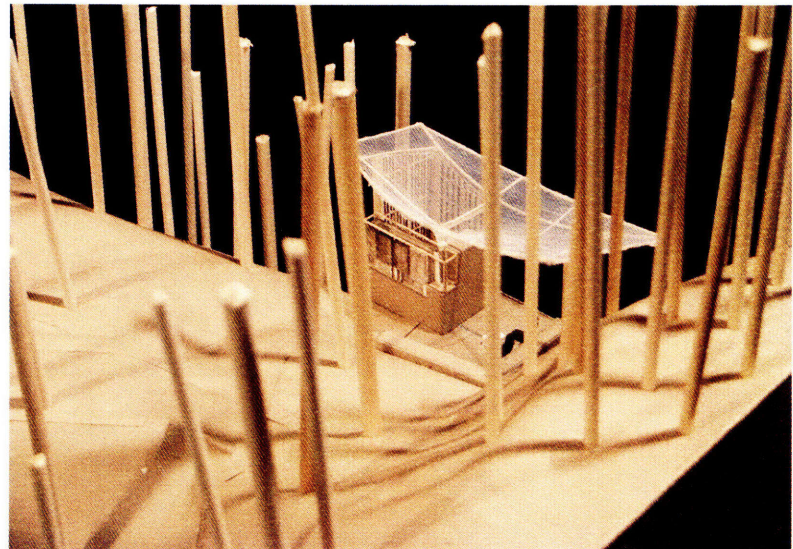


Figure 48:
Approach from south
on Hughes Ridge Trail
Peck's Corner Site



Figure 49:
Approach from the
Appalachian Trail
Peck's Corner Site



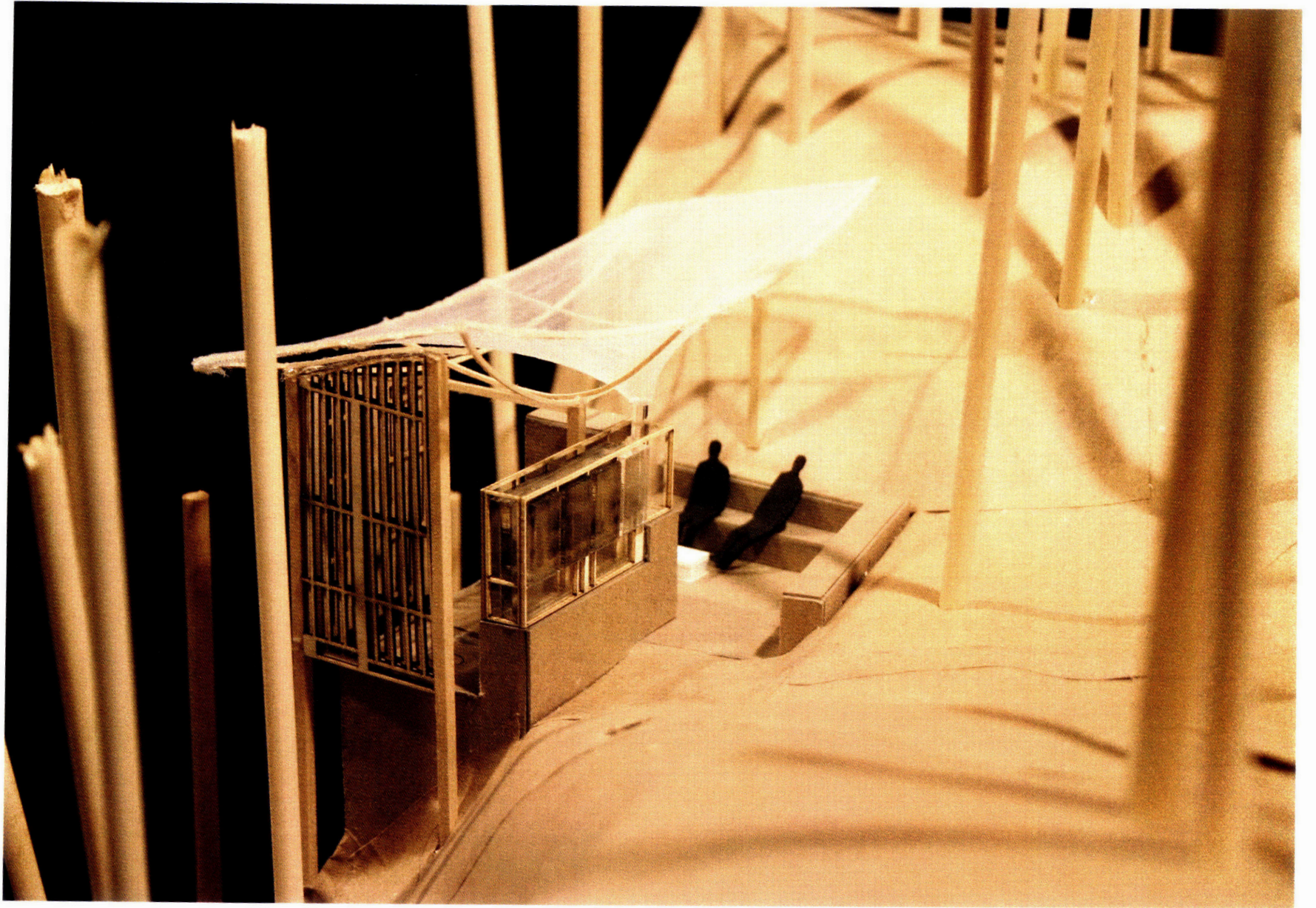


Figure 51:
Elevation

Peck's Corner Site

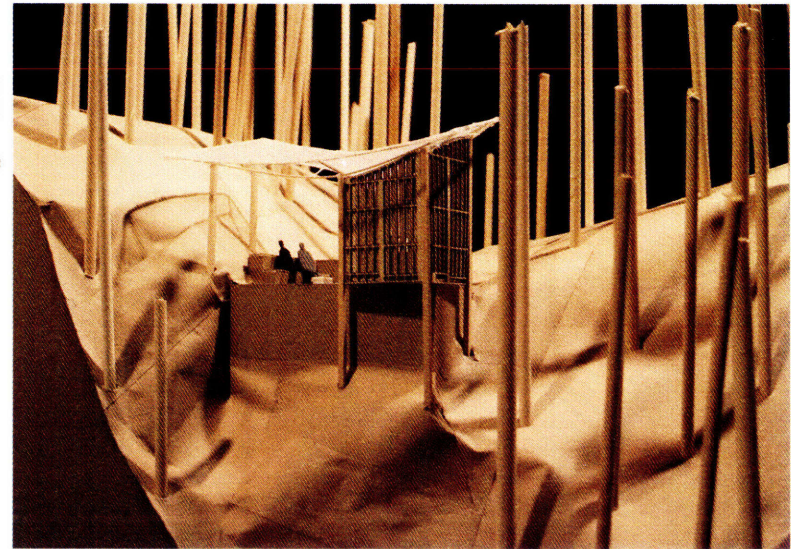


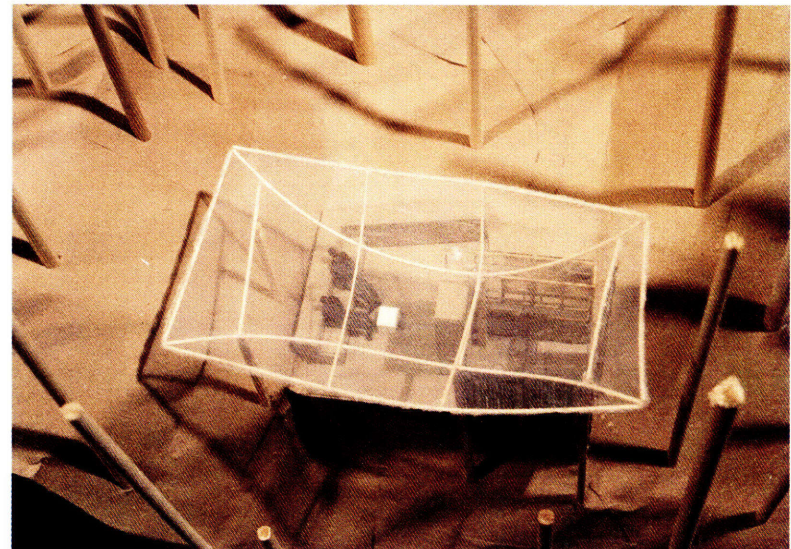
Figure 50:
Type C Shelter
Outdoor gathering space
with toilet to left

Peck's Corner Site

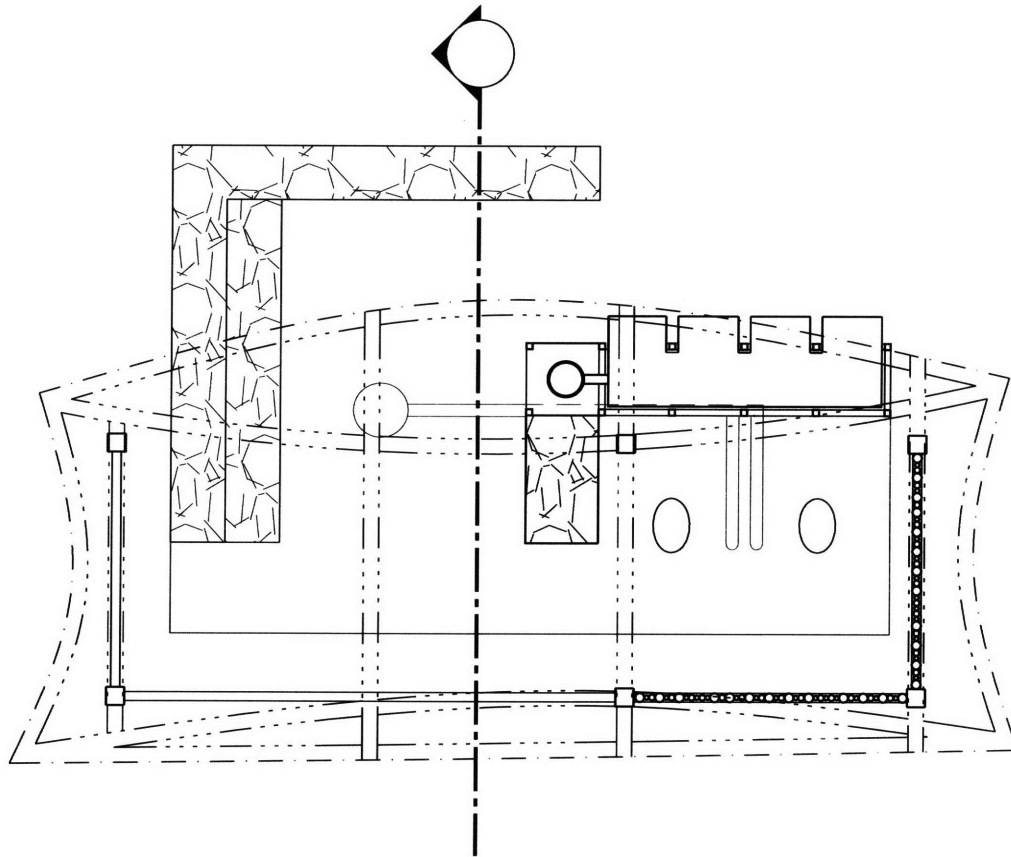
Figure 52:

Overhead view of roof

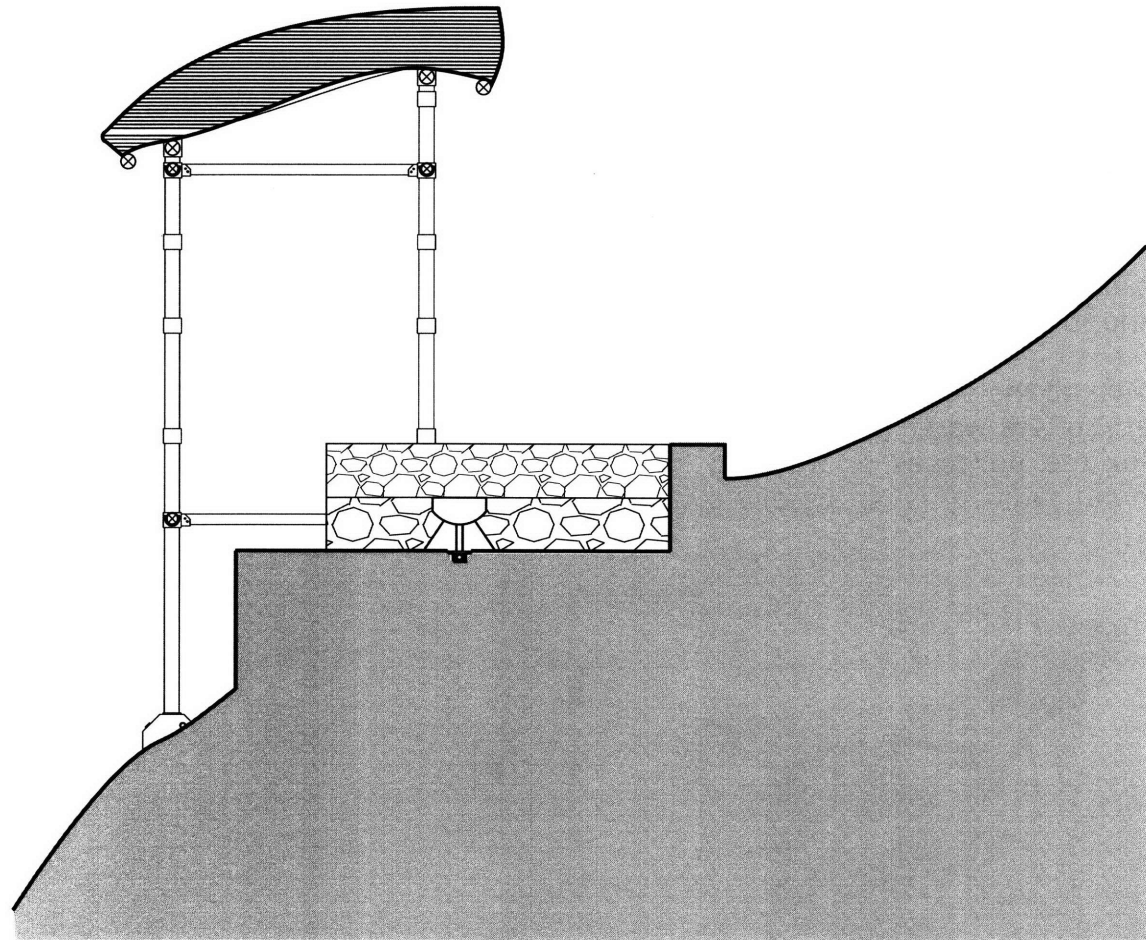
Peck's Corner Site



TYPE "C" PLAN 3/16" = 1'



TYPE "C" SECTION 3/16" = 1'



SHELTER TYPE "D"

The Type D shelter operates solely as a privy, and is thus to be used largely in conjunction with a Type B shelter. The shelter evolved in response to the lack of cohesive design between the existing latrines and shelters found on sites visited. Based on a system developed in Guatemala, the Type D system uses two storage systems which serve to recycle human and animal waste for approximately six months with no odor.

Like all the shelter systems, the Type D still offers water filtration and storage, for the purposes of washing hands if hand sanitizer is not readily available.

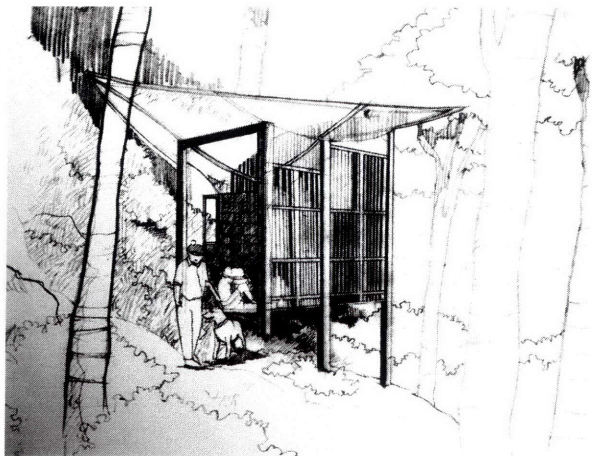


FIGURE 53



FIGURE 54-56:
Shelter Type "C"
Approach studies

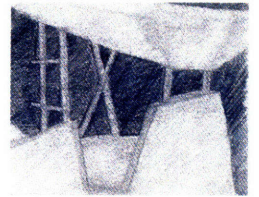
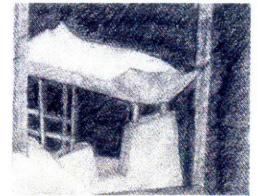
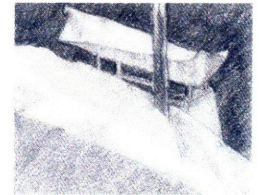


FIGURE 57:
Shelter Type "C"
Study Model

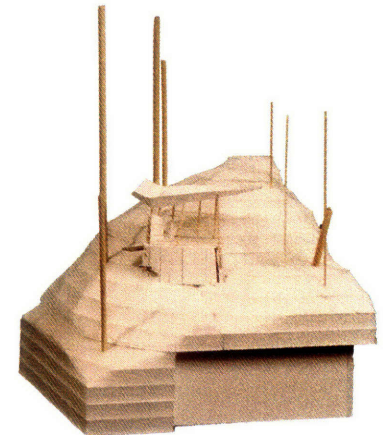


Figure 58:
View of toilet
Davenport Gap Site

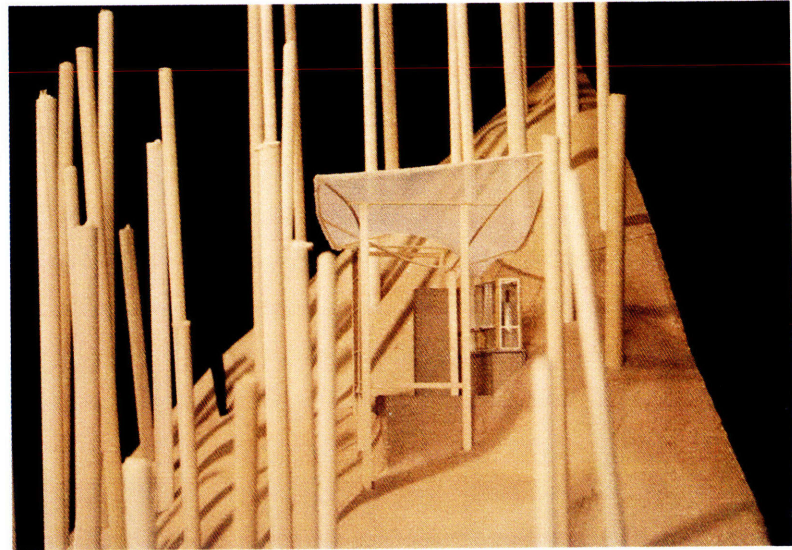


Figure 59:
Approach from the
south
Davenport Gap Site

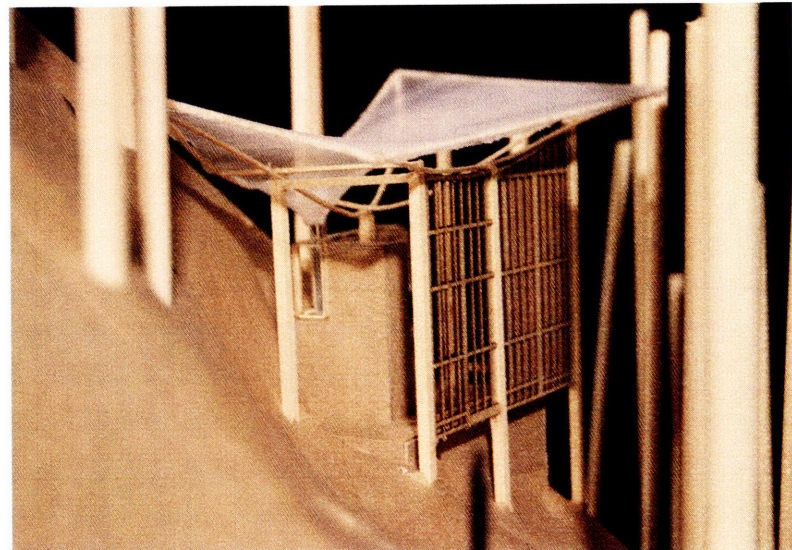




Figure 61:
View in context
Davenport Gap Site

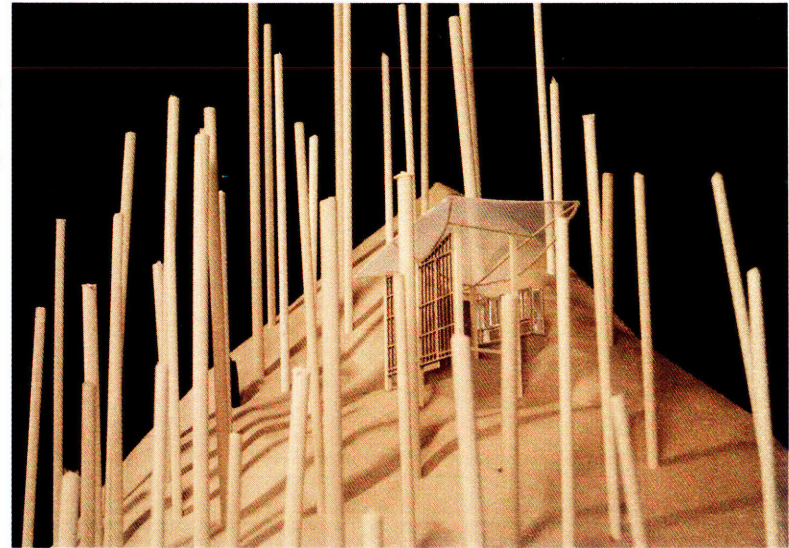
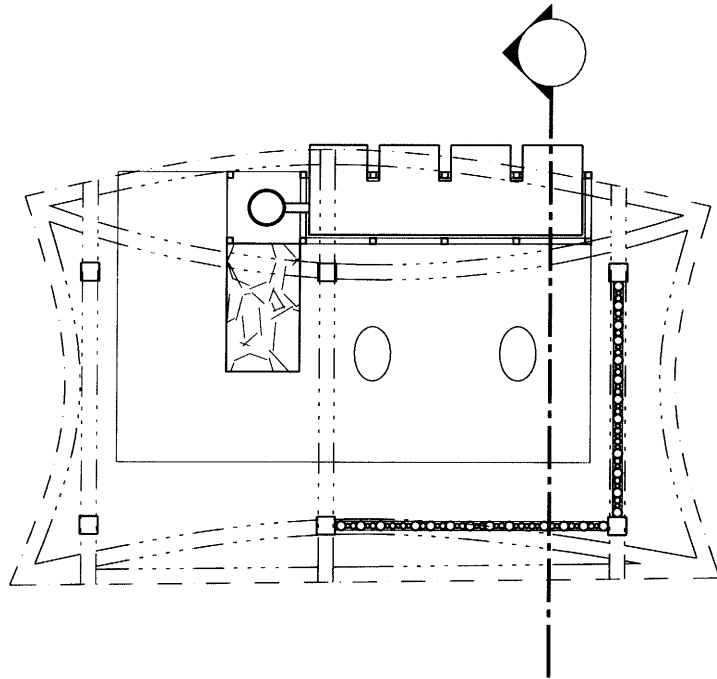


Figure 60:
Type D Shelter
Privy space with water
storage at back
Davenport Gap Site

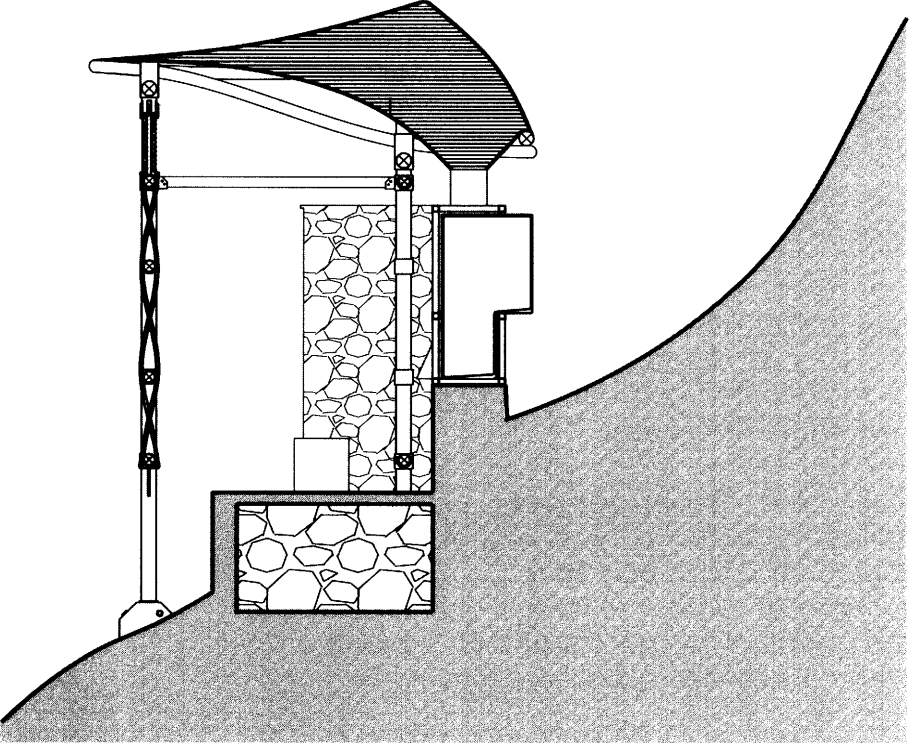
Figure 62:
Elevation
Davenport Gap Site



TYPE "D" PLAN 3/16" = 1'



TYPE "D" SECTION 3/16" = 1'



CREATING A NEW VOCABULARY

After establishing the new types, the shelters are reinserted into the previously described sites based on their topography and use.

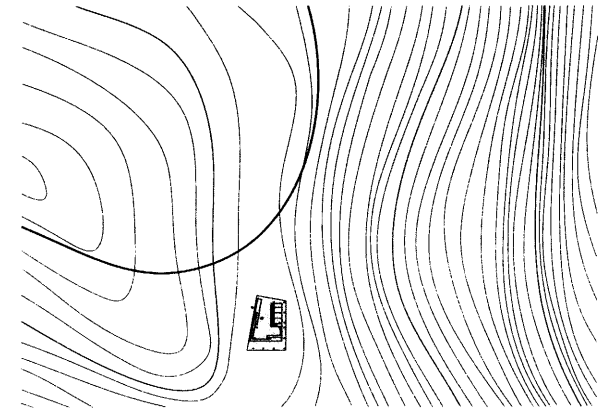
Because of Icewater Spring's generous topography and high population, a Type A was generated to minimize impact while maximizing learning and communication.

The remote nature of Peck's Corner could occupy either a Type B, or a combination of Types B and C, with C serving to not only invite hikers from the Hughes Ridge Trail to rest, but also to carry both waste and cooking away from the shelter site.

Davenport Gap's primarily local use called for either a Type B or a Type B and Type D combination. The limited number of visitors made bio-gas inefficient, and the danger of cooking within the shelter was relatively low.

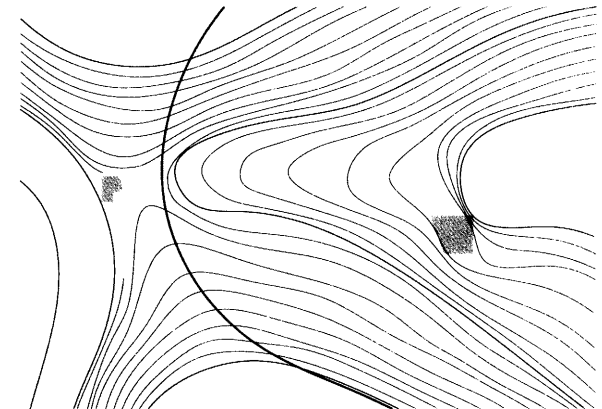
Using the same methodology, similar shelter strategies could be implemented not only for every site within the GSMNP or the Appalachian Trail, but their adaptations could also allow them to be explored in many other areas.

TYPE A



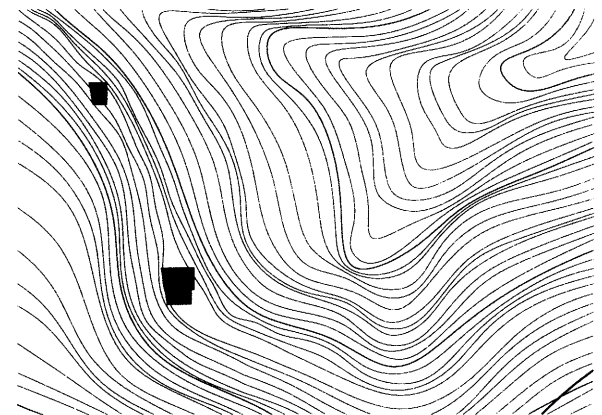
PECK'S CORNER

TYPE B
or
TYPE BC



DAVENPORT GAP

TYPE B
or
TYPE BD



A PROSPECTIVE APPLICATION OF THE VOCABULARY TO OTHER SITES IN THE PARK

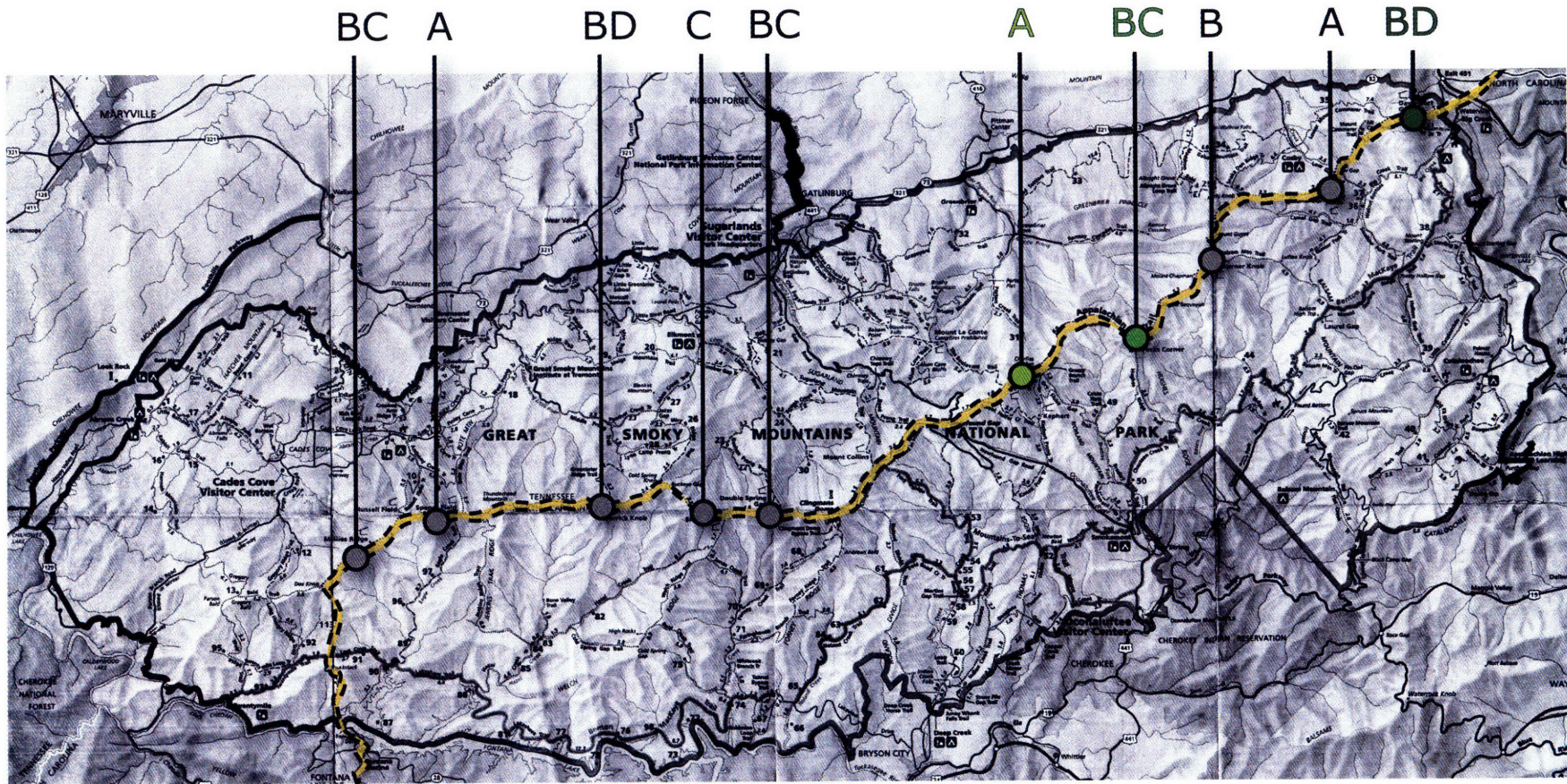


Figure 63

CONCLUSION

This thesis sought to establish a new architectural identity for the American wilderness through the use of issues that are very relevant to everyday people in addition to hikers, conservationists and general "nature lovers".

The key elements to establishing the new identity lie not only in the issue, but also the potential to revisit that issue over and over again in different ways. Establishing a specific vocabulary achieves that precise goal, and allowing a hands-on approach to application keeps people "interested in learning", and eventually allows them to *identify* those tasks with that vocabulary.

Ultimately, the aesthetic itself could become immaterial. What is important is the strategy involved, and the idea of making things with a similar goal, rather than with a similar design. It is in the nuances of this that overarching identities are created, not in the mass-production of a single archetype.

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IMAGE CREDITS

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Figure 2: Image from chuchla.com Retrieved from <http://www.chuchla.com/gallery/albums/album44/Clingmans_Dome_006.jpg>.

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Figure 25: Image from *Biogas Plants: Design and Details of Simple Biogas Plants*, page 16.

Figure 26: Image from *Compost Latrines in Rural Panama: Design, Construction and Evaluation of Pathogen Removal*, page 15.

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