

A House in Situ

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

Master of Architecture
In
Architecture

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ABSTRACT

The project is located in the Teton Valley of Idaho, sited on the eastern slope of the Big Hole Mountains oriented toward the western face of the Teton Mountain Range. The program is a vacation house for a young family of four to be used throughout the year. Themes covered in the project include issues of topography, site conditions, and landscape; the harnessing of a powerful context and views; water management specific to the site; architectural expressive form and scale; circulation; and materiality.

The site and its conditions, including slope, vegetation, sun orientation, wind direction, drainage patterns, and views, were the driving forces behind most of the design decisions made for the project. Circulation on and off the site, how one moves throughout the house, location of the program elements, placement and size of windows to capture views, and material selection were all inextricably tied to the physical nature of the site and its environment.

The project is documented with diagrams, line drawings, perspective renderings and model photographs to illustrate the thesis.

ACKNOWLEDGEMENTS

Thank you to all who have guided, supported, and cheered me on in this endeavor. My deepest appreciation goes to Brook Kennedy. I wouldn't be here without you.

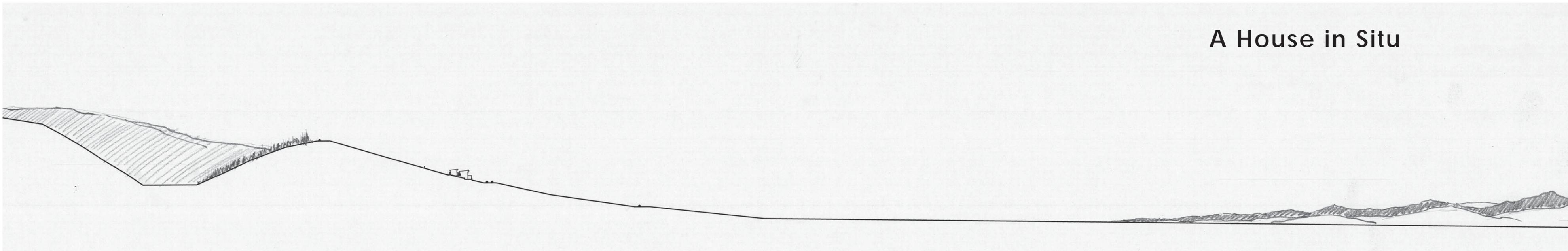
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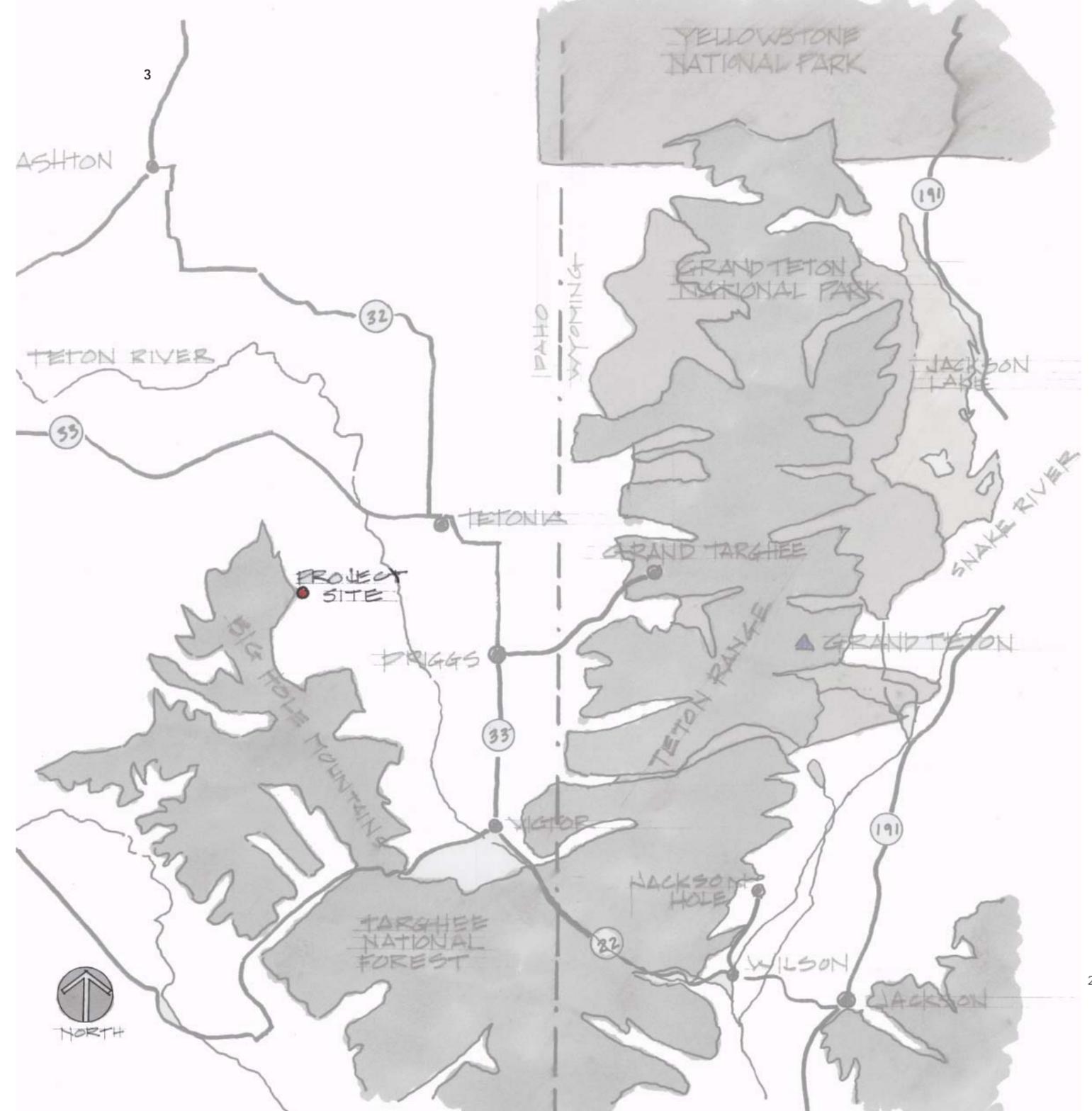
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INTRODUCTION AND CONTEXT

FRANCES TEMPLE-WEST

A House in Situ





TETON VALLEY IDAHO

Elevation: 6200 ft (1,890 m)

Climate: Cold Semi-Arid

Average Annual Precipitation: 15.9 inches

Average Snowfall: 73.7 inches

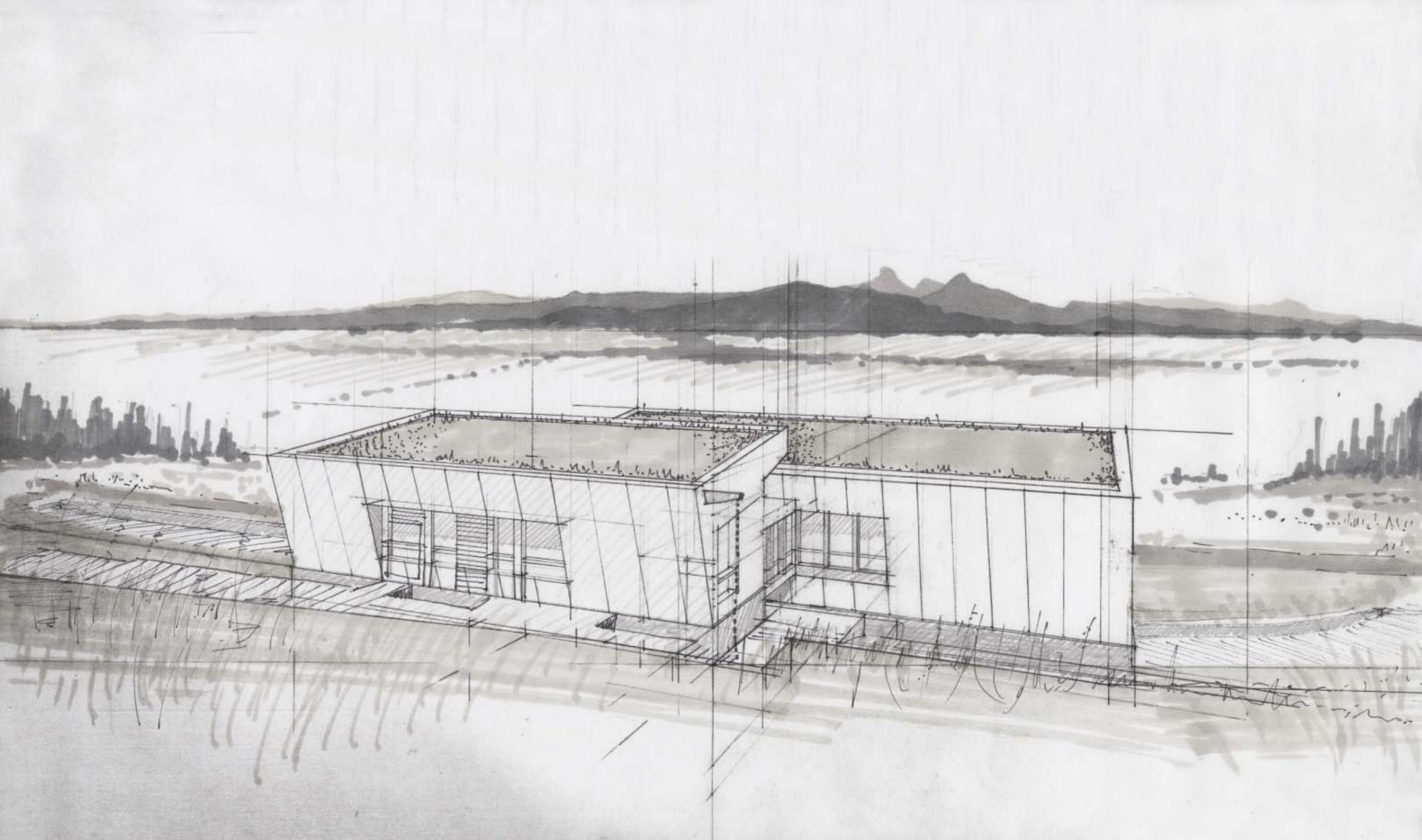
Highest average daily max. temperature in July: 81.7° F

Lowest average daily max. temperature in January: 6.4° F

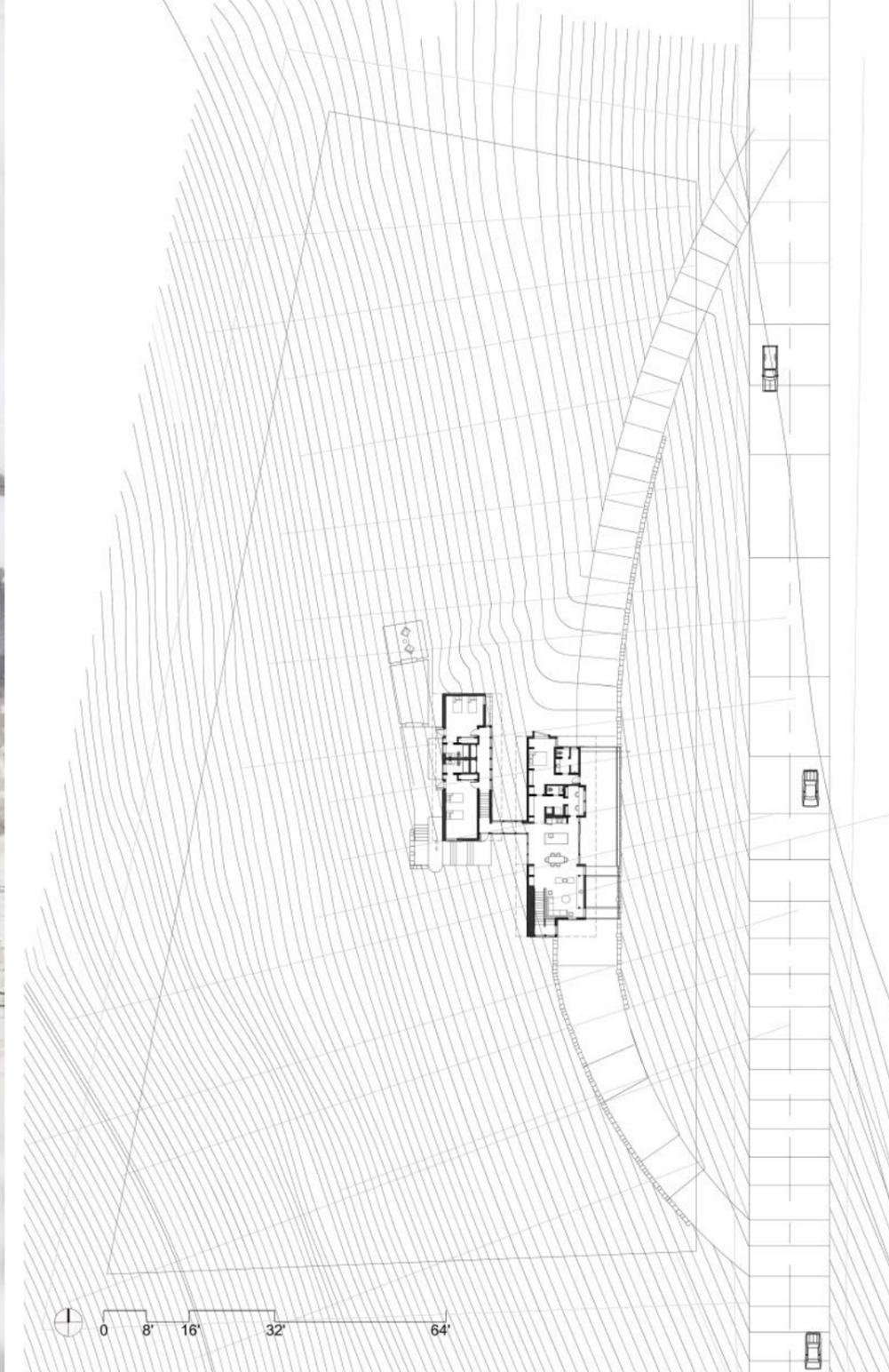
Driest Month: November

Wettest Month: June

Prevailing Winds: From the SouthWest



Site: 3 acres
 Elevation change: 90 feet from the NE corner to the SW corner
 Slope: 15°
 Site Vegetation: Sagebrush



INTRODUCTION

Located on the eastern slope of the Big Hole Mountains facing the wide expanse of Idaho's Teton Valley and western face of The Teton Mountain Range, the project explores the relationship between a house and its place in the environment. "In situ" means something is "of" its place; natural to that place; and built in-place with local materials. The house wants to be one with the land and of the land.

The Teton Valley offers dramatic views, a powerful and rugged landscape, hardy vegetation, and challenging weather. The design of the house takes cues from all these elements.

The physical characteristics of the site, including the slope and vegetation, guided most of the design decisions. These included the layout of exterior and interior circulation, material selection, solutions to localized water management, architectural expressive form, views and vantage point locations, and the position of the house on the site.

On approach, one follows the natural contours of the land up to the house. As one circulates through the house, views are revealed and hidden in specific locations and in varying degrees according to the function of the space.

Throughout the house, it is the eye that is drawn out into nature. However, the rear deck provides an opportunity to step out into the environment for a multi-sensory experience as it extends out onto the slope and into the landscape.

APPROACH



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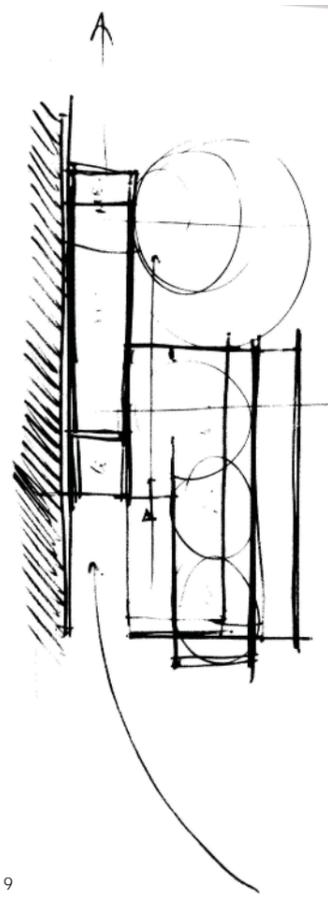
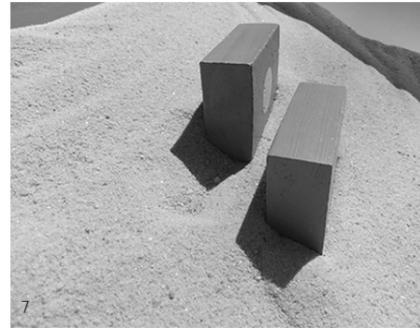
STONE: A static material around which water flows and is directed. A rock in a stream.

Bedrock: Granite

Location: Retaining walls and Foundation walls and Drainage bed

The retaining walls hold back the land and define the access onto and away from the site. The two retaining walls overlap at the house. The foundation walls are an extension of the retaining walls and physically attach the super-structure to the land. They allow the structure to become one with the land.

The drainage bed is filled with loose granite rocks and leads surface water away from the slope above the house and water shed from the rear roof.



The house sits nestled, yet exposed, on the landscape surrounded by sagebrush. The two masses of the house shift past each other appearing to carve the earth defining a path.



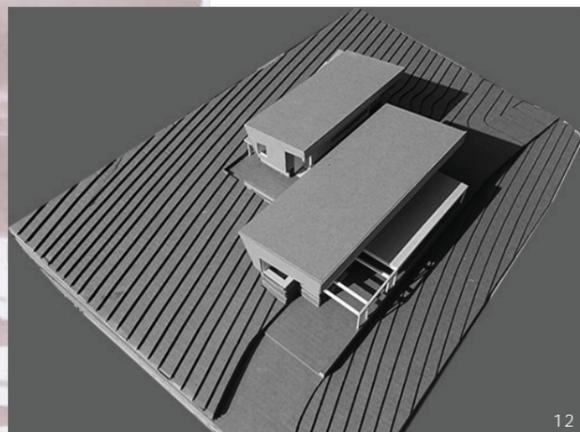
SE perspective looking NW toward Big Hole Mountains

SE perspective looking NW toward Big Hole Mountains

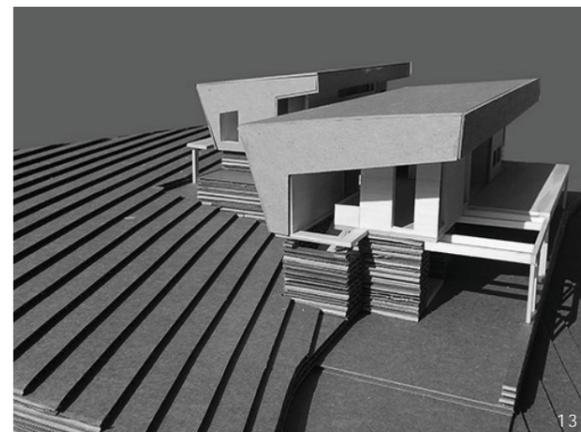


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Upon arrival in the shelter of the car-port, you are positioned parallel to the primary mountain view. The views disappear as you enter the house and start to be revealed again as you climb the stairs and enter the main living space.



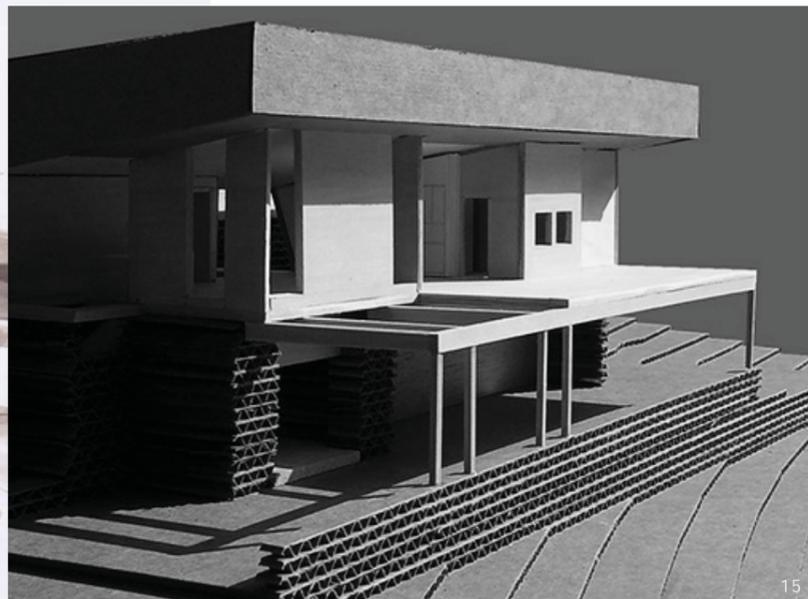
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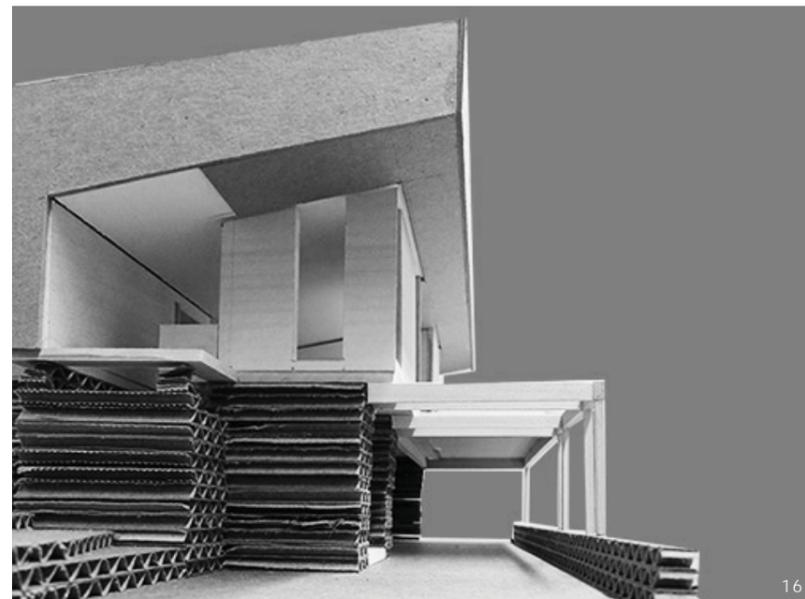
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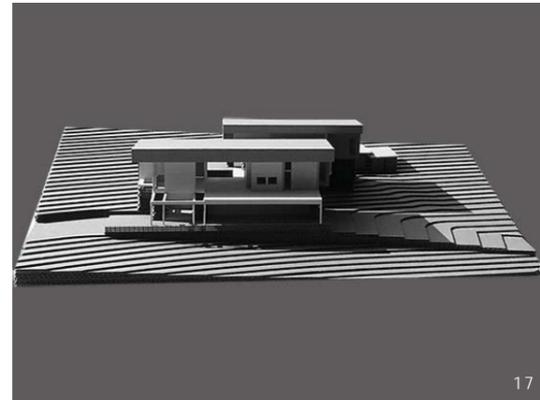


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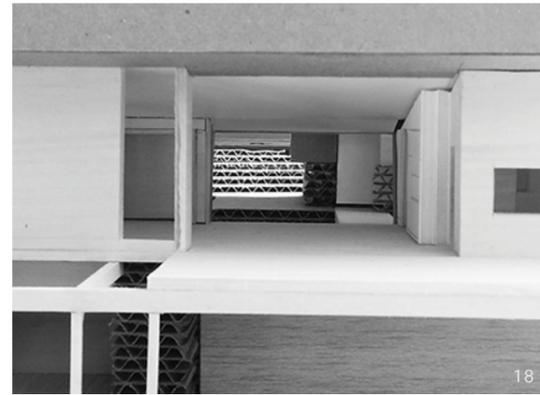


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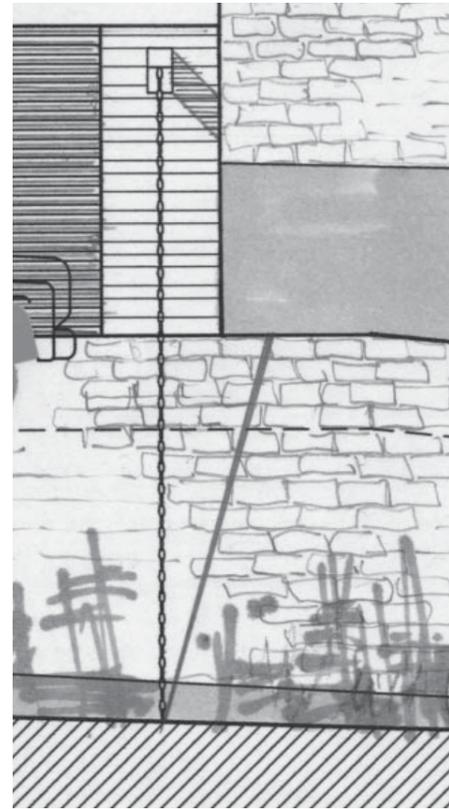
The stone retaining wall of the landscape grows into the foundation of the house.



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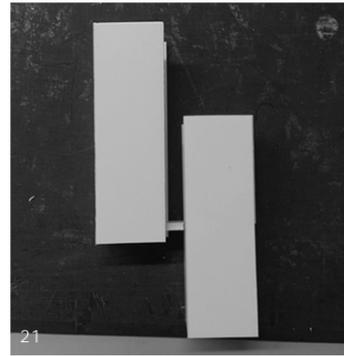
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The house addresses the view of the Teton Mountain Range while engaging with the immediate landscape.

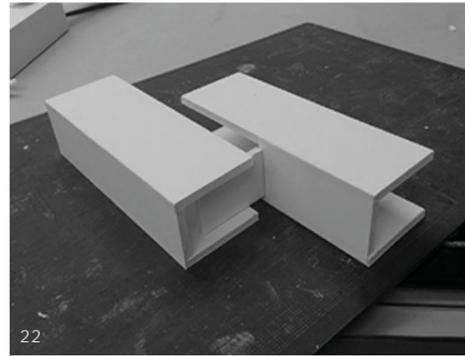


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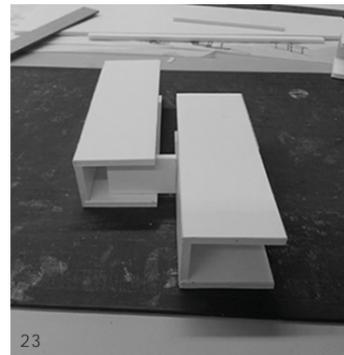
Front Elevation looking West toward Big Hole Mountains



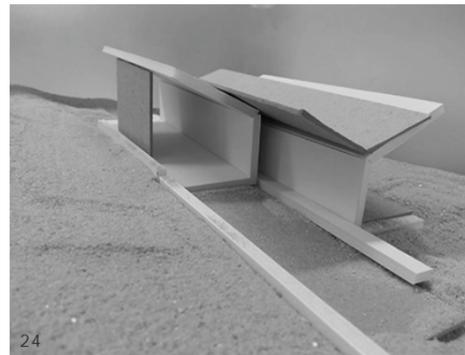
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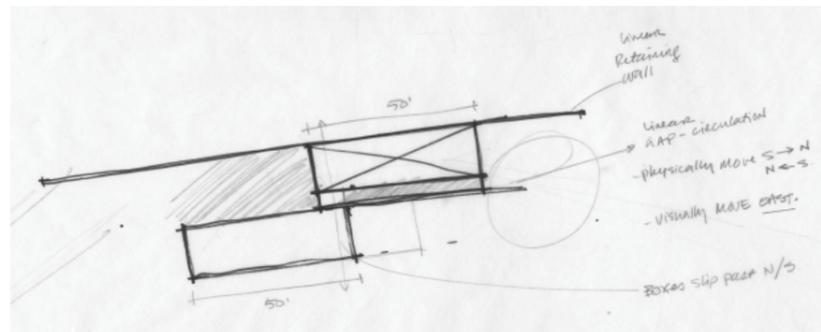
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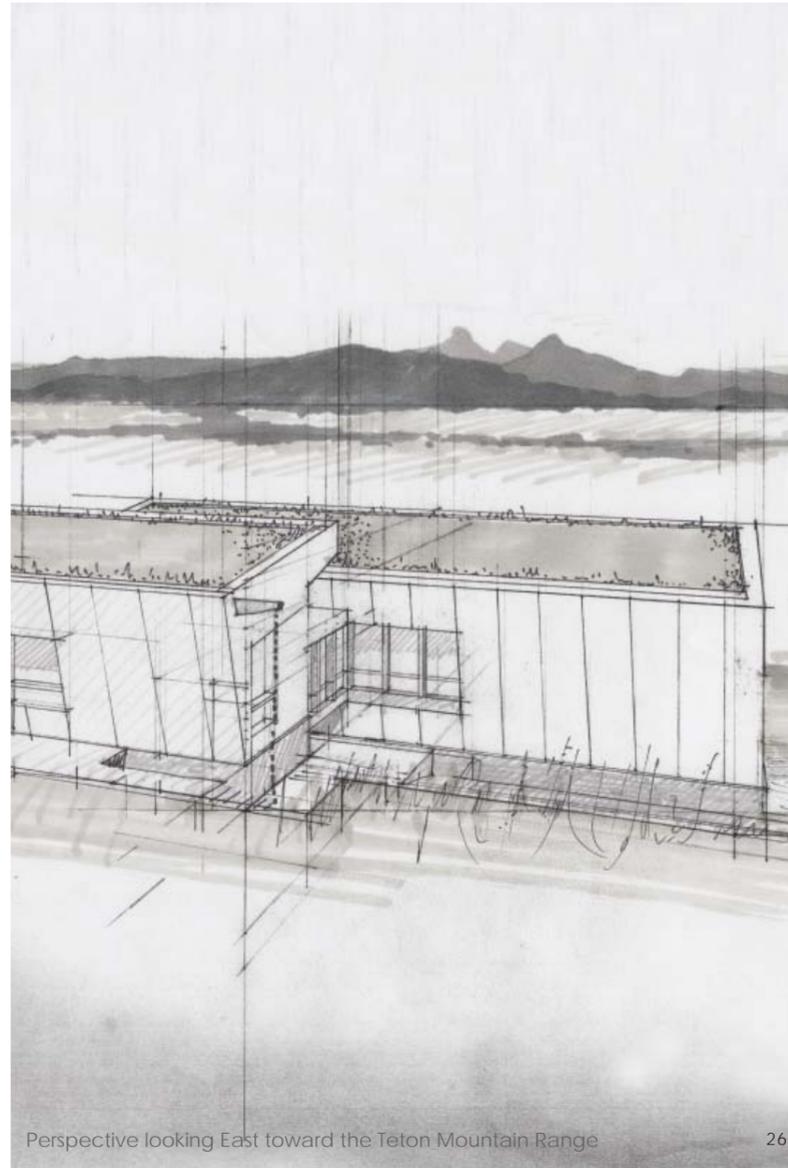
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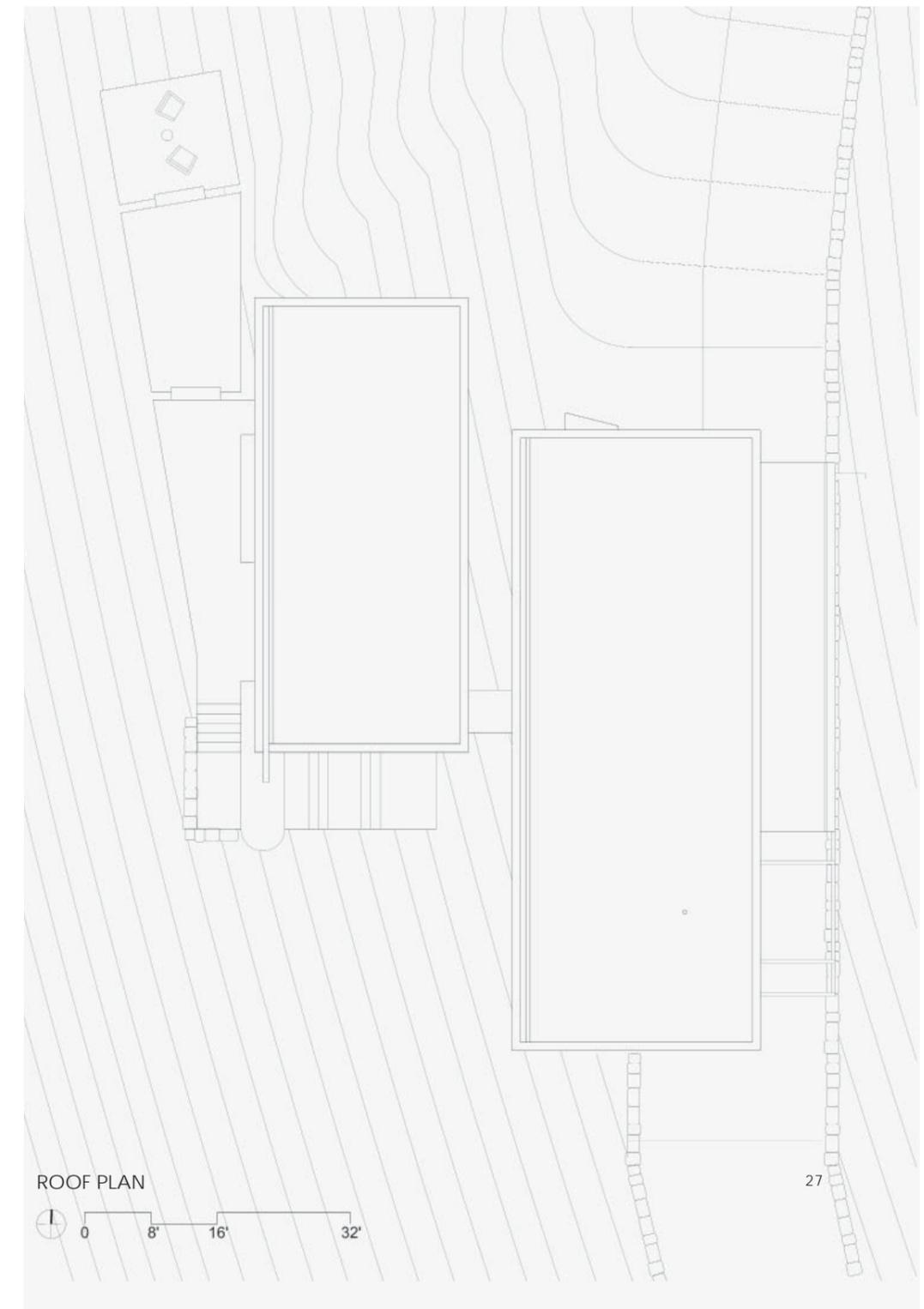
Programmatically, the house is divided into two masses positioned to allow for light infiltration and access to views. The front portion contains the living spaces including the master suite and study. The rear portion is the bunk-house with two bedrooms and baths.

ROOF & LANDSCAPE

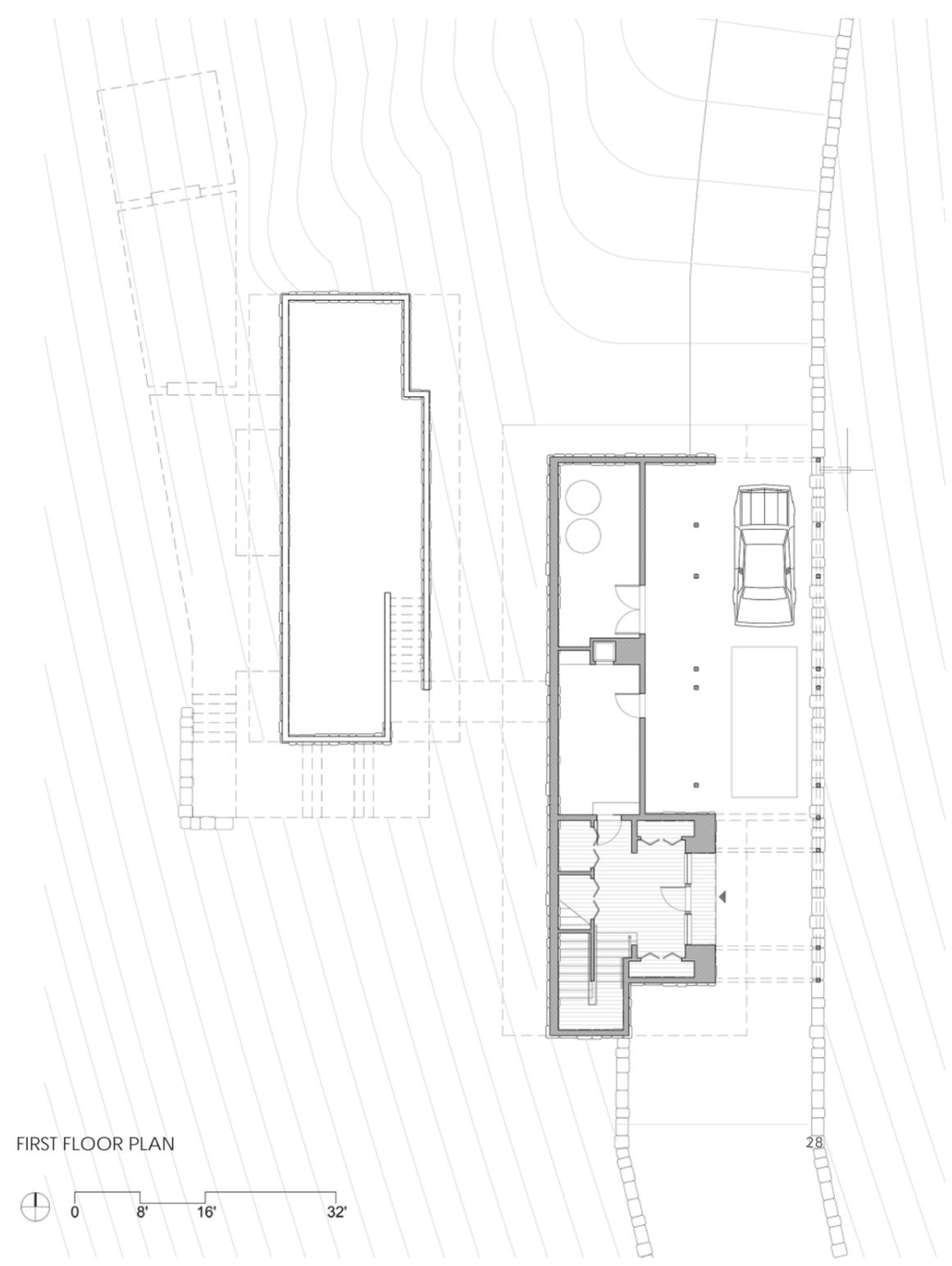
Extensive green roofs replace the vegetation lost to the house's footprint. They help to provide an unbroken sightline of greenery to the mountains beyond when viewed from uphill.

The front vegetated roof captures water and directs it to cisterns for reuse in irrigation, toilet-flushing, and laundry.

The back vegetated roof captures water diverting excess through a trough to a rainchain which guides the water down to the ground.



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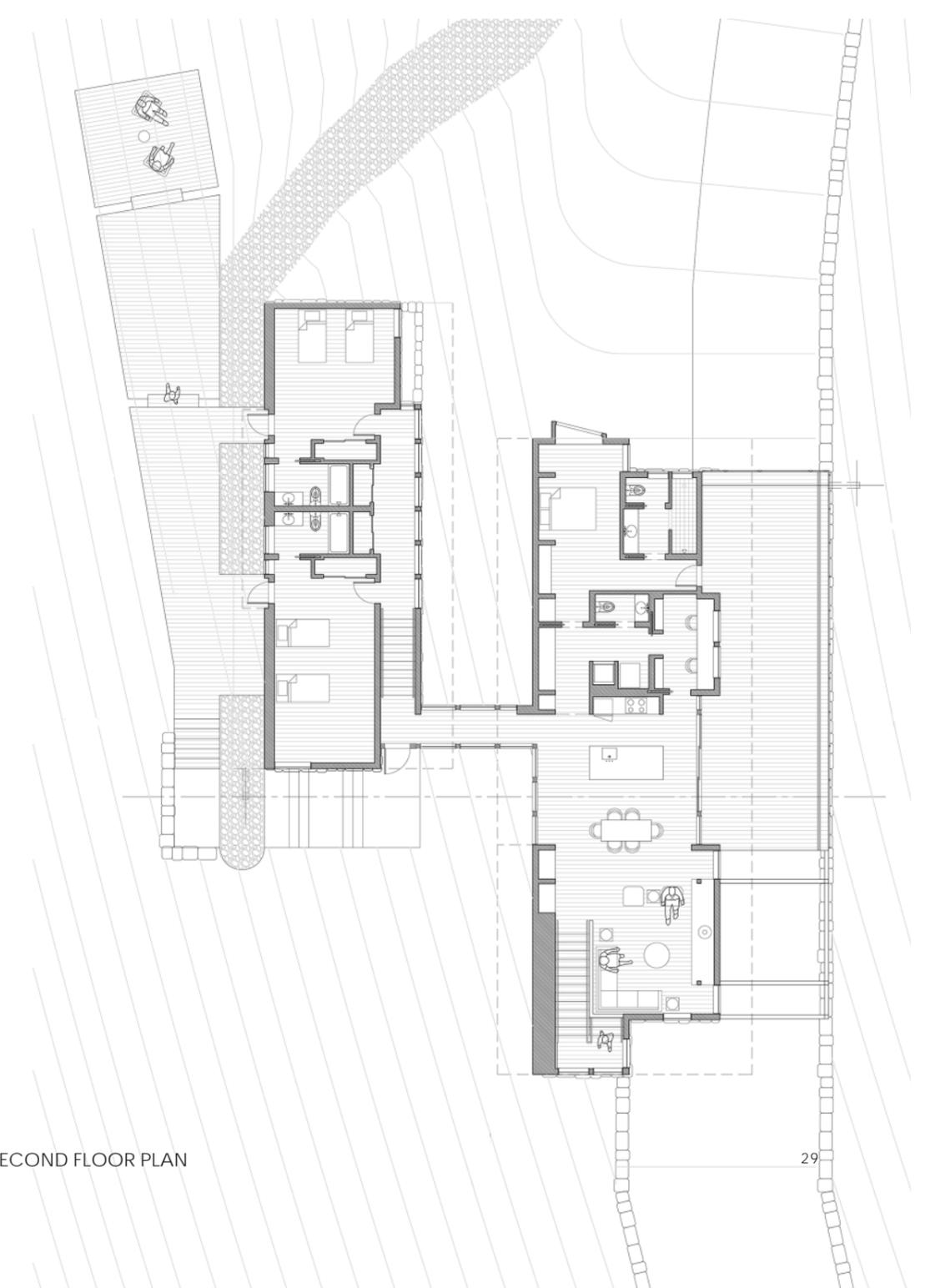


One enters the house by stepping up onto a wooden platform. The wood floor then draws you up into the house.

FIRST FLOOR PLAN

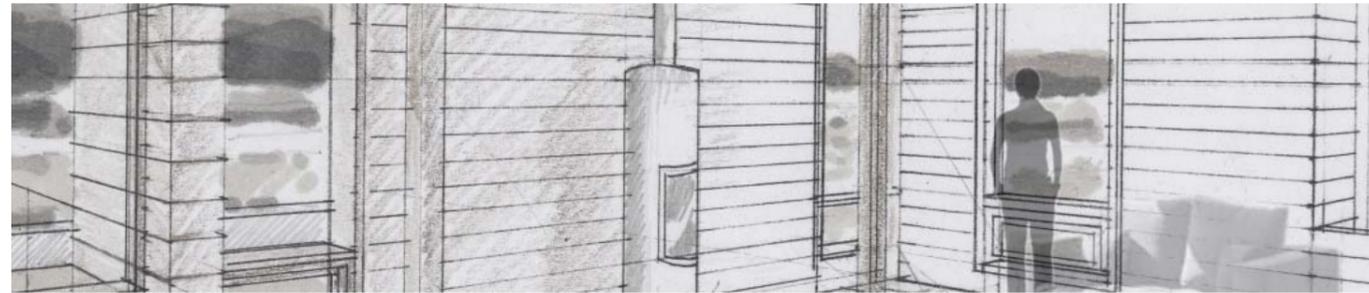


The wood floor is the unifying element throughout the house extending from the exterior to the interior to the exterior and out into the landscape.



SECOND FLOOR PLAN

INTERIOR



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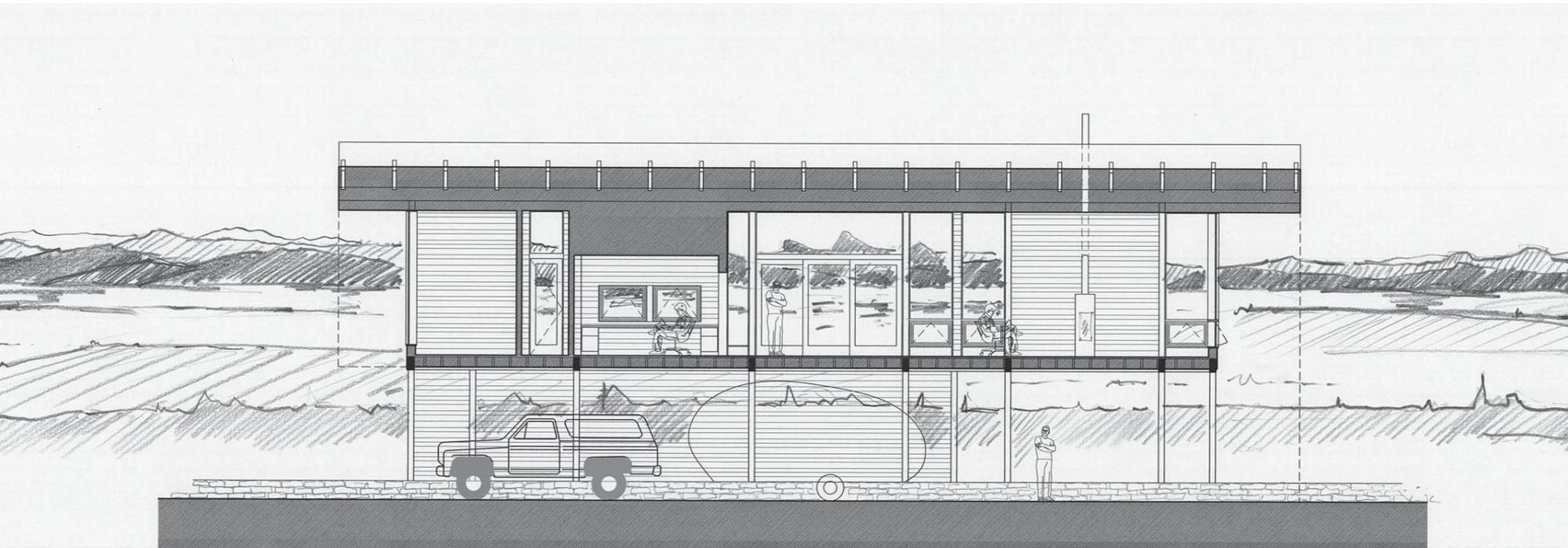
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WOOD: A warm, "soft", and tactile material. It is the material the occupant comes in physical contact with. One walks on it with bare feet and runs a hand along it.

Location: Exterior and Interior walls and floor

In the horizontal position, wood indicates circulation throughout the house from initial entry to exterior rear deck.

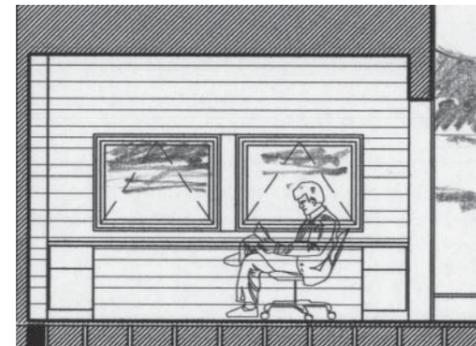
In the vertical position, wood wraps walls from the exterior to the interior and back to the exterior leading one's eye to key exterior views.



Longitudinal Section looking East toward the Teton Mountain Range

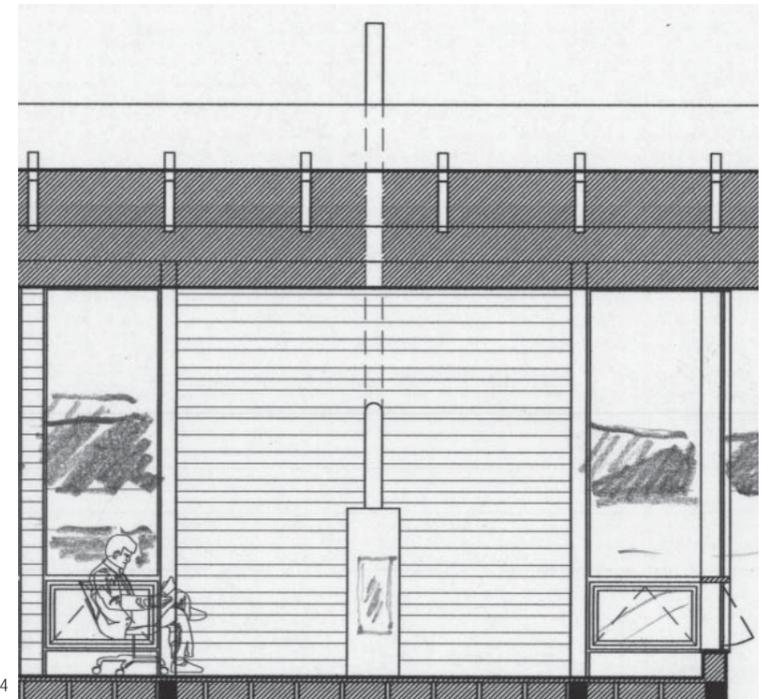
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In a vast landscape, it is necessary to create both interior and exterior spaces with a manageable scale and proportion.



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The intimate Study contains small windows for controlled views.



34

The Living Area, with its high ceiling, is framed by narrow full-height windows. The views are off to the side and secondary to the wood burning stove.



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Interior Perspectives looking SE toward the Teton Mountain Range

Horizontal wood boards clad the exterior and interior walls in specific locations. On the interior, occupants are wrapped in the warmth of the wood. In the Living Area, the walls are more pronounced fostering a sense of security and well-being against the elements and immense landscape.



Interior Perspective looking NE toward the Teton Mountain Range

Wood-framed doors slide open in mild weather to erase the line between interior and exterior.

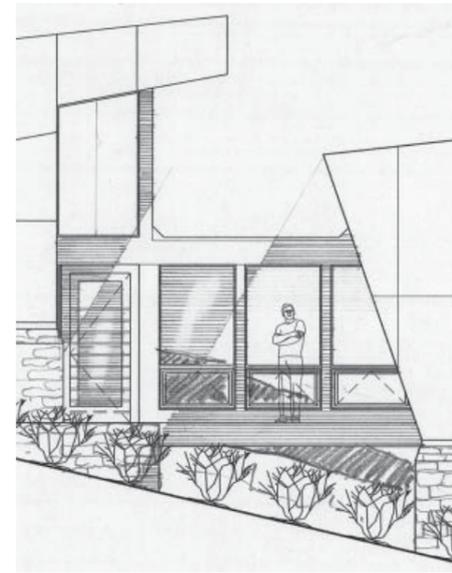


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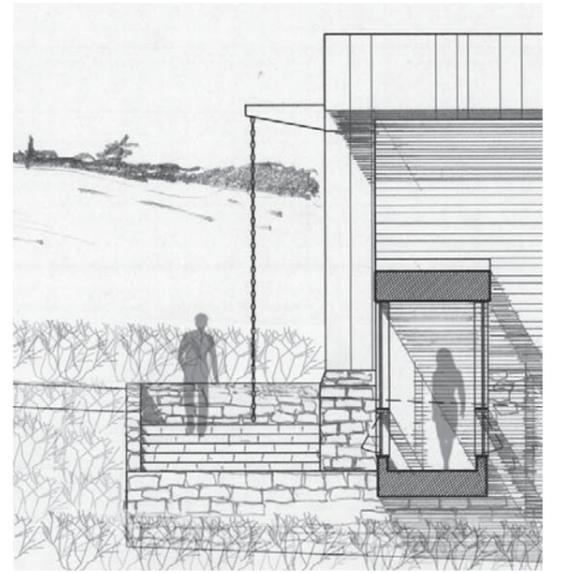
Interior Renderings looking West toward the Big Hole Mountains



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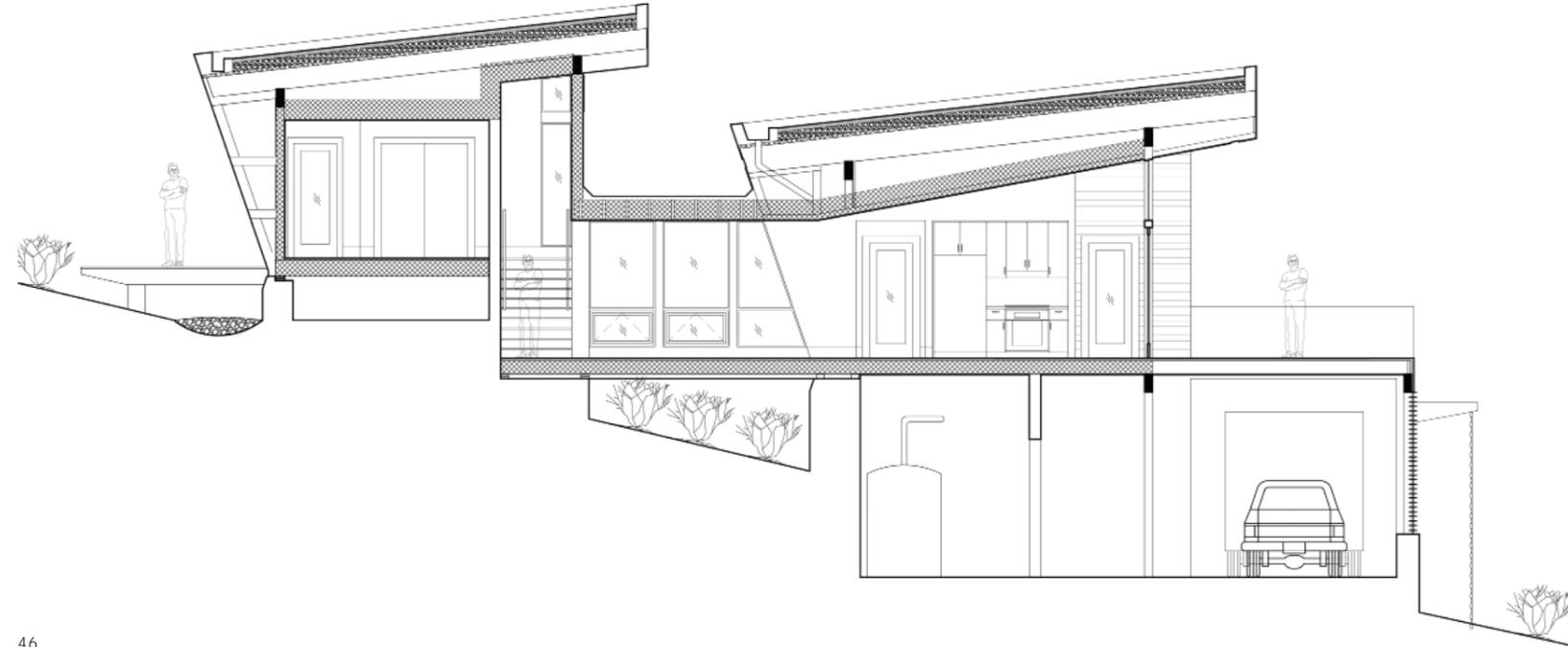
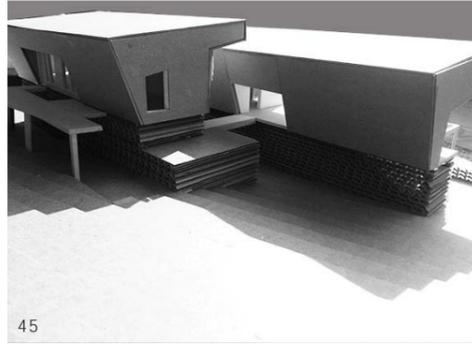
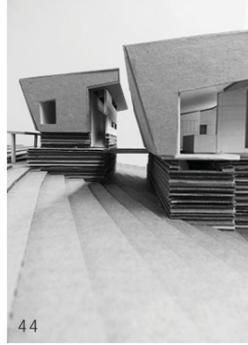
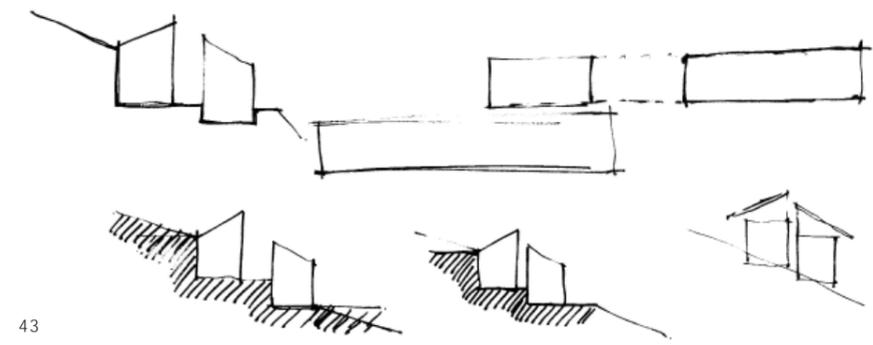
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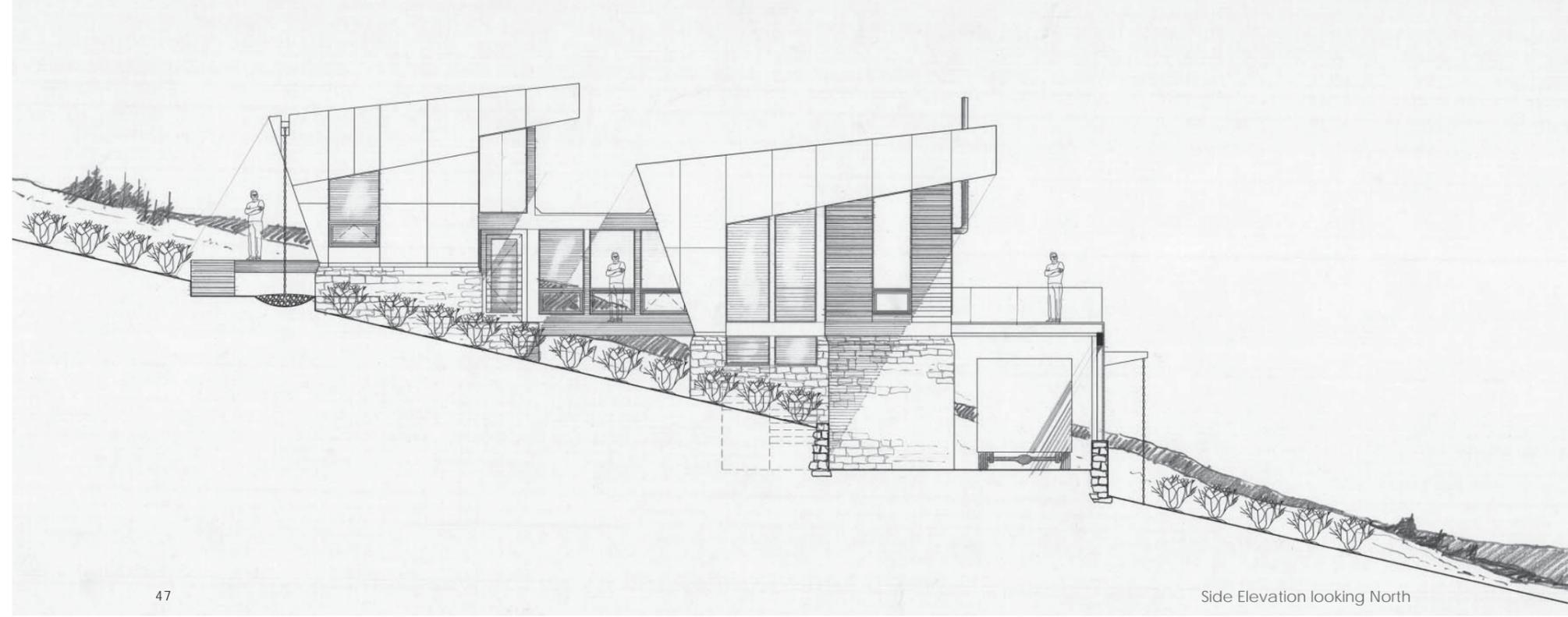
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Section Detail at bridge looking West toward the Big Hole Mountains

A visual axis extends through the house at the kitchen and dining area linking the Eastern and Western mountain ranges. Centered on the windows, the rainchain helps draw the eye out into the landscape.



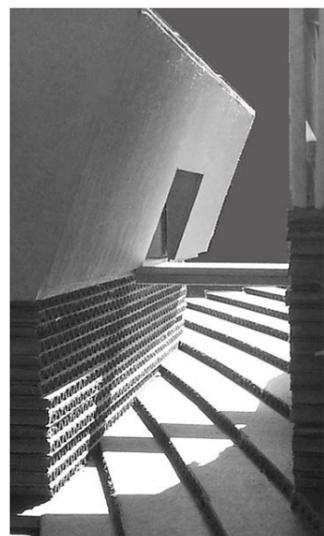
A glass-enclosed bridge provides an opportunity to engage with nature as one passes between the two parts of the house.



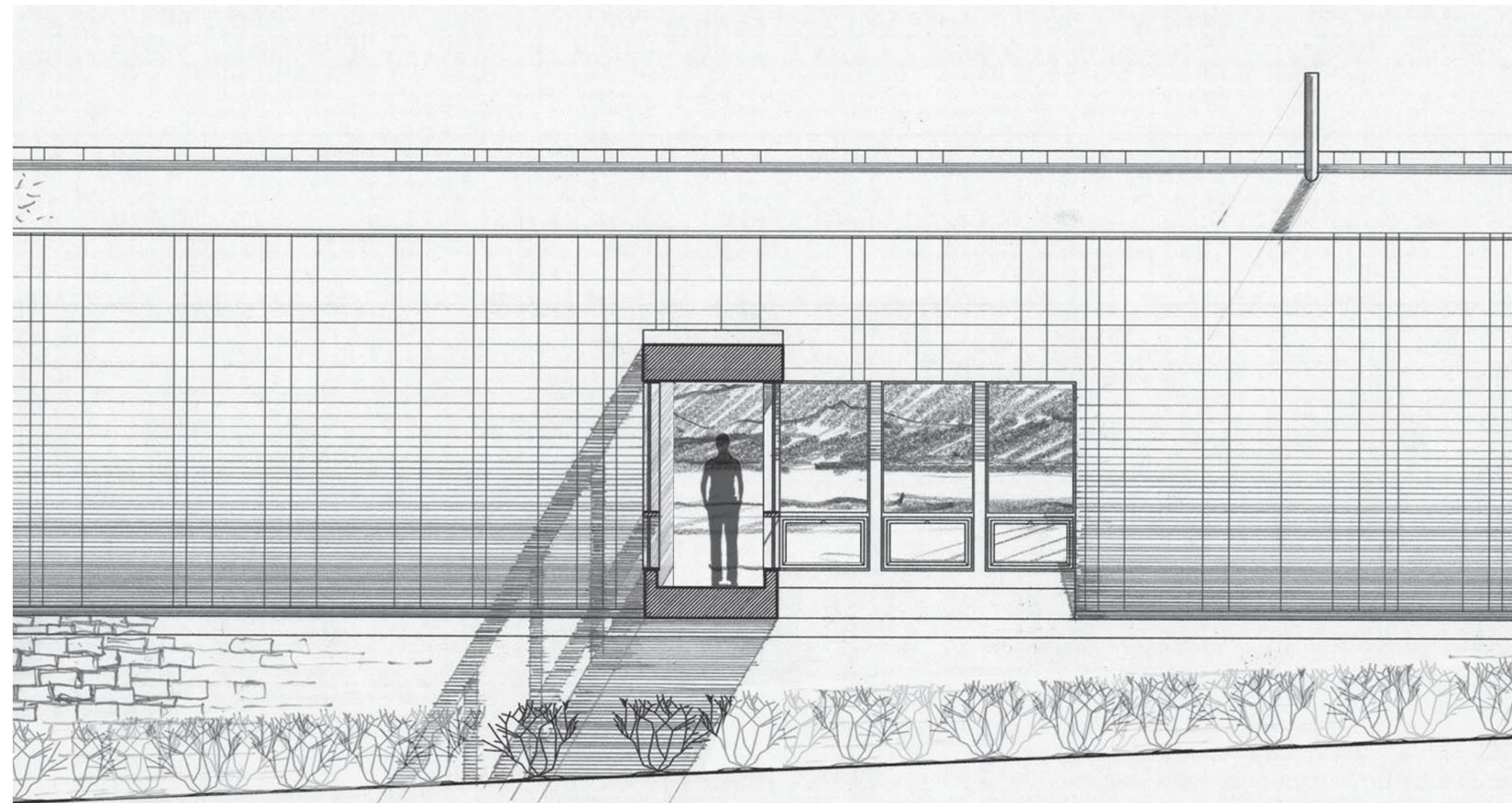
Side Elevation looking North



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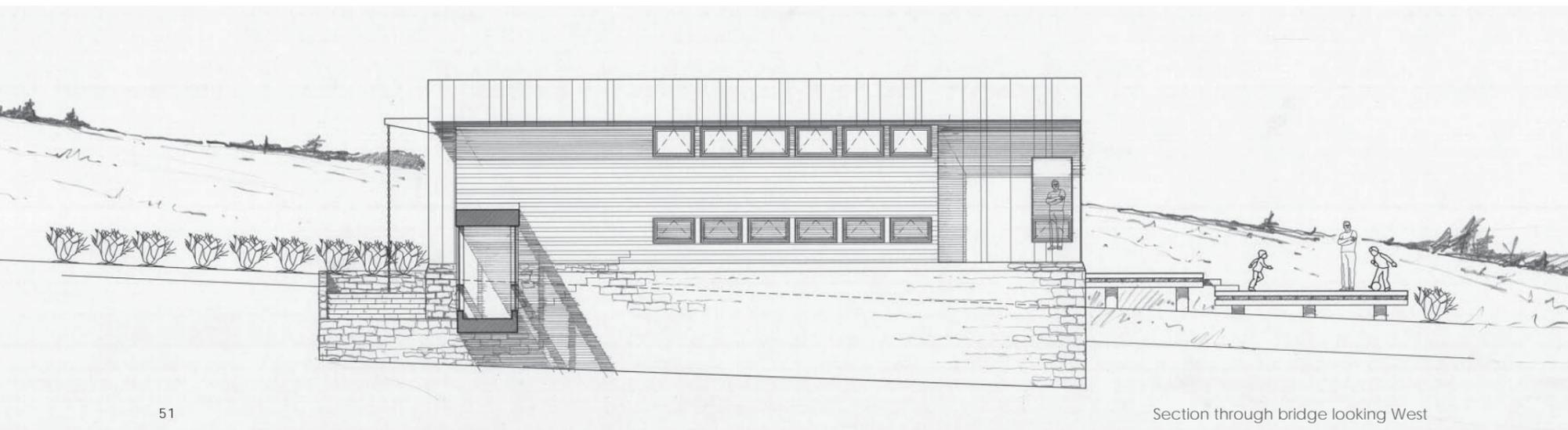
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Section through bridge looking East toward the Teton Mountain Range

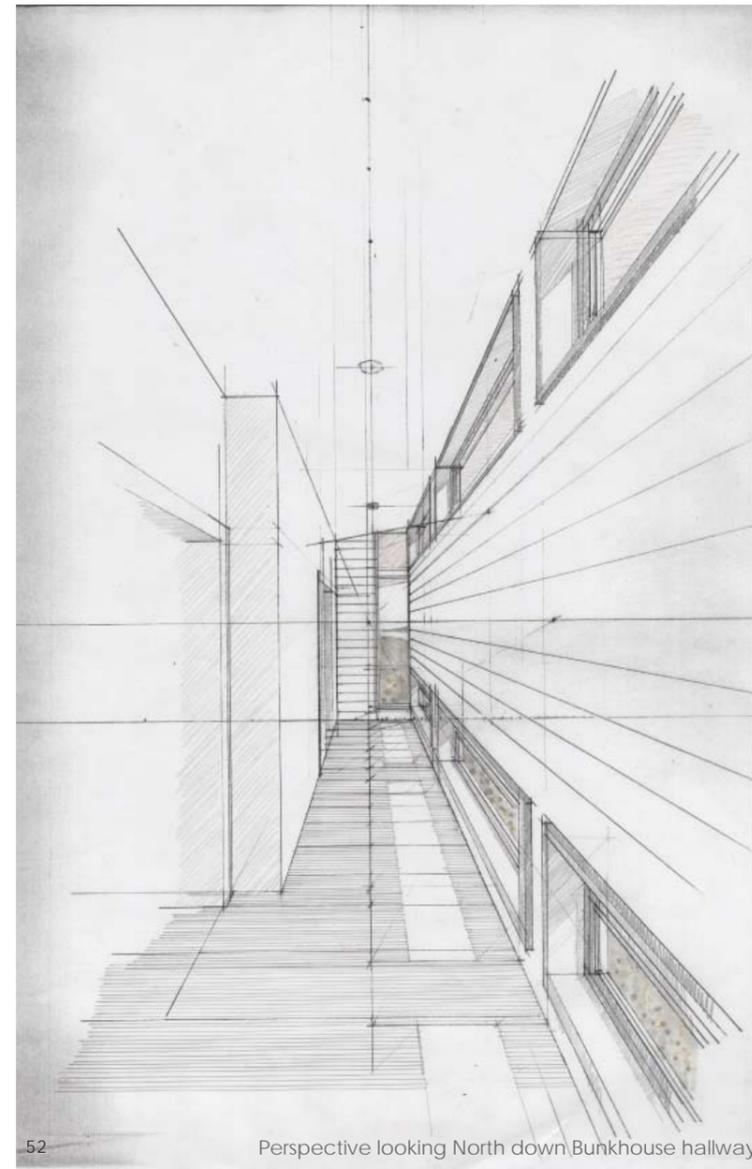
Crossing the bridge from the bunkhouse, one catches a glimpse of the vista beyond through a portal in the steel wall. The view grows and expands as you pass into the Living Area.



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Section through bridge looking West

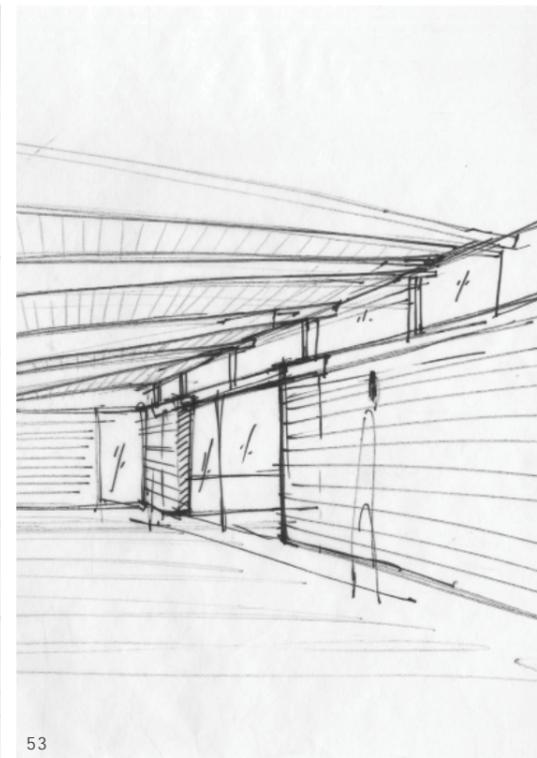
Some windows let in light, others reveal views both grand and intimate.



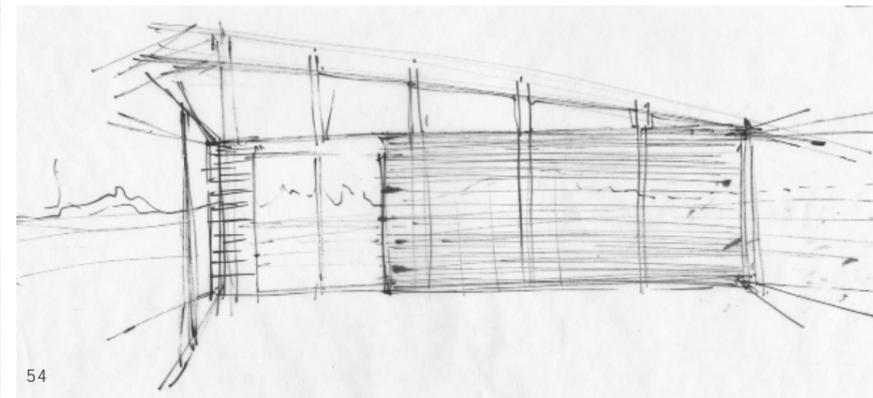
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Perspective looking North down Bunkhouse hallway

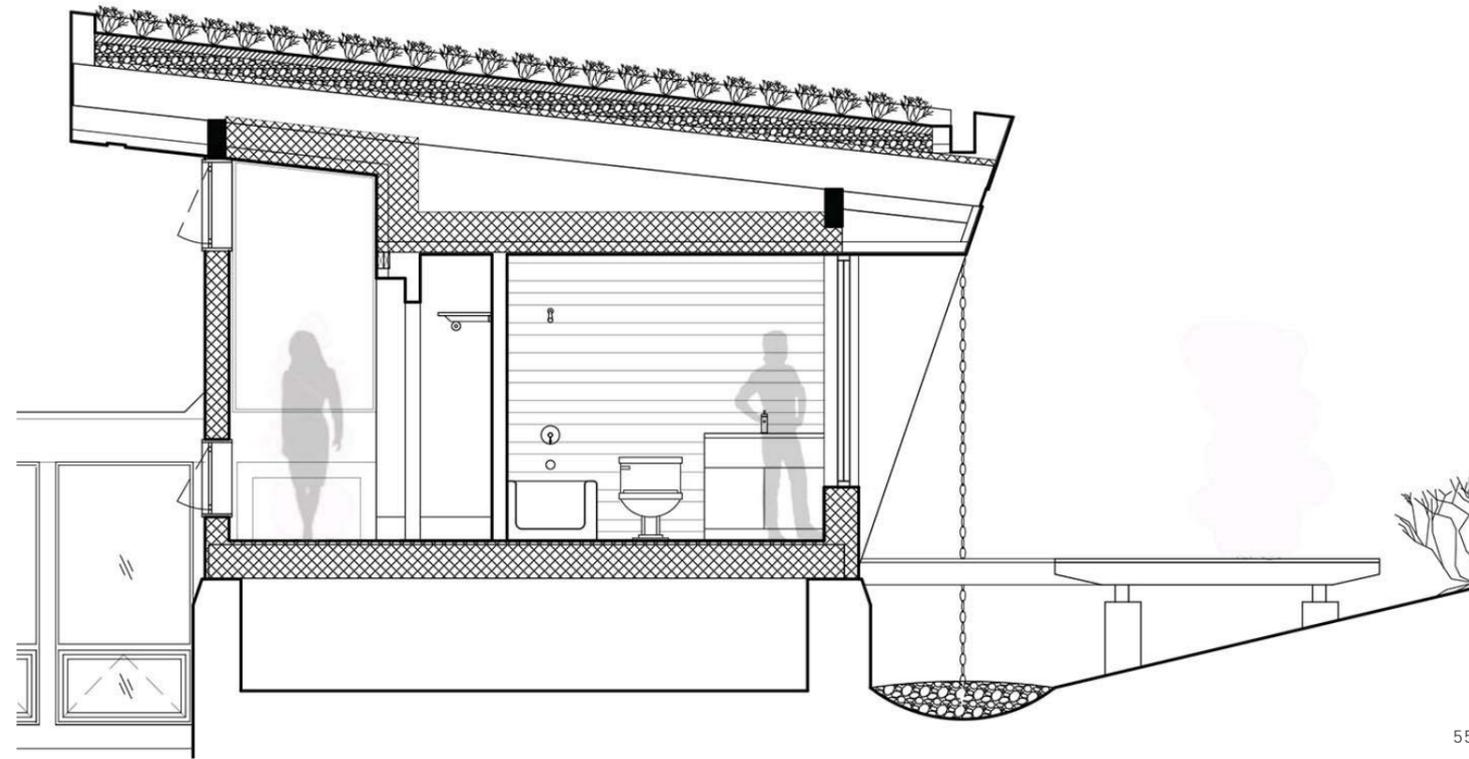
A narrow hallway with light from above, views of vegetation below, and a peek at a distance vista. The lines of the wood draw you physically down the hallway while your eye continues out into the landscape beyond.



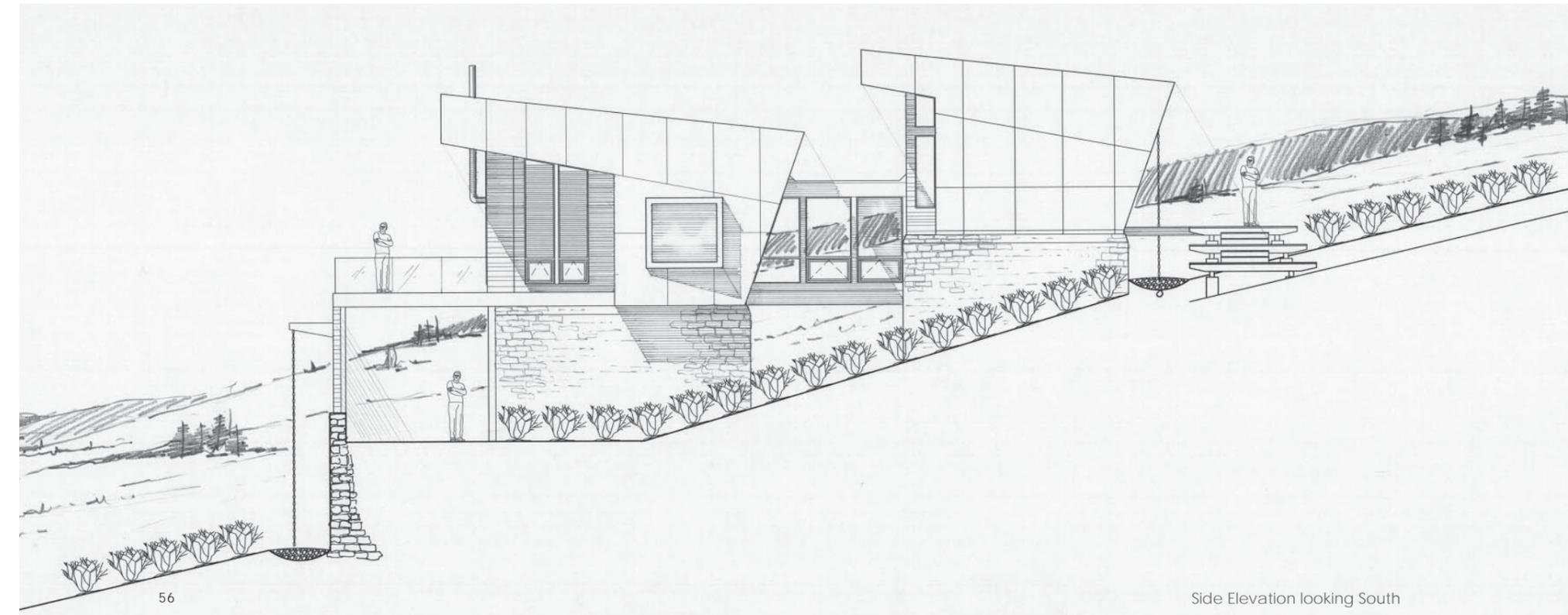
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In contrast with the front deck over-looking the valley and the mountains beyond, the bunkhouse and rear deck offer a close appreciation of the hillside and its vegetation.



EXTERIOR



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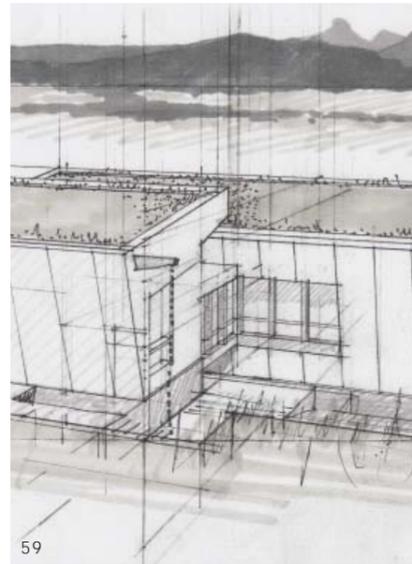


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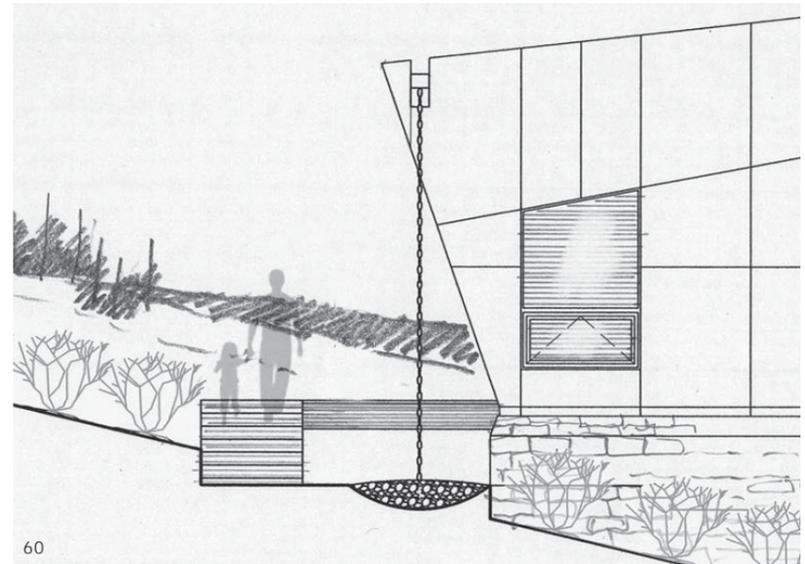
WEATHERING STEEL: A malleable material, weathering steel is affected by its environment and records time while developing a rich patina with texture and depth. Water leaves its mark.

Location: Roof and exterior walls

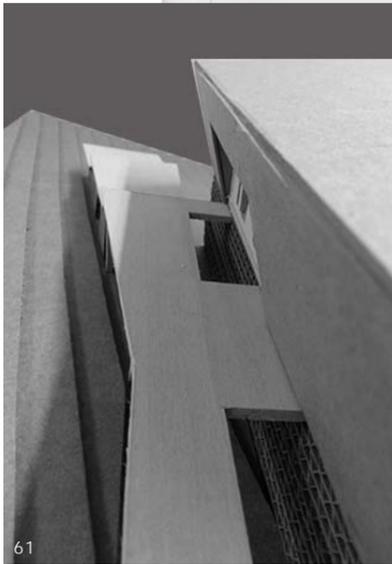
Weathering steel is durable, protective and expressive. It blends into its cultural and physical context and vegetated surroundings. The steel wraps like a protective coat around the bedroom areas at the back of the house forming a shield against the elements.



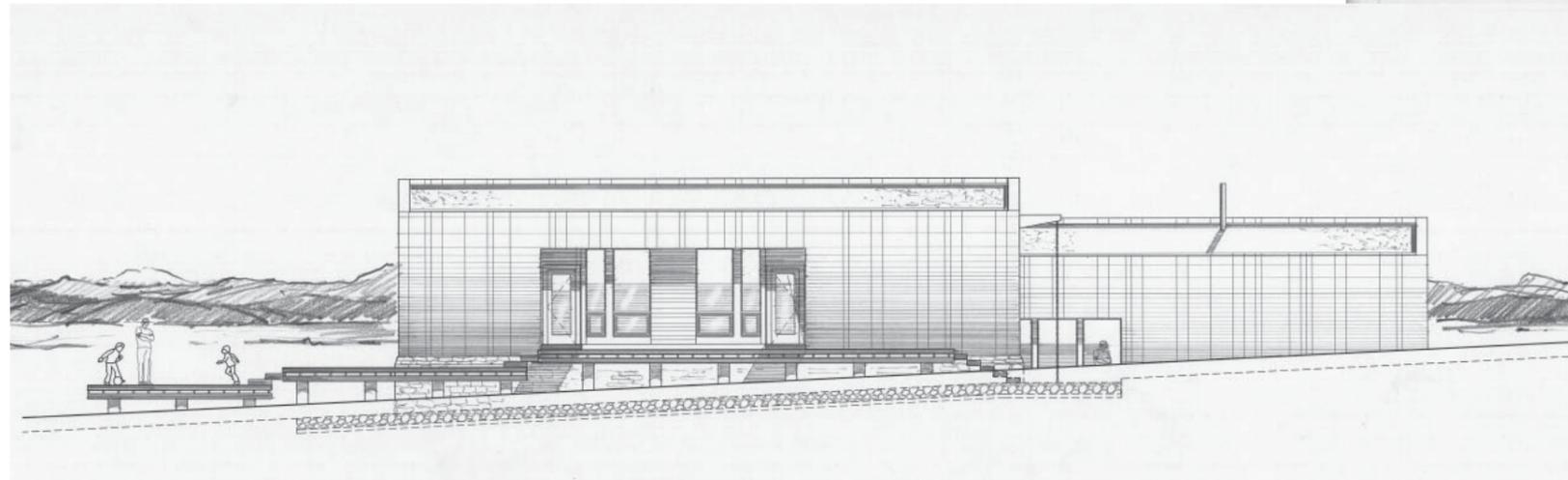
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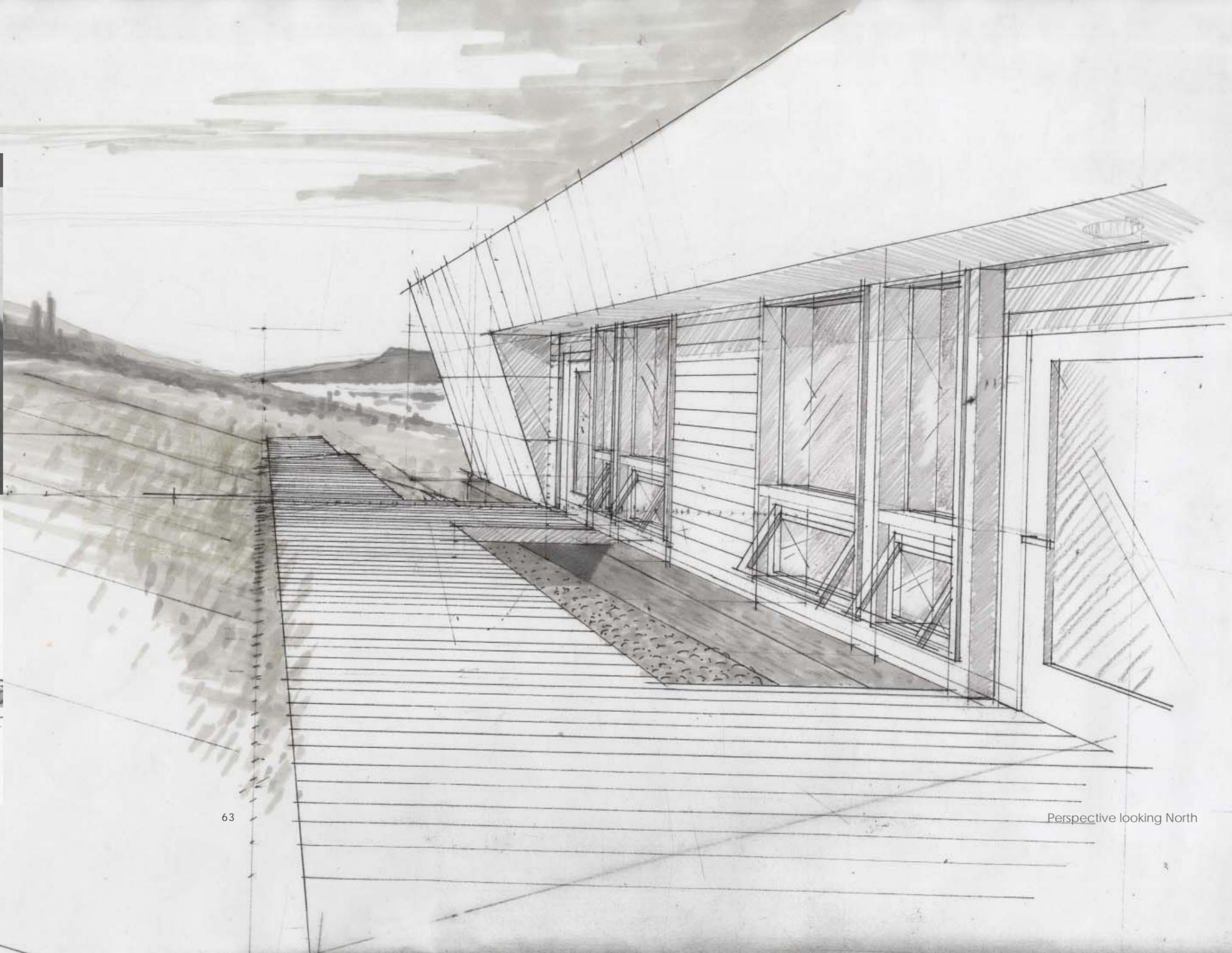
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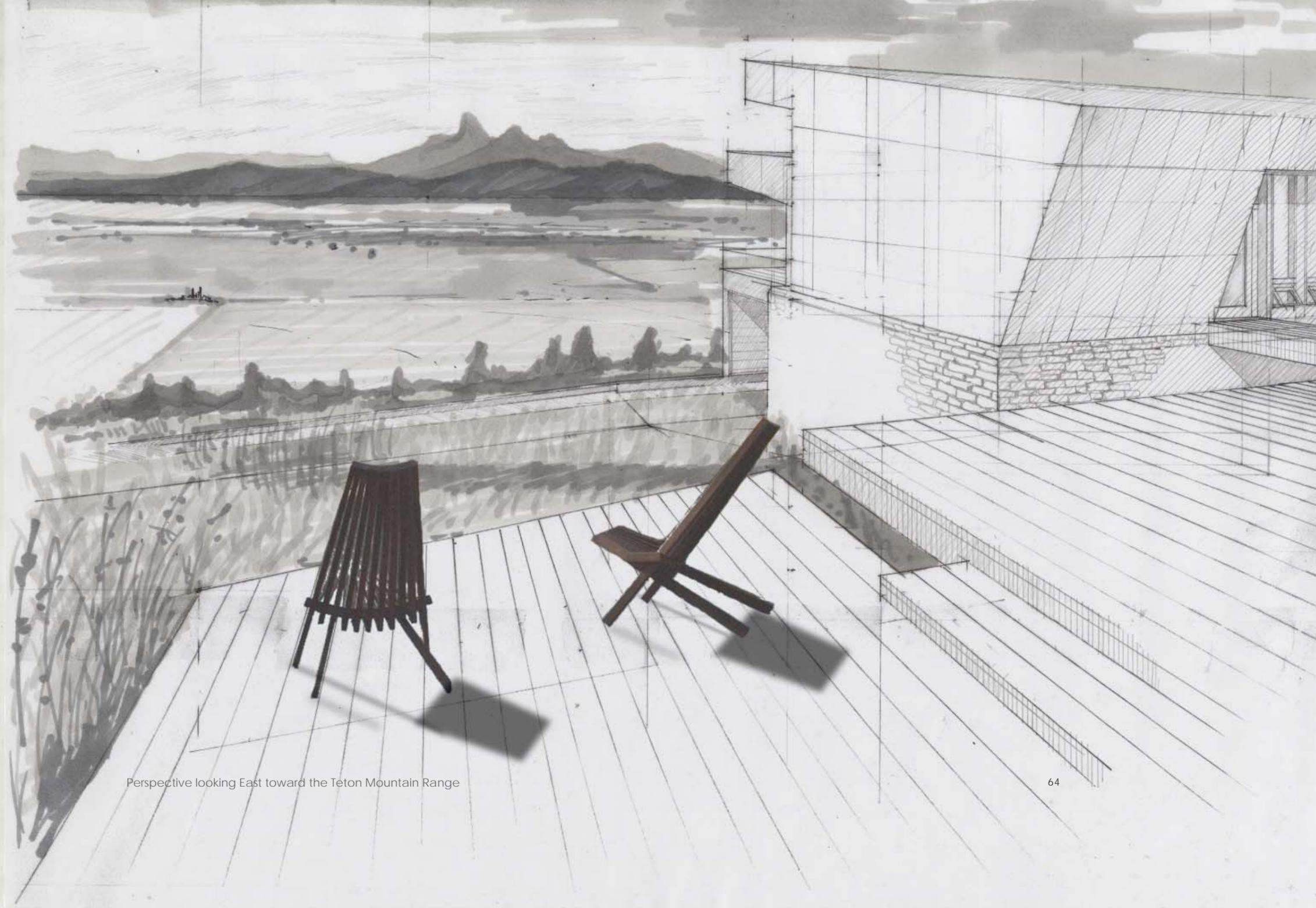
Rear Elevation looking East toward the Teton Mountain Range

A series of stepped platforms, the rear deck is an extension of the interior, stretching beyond the house and reaching out into the landscape. It is both a physical and visual path.



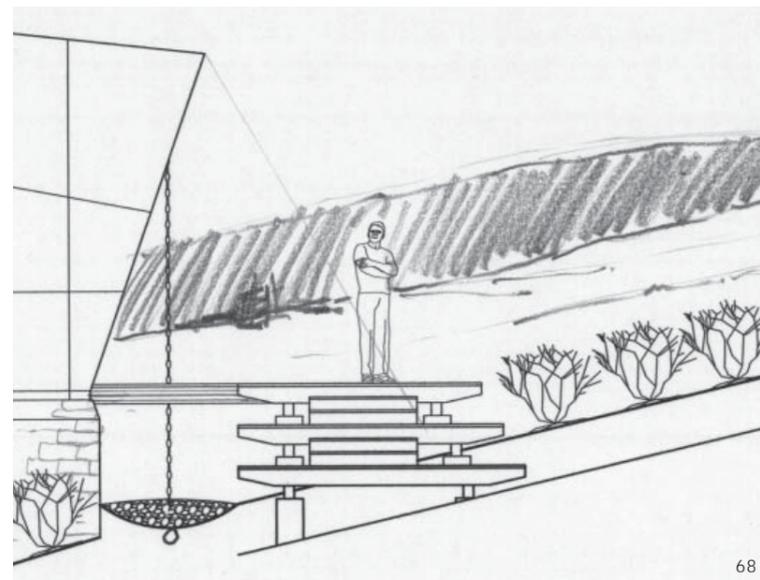
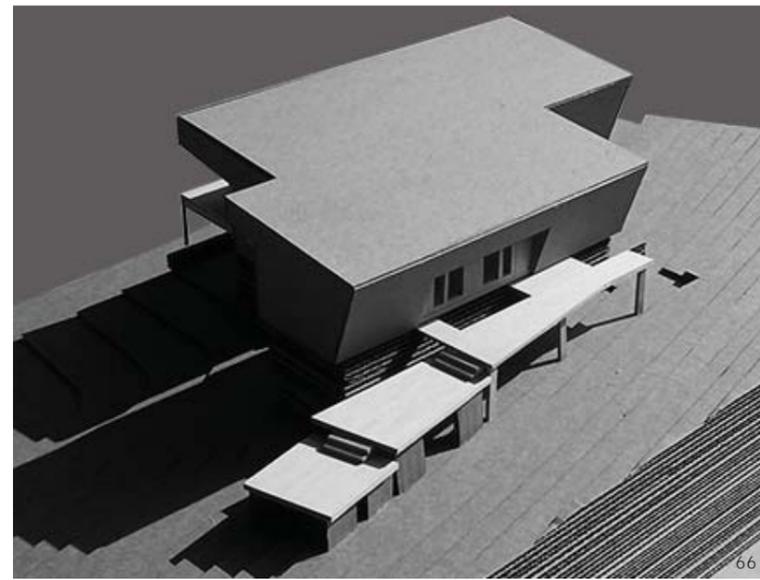
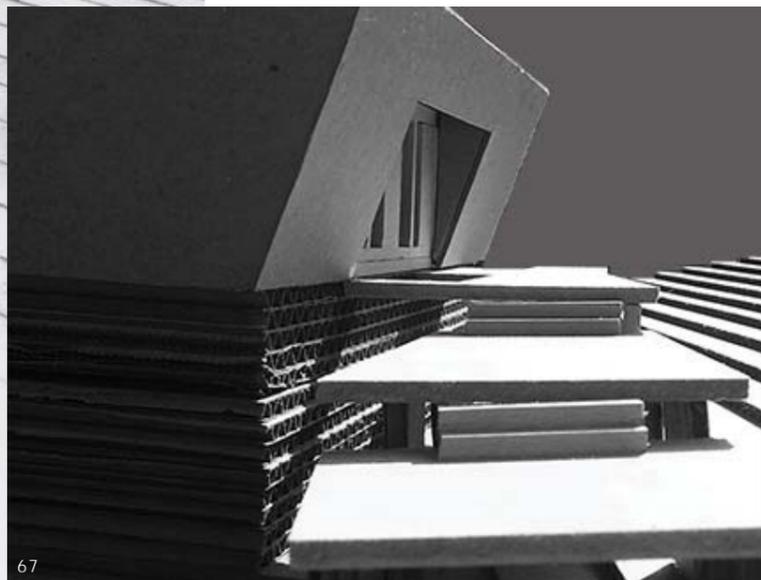
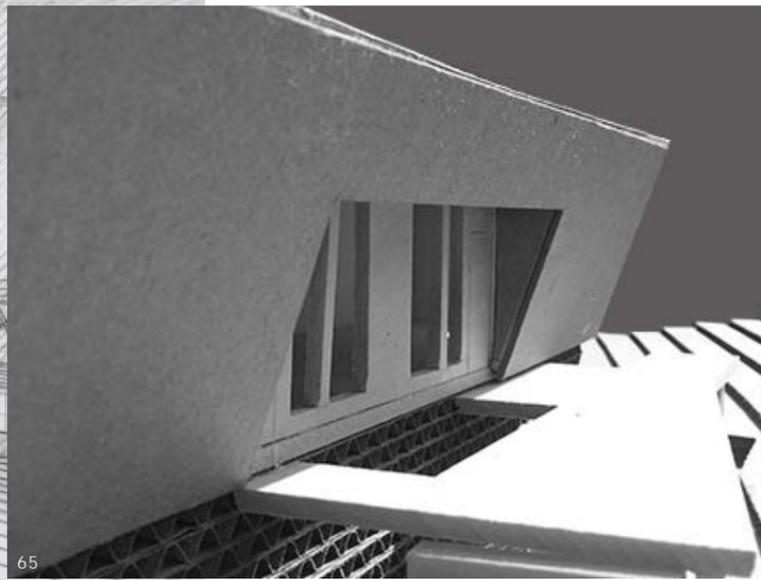
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Perspective looking North

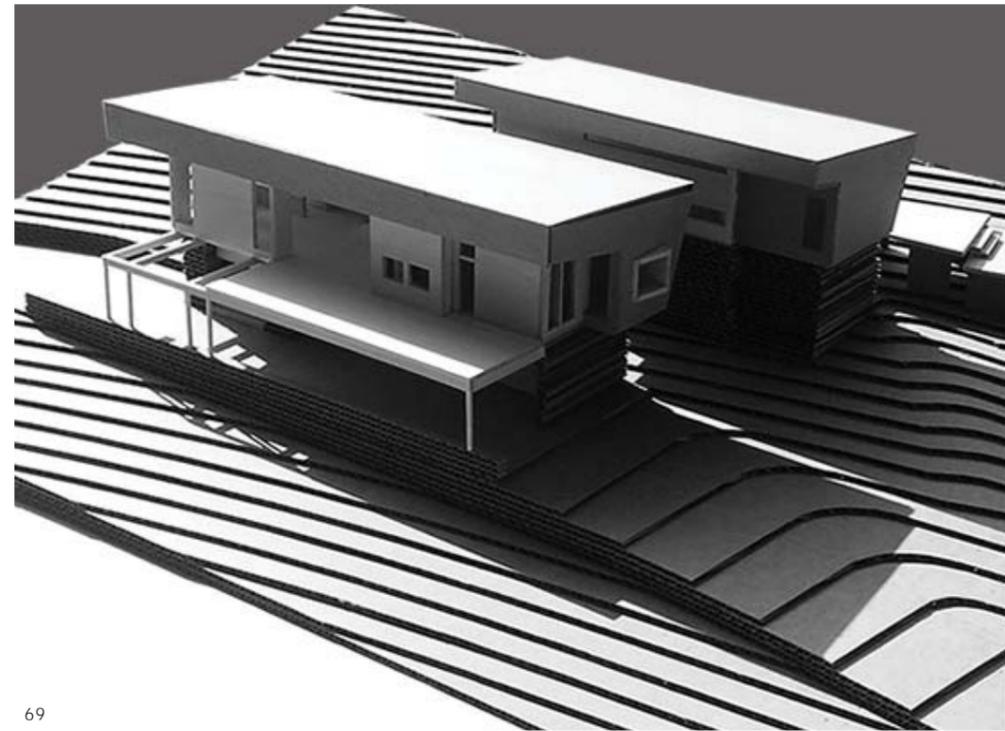


Perspective looking East toward the Teton Mountain Range

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The end of the deck provides an opportunity to be surrounded by nature and engage with the landscape on a scale both intimate and grand.



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The weathering steel roof extends down the back and side walls of the house to form a protective shield. The bedrooms are completely wrapped in steel. The living areas and passage areas are clad in wood and glass. The master bedroom has a large picture window that is angled to capture the views and for privacy.

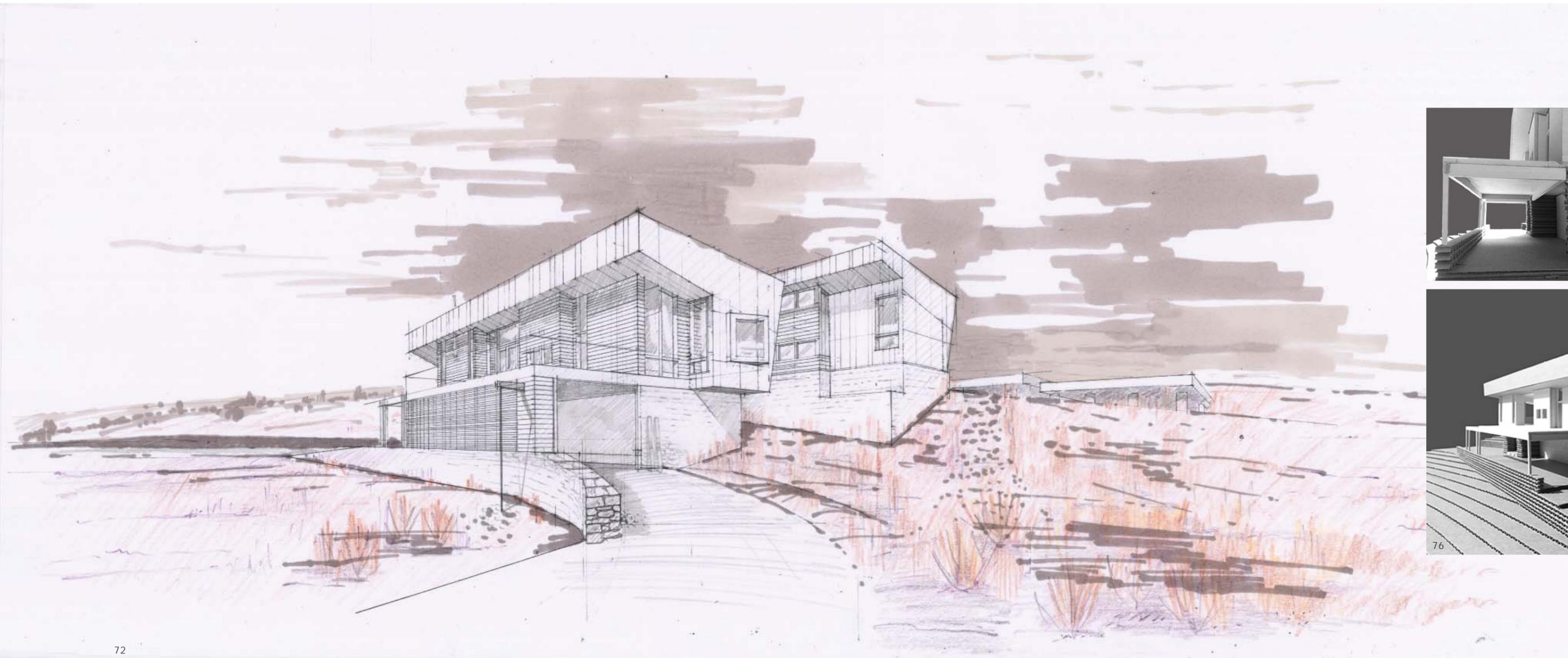


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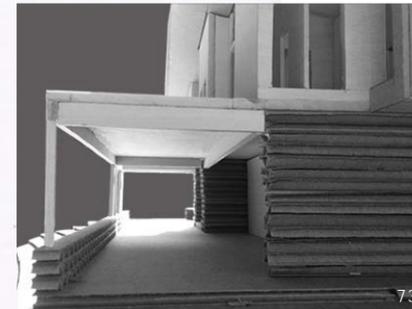
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NE Perspective looking back toward the Big Hole Mountains

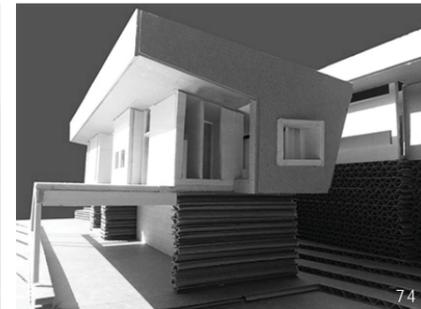


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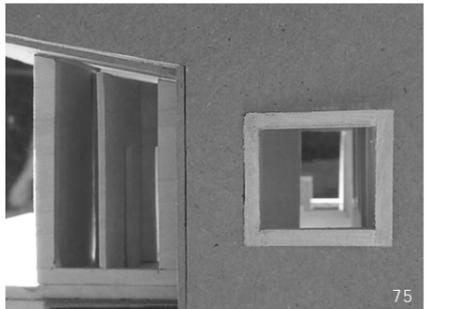
Upon departure, a stone wall leads away from the property returning to the ground.



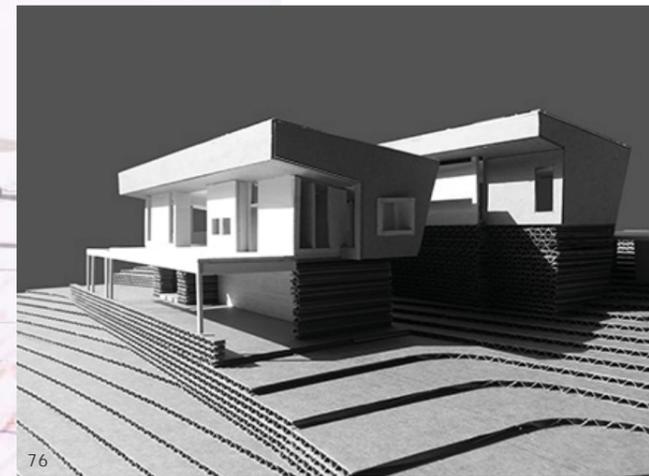
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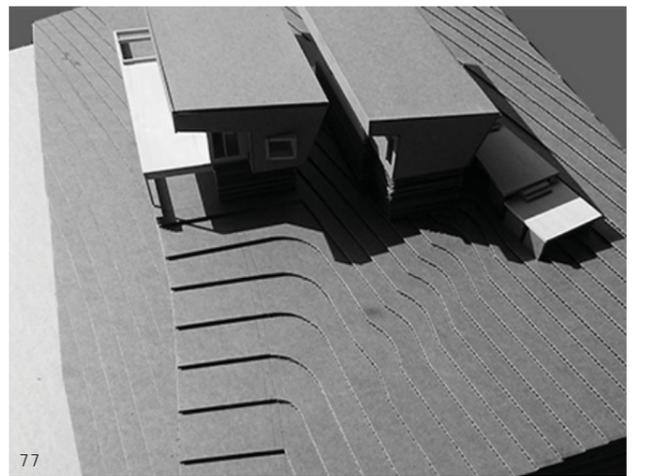
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22	Model study, foamboard	53	Sketch study, marker on trace paper		
23	Model study, foamboard	54	Sketch study, marker on trace paper		
24	Model study, foamboard, chipboard and sand	55	Section through bunkhouse looking South, CAD line drawing		
25	Sketch study, marker on trace paper	56	Side Elevation looking South, CAD line drawing and graphite		
26	Perspective drawing looking East toward the Teton Mountains, marker and graphite	57	Detail drawing at steel roof, marker and graphite		
27	Roof Plan, CAD line drawing	58	Photograph of weathering steel sample		
28	First Floor Plan, CAD line drawing				
29	Second Floor Plan, CAD line drawing				
30	Detail interior drawing, marker and graphite				
31	Photograph of wood sample				