

Texas Ranch

Mark Randall Richardson

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

Hans C. Rott

Patrick A. Doan

Howard S. Gartner

April 27, 2012
Blacksburg, Virginia

keywords: texas, ranch, stone, steel, landscape

Texas Ranch

Mark Randall Richardson

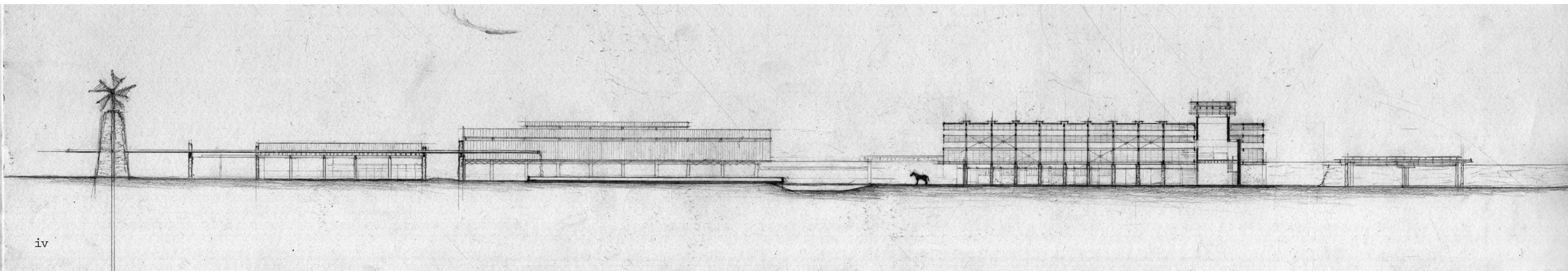
abstract

This thesis project came about from a desire to establish a relationship between the built form and the landscape that it inhabits - a ranch in central Texas. I began with a program of a house, stable, horse riding arena, ranch hand living, and various other service buildings. I decided to organize the buildings along a linear spine down a gradual hillside on the property. The limestone block spine walls begin at a wind pump tower which provides well water for horses to drink and bathe in. A clear structural hierarchy exists in the buildings. I was interested in the relationship between the stacking of the walls and making a framework out of wood and steel. Details were resolved with special consideration for the materials and their natural qualities and properties. The project achieves a sense of connection to the site. It brings to light some of the materials, methods, and vernacular practices of the region.

acknowledgements

To all friends, studio-mates, faculty, and especially family, I wouldn't be where I'm at today without you.

thank you



content

house in the fall.....01
 introduction.....03
 pecos river.....04
 site.....05
 site plan.....06
 walls.....07
 site model.....08
 view of approach.....09
 windpump
 view of approach.....11
 section.....12
 house
 process drawings.....13
 plan.....14
 transverse section.....15
 entry view.....16
 exterior view.....17
 longitudinal section.....18
 view from reading nook...19
 walls model.....20
 kitchen details.....21
 bathroom fixtures.....22
 window detail.....23
 column-beam connection.....24
 wall section.....25
 channel glass detail.....26
 stair details.....27
 process sketches.....28
 view from top of walls.....29
 trough & pool plan.....30
 trough & pool elevation.....31
 horse stable plan.....34
 horse stable section.....35
 early stable perspective.....36
 elevation & process sketches...38
 site section.....40
 fire pit plan & elevation.....41
 fire pit section.....42

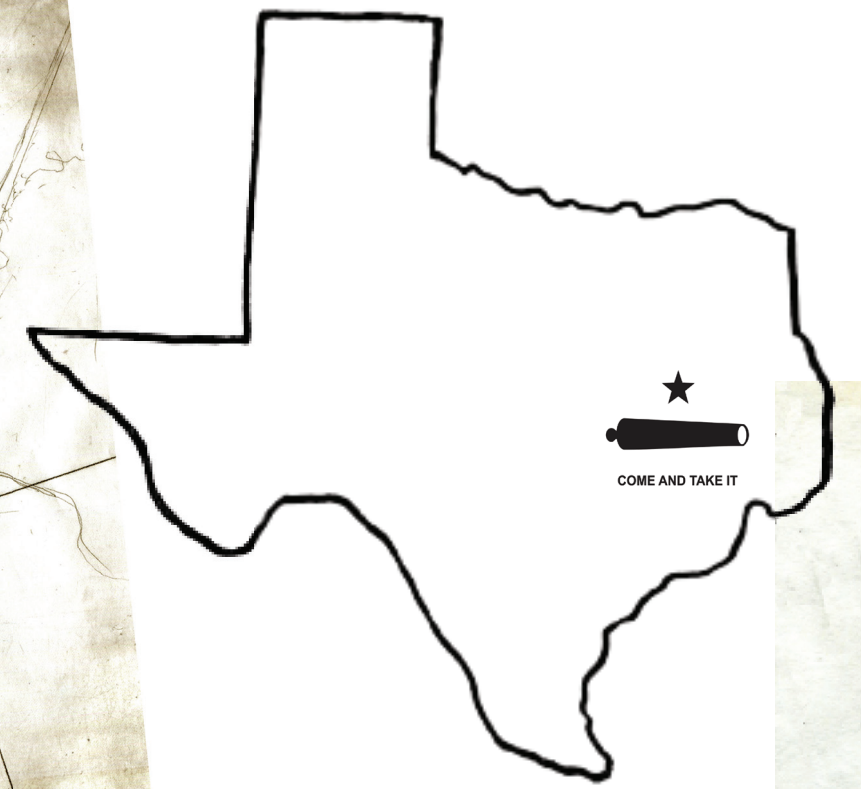


i n t r o d u c t i o n

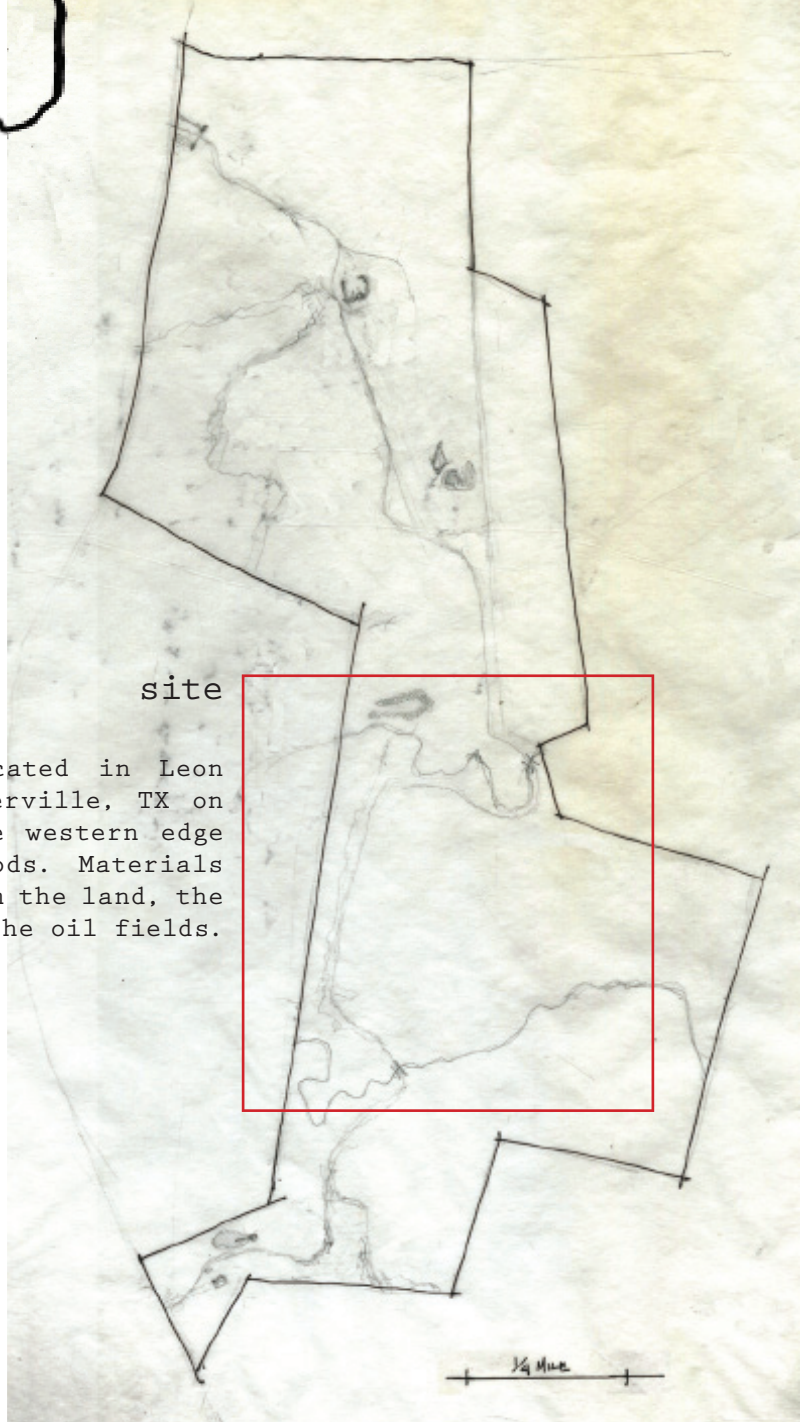
The materials in this architecture have an inherent natural beauty: the warm color and beautiful grain pattern of wood, the rugged texture of limestone and the manner it catches sunlight, the patina, hardness, and depth of steel and its vibrant colors revealed by the weather. The wonderful materials of Texas are given a place to shine and become a part of the landscape. I found delight in joining them together in the landscape that I love.



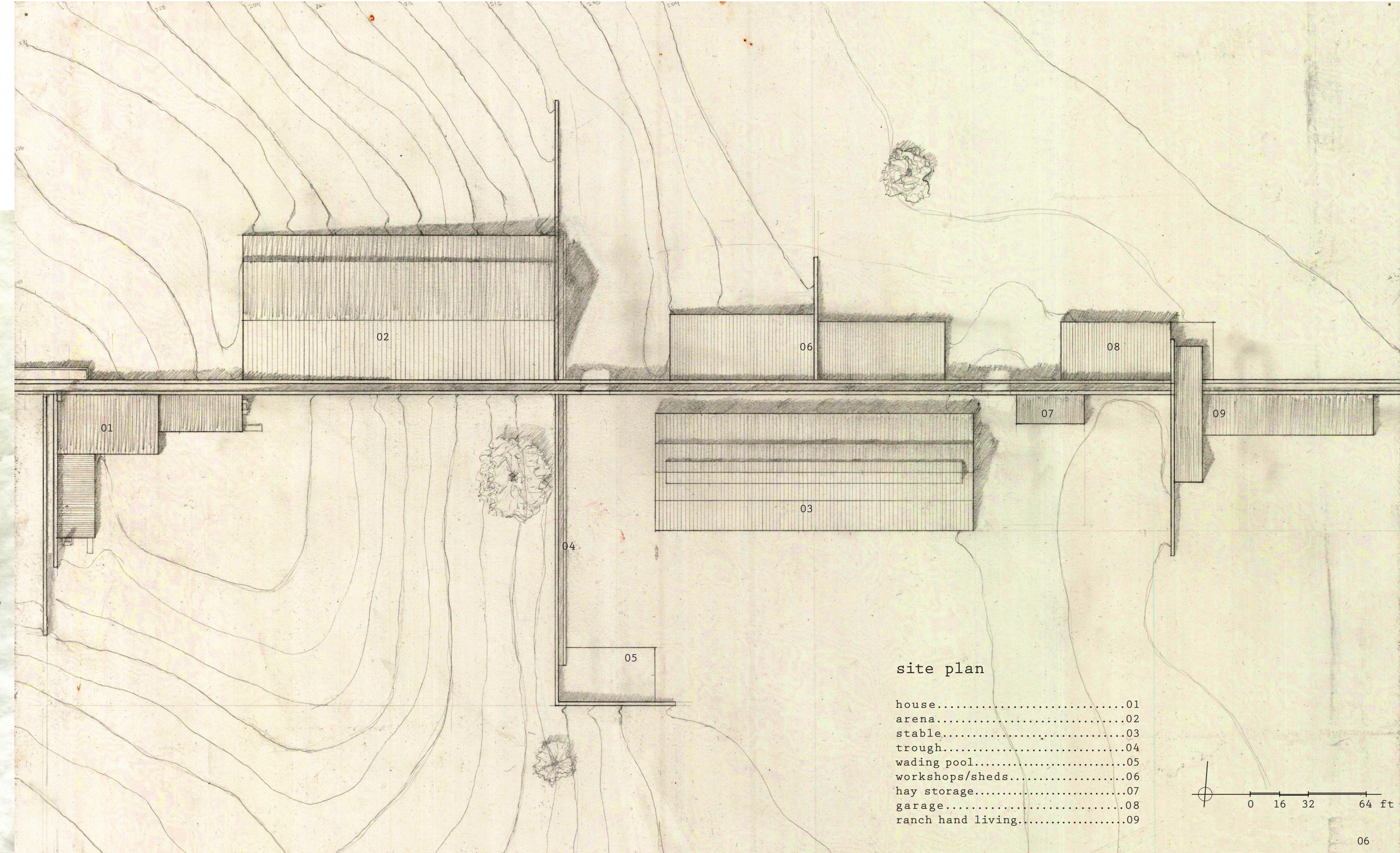
pecos river



660-acre site located in Leon County near Centerville, TX on the fringe of the western edge of the Piney Woods. Materials are harvested from the land, the forest, and the oil fields.

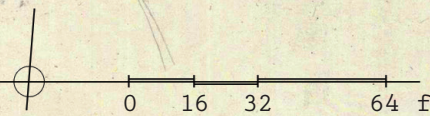


site



site plan

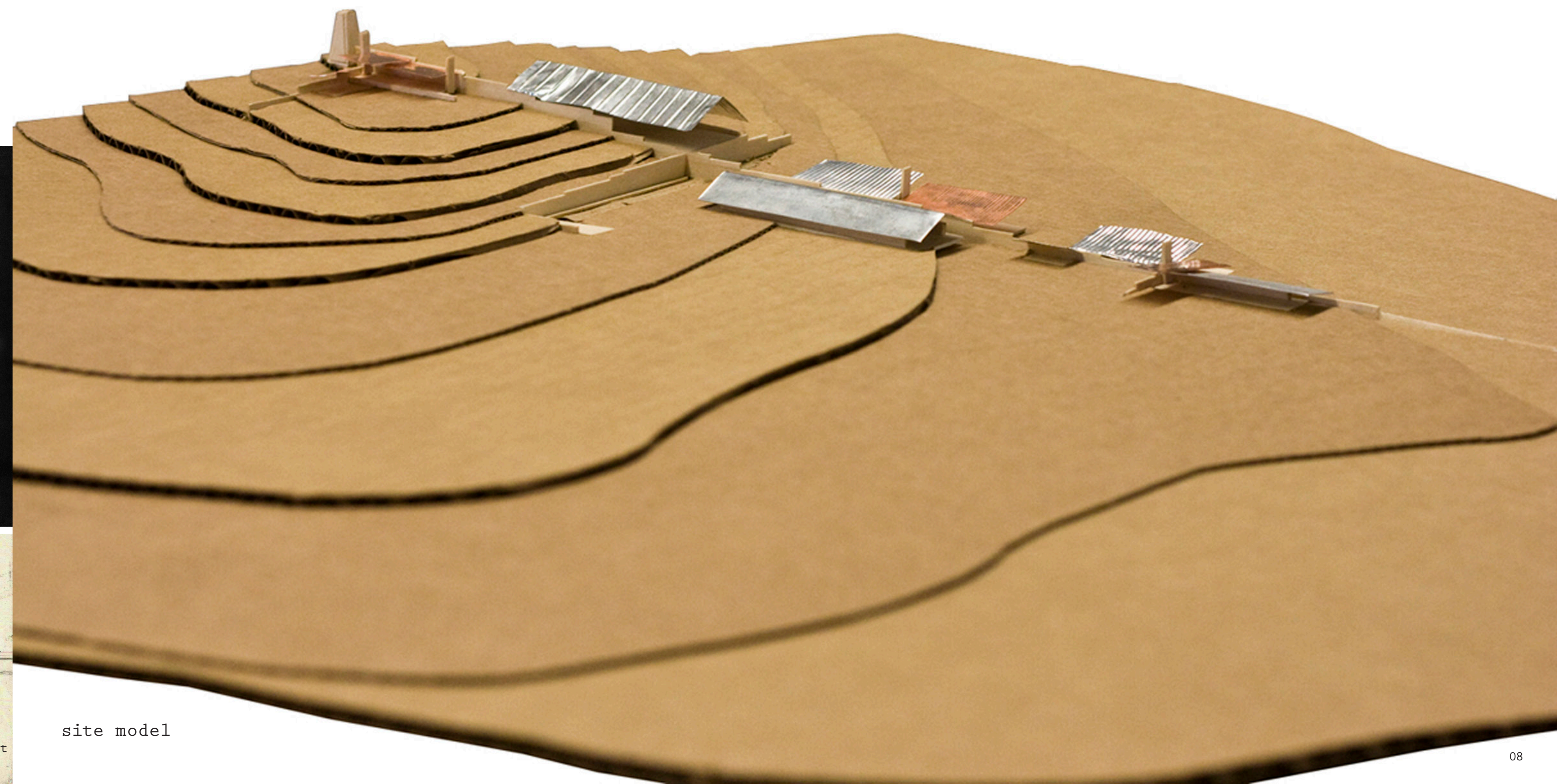
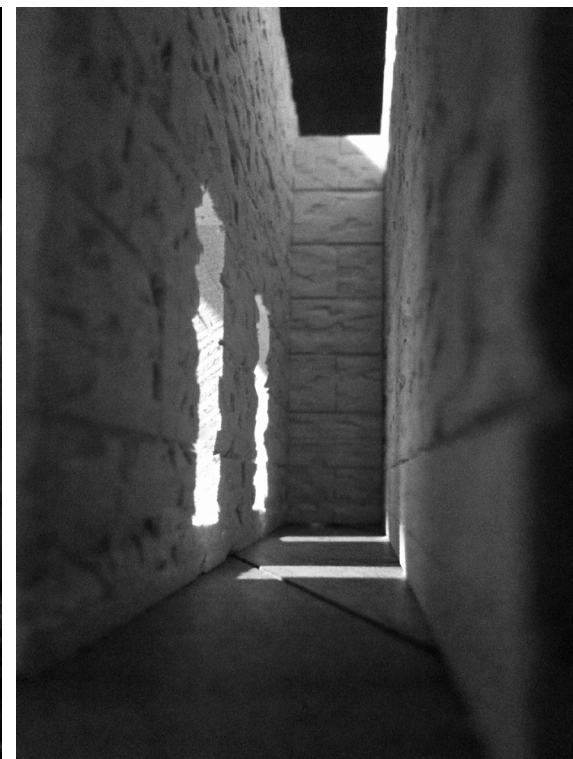
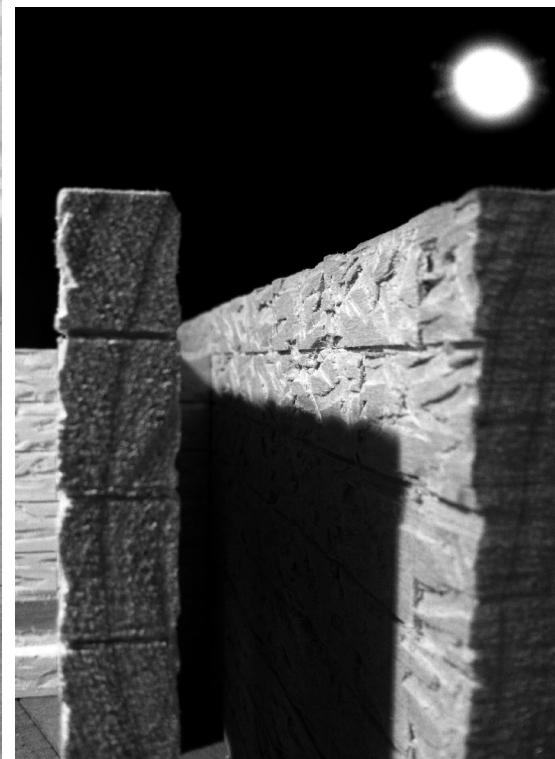
- house.....01
- arena.....02
- stable.....03
- trough.....04
- wading pool.....05
- workshops/sheds.....06
- hay storage.....07
- garage.....08
- ranch hand living.....09



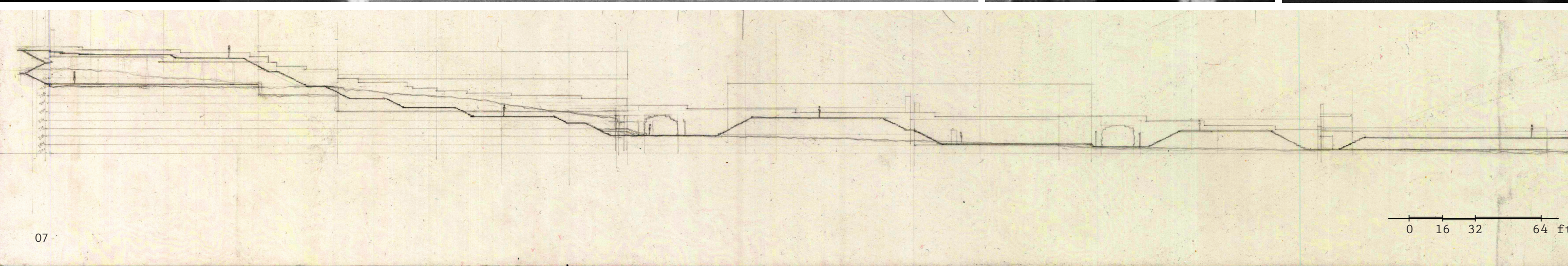


walls

The massive limestone-walled "spine" is a service pathway connecting the ranch buildings. The path takes one from lofty vantage points atop the hill down to the pasture level between towering walls. Underfoot, well water is carried from the windpump tower down to a horse trough and wading pool.



site model





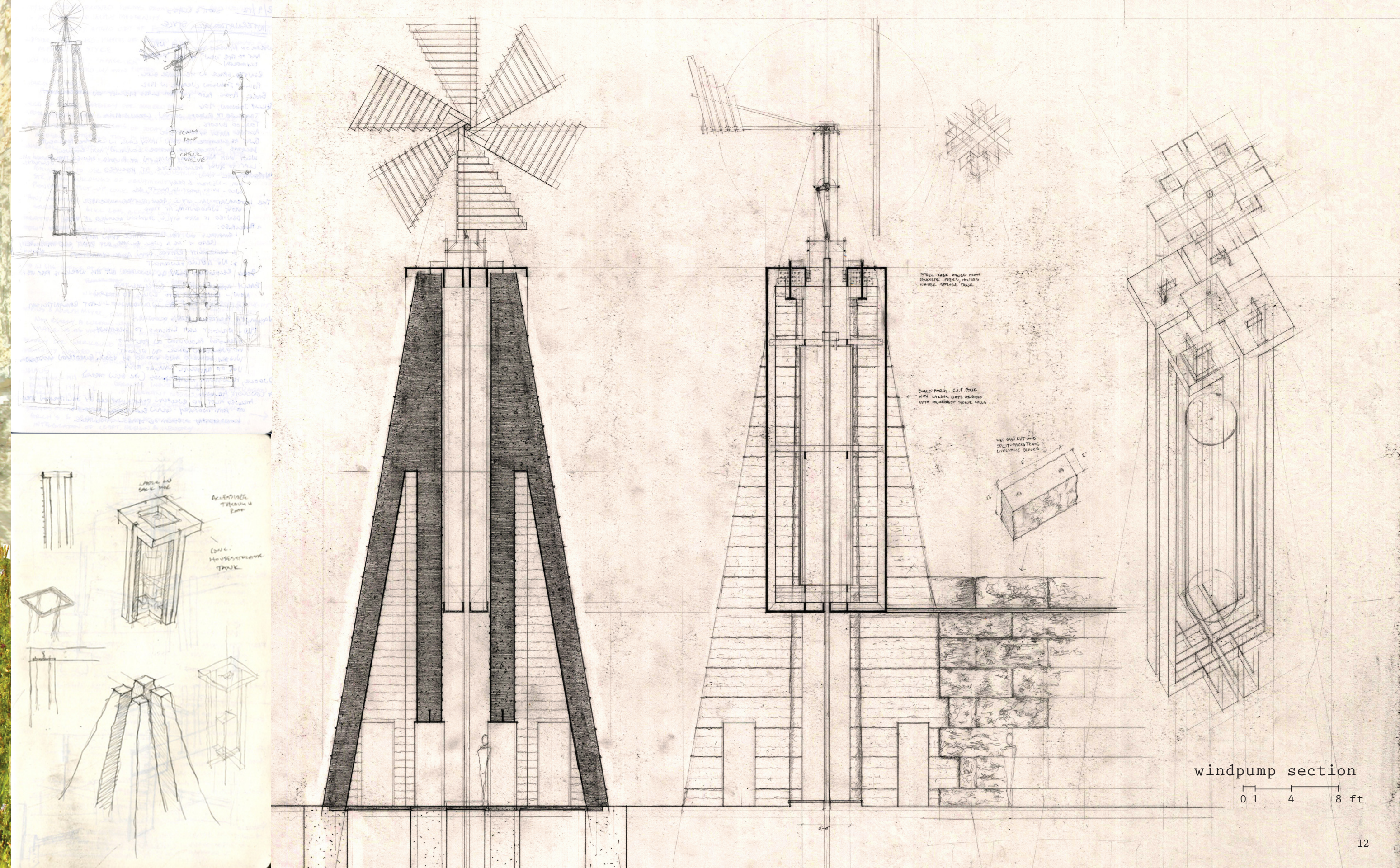
view of approach

As one approaches the site from the south, they are shielded in their journey by extensive foliage. The large pasture expands before you as you cross a narrow stream. The stone walls create a sense of place in the vast field as one turns west to follow the trail uphill to the windpump and house.



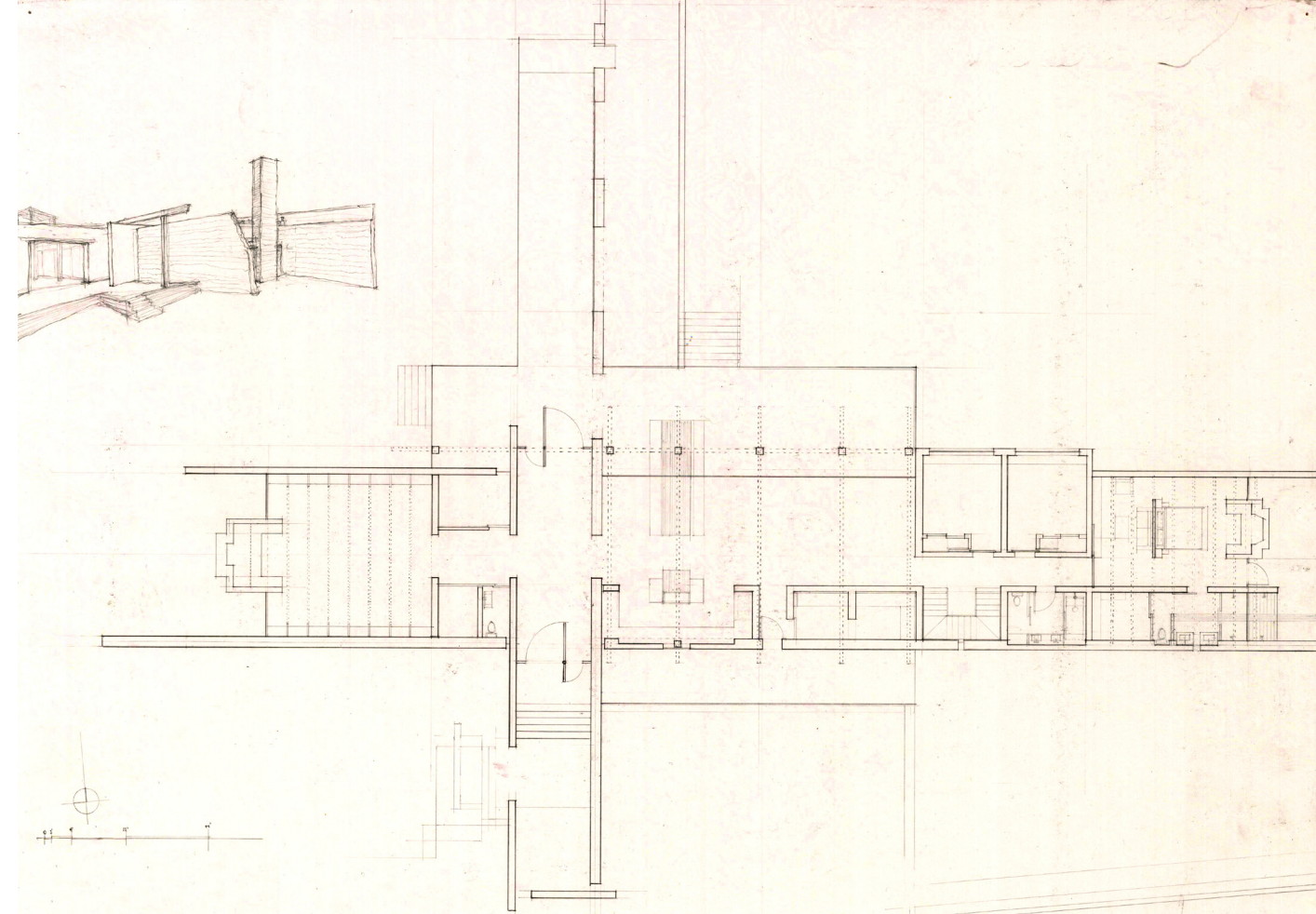
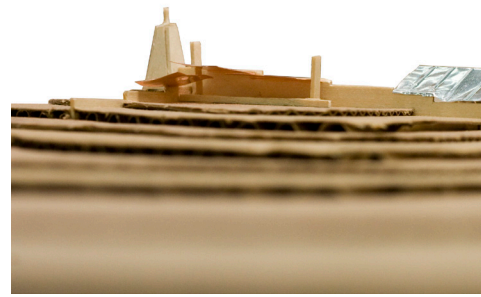
windpump

The windpump is the point of origin for the stone walls. Powered by the prevailing breeze, ground water is pumped up to begin its journey down the walls to the trough and wading pool. Cast-in-place board-formed reinforced concrete spires support the steel cage which houses a water reservoir.



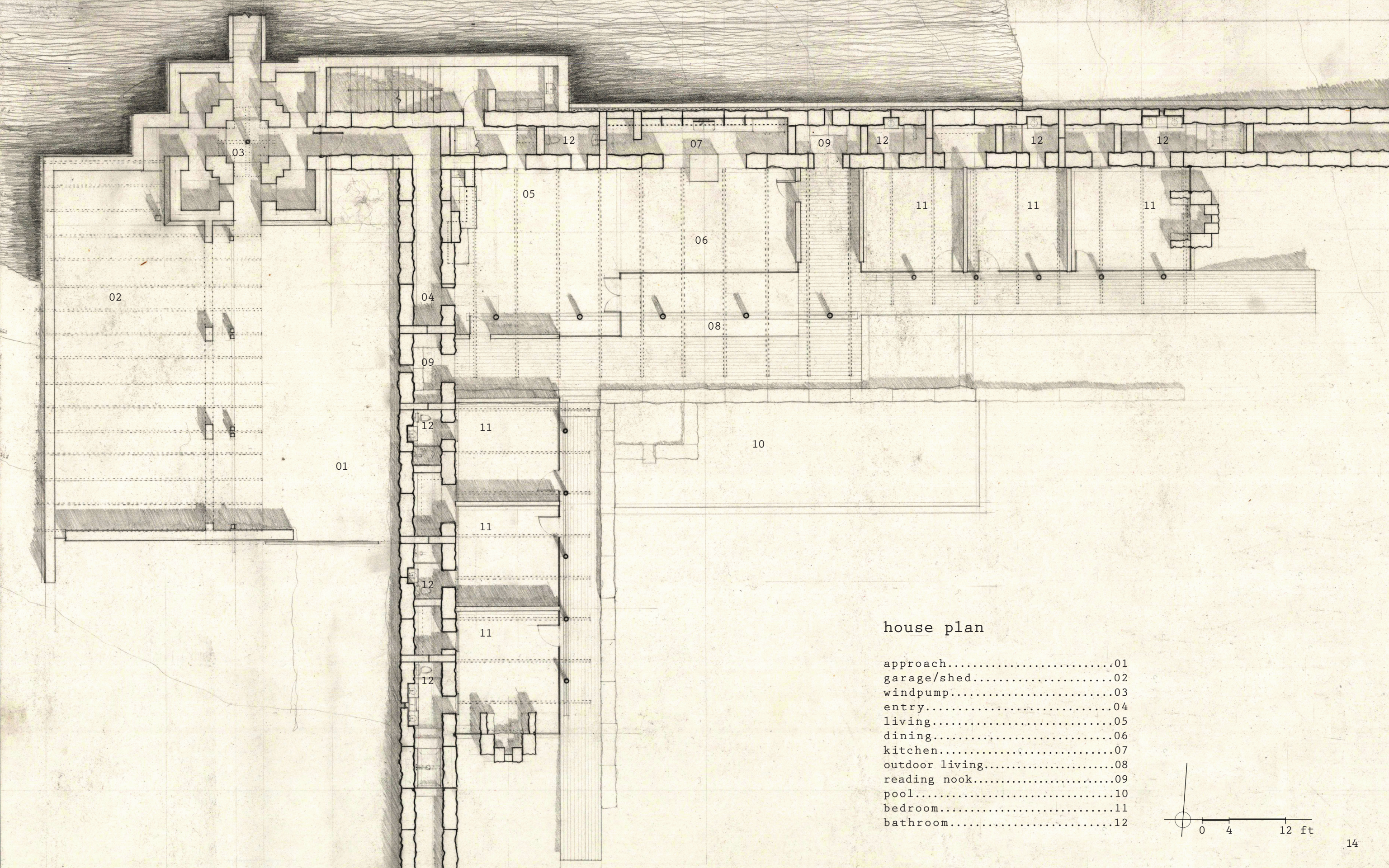
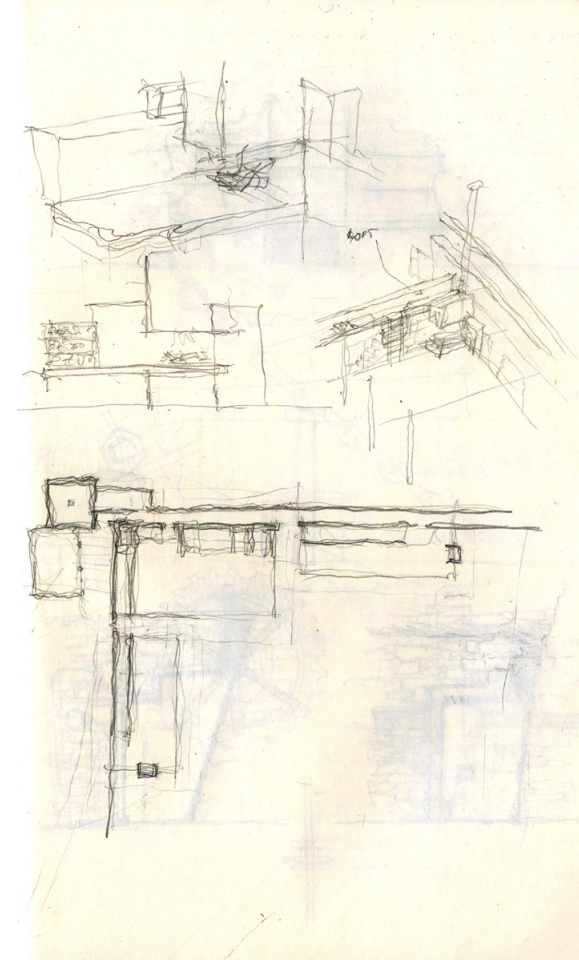
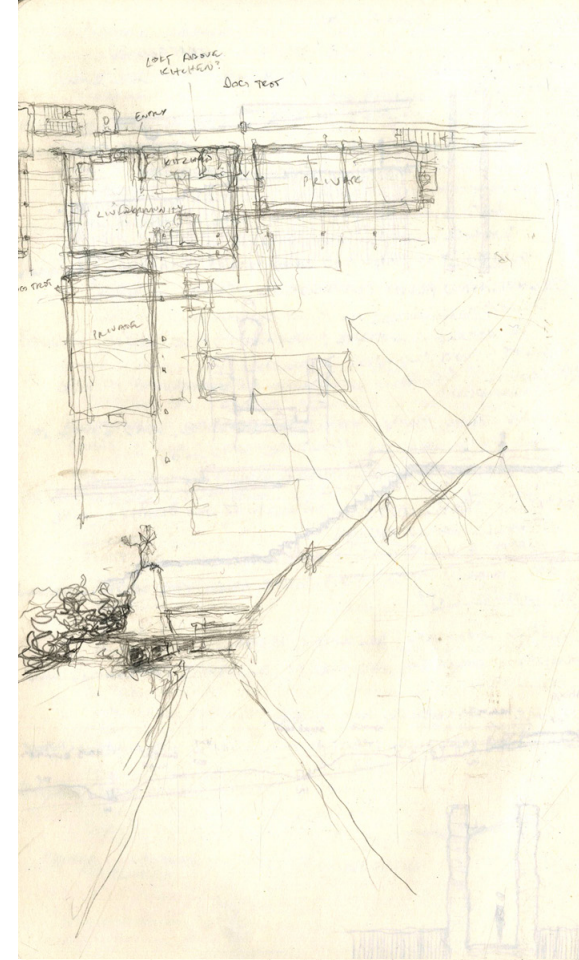
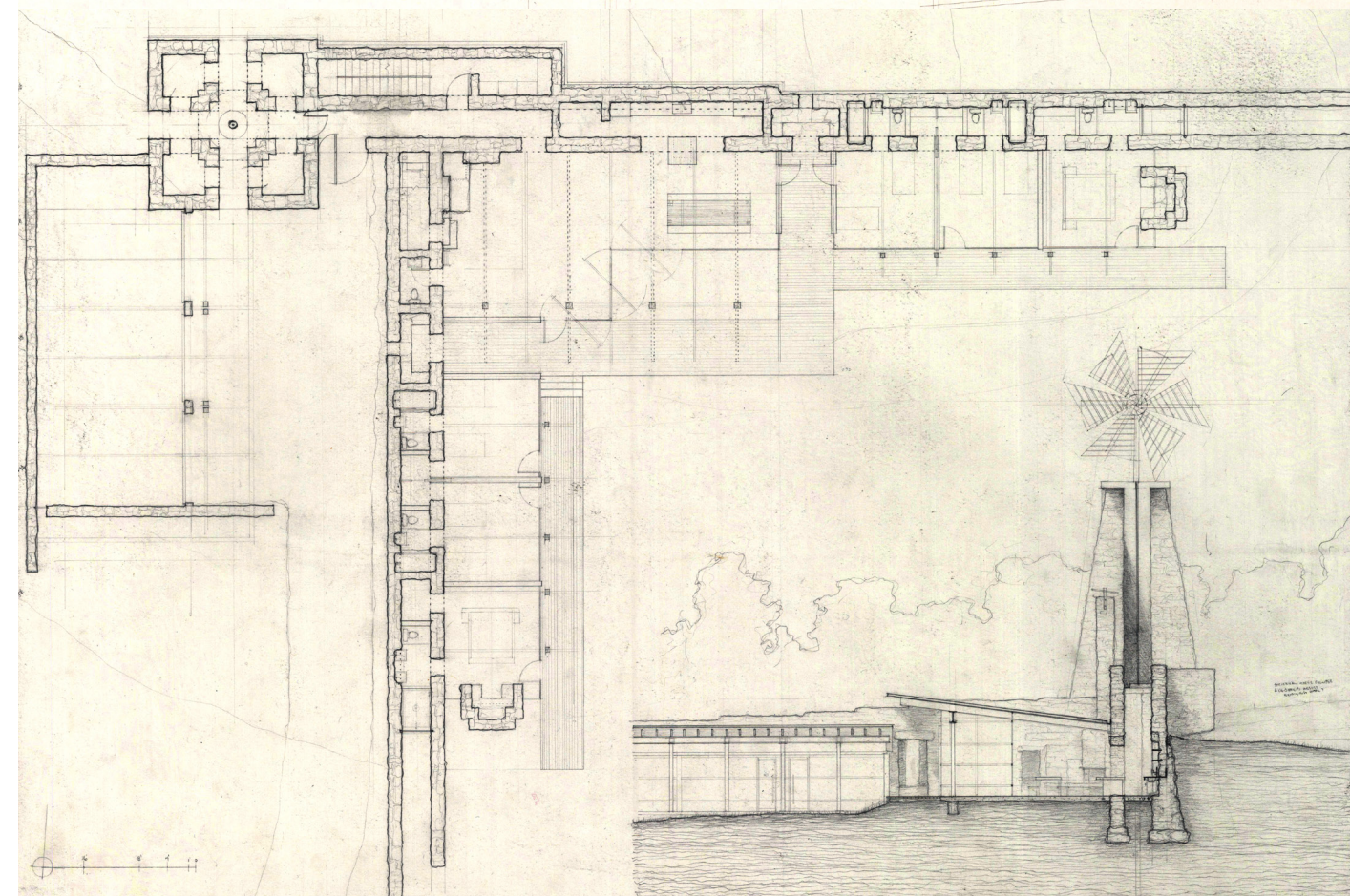
windpump section

0 1 4 8 ft



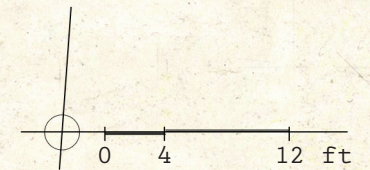
house

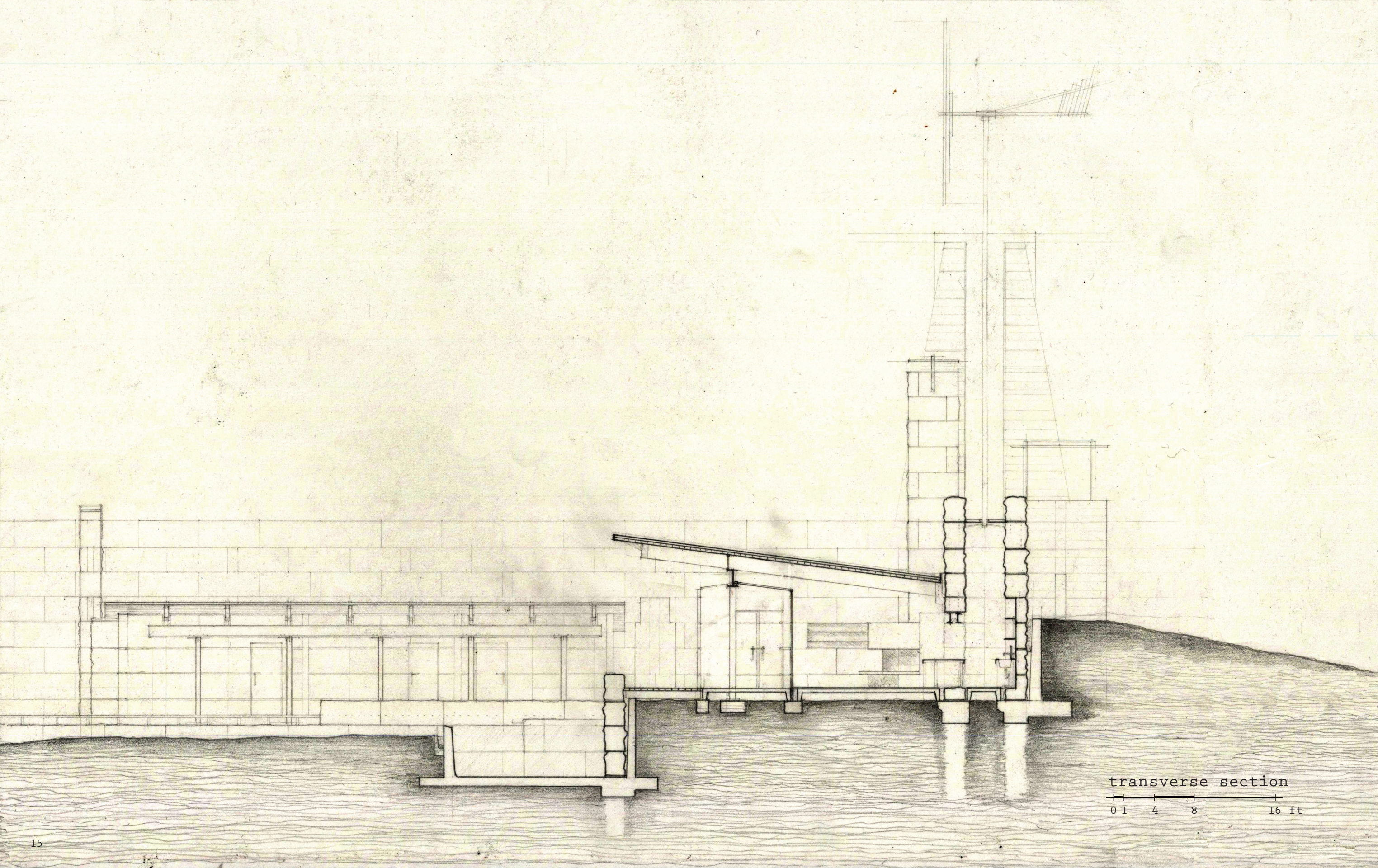
The property owners' house is meant as a weekend retreat, a summer home for two immediate families. Through its evolution, consideration for service and served space, views, varying levels of privacy, rootedness, and materials remained at the forefront.



house plan

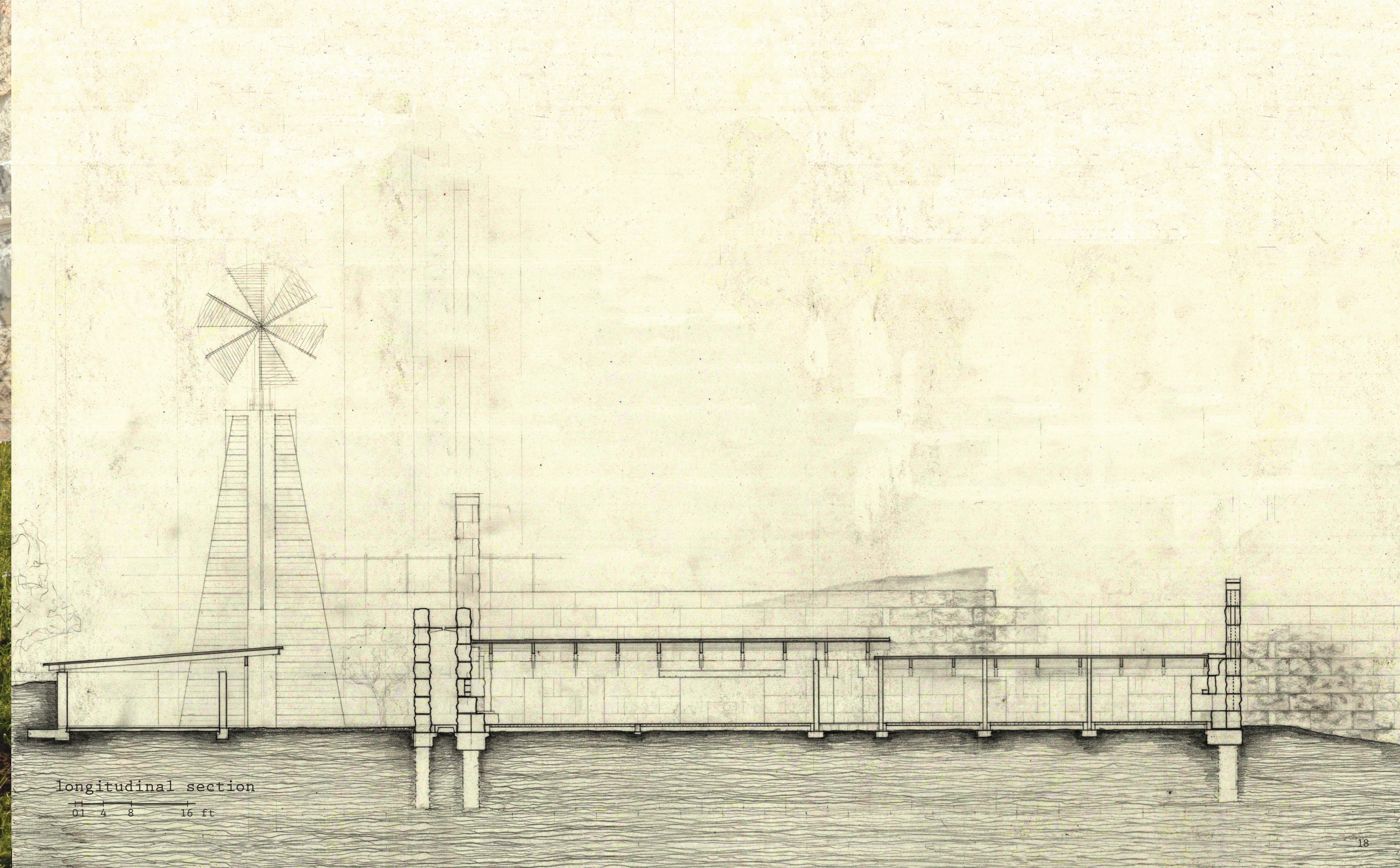
- approach.....01
- garage/shed.....02
- windpump.....03
- entry.....04
- living.....05
- dining.....06
- kitchen.....07
- outdoor living.....08
- reading nook.....09
- pool.....10
- bedroom.....11
- bathroom.....12







exterior view



longitudinal section

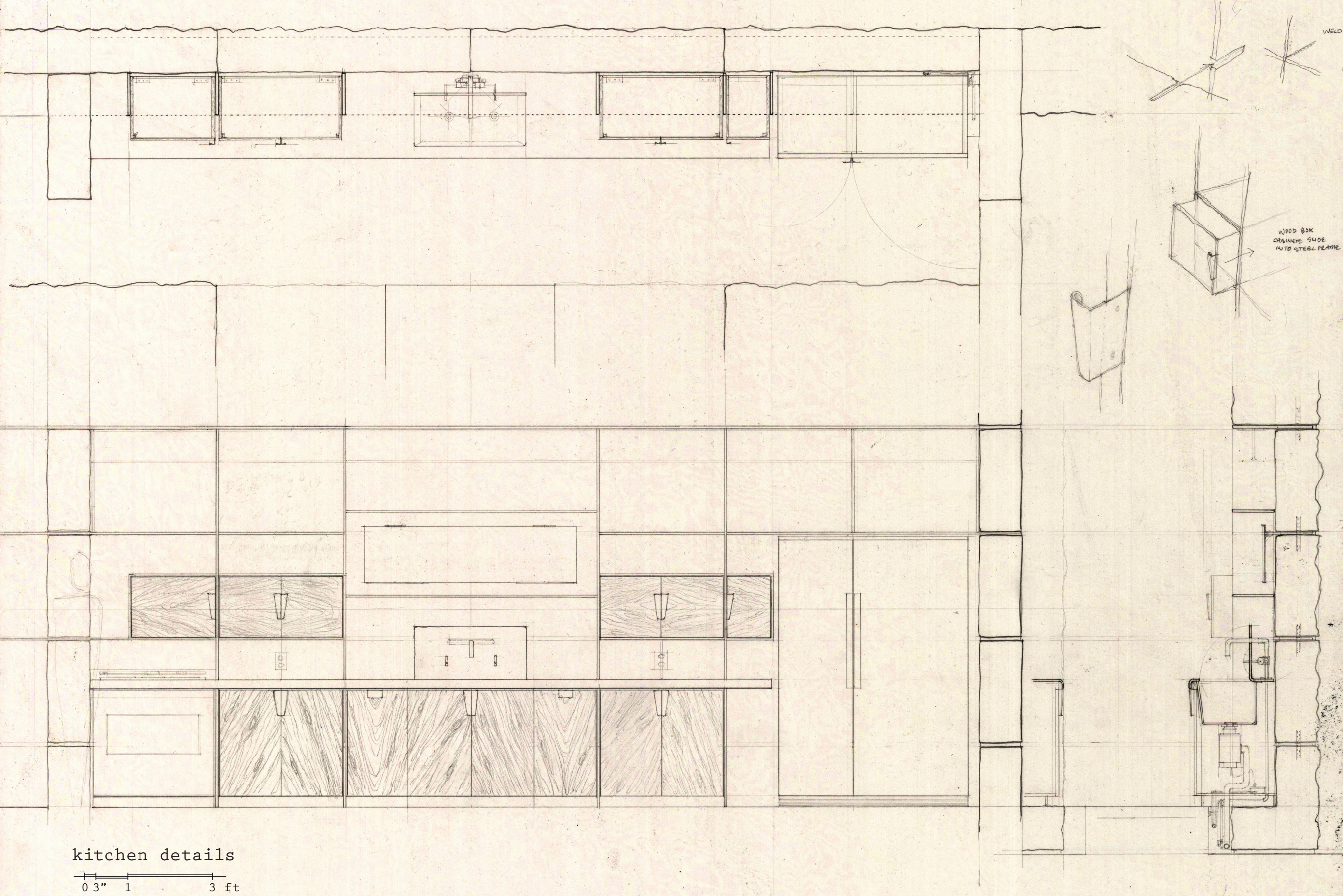
0 4 8 16 ft



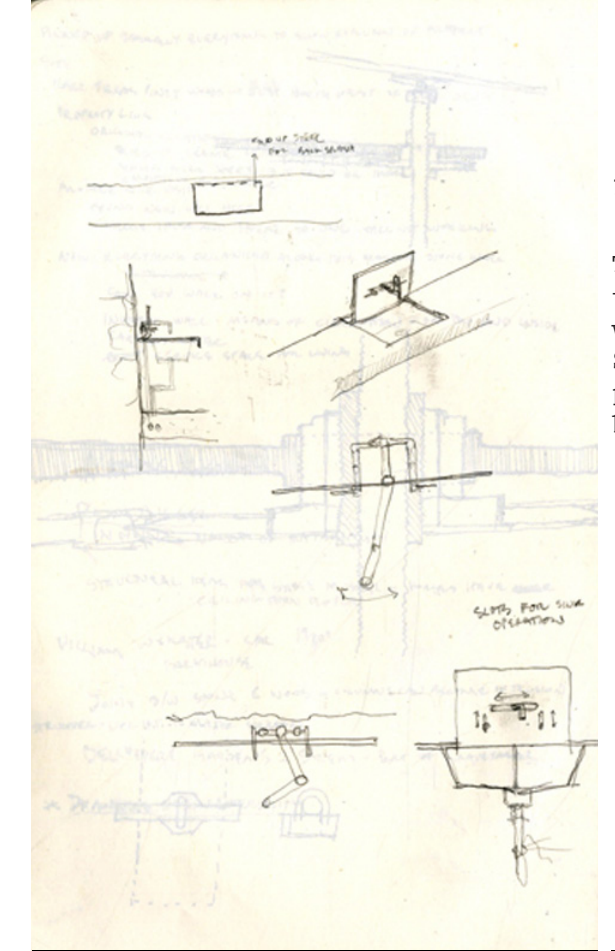
view from reading nook



walls model

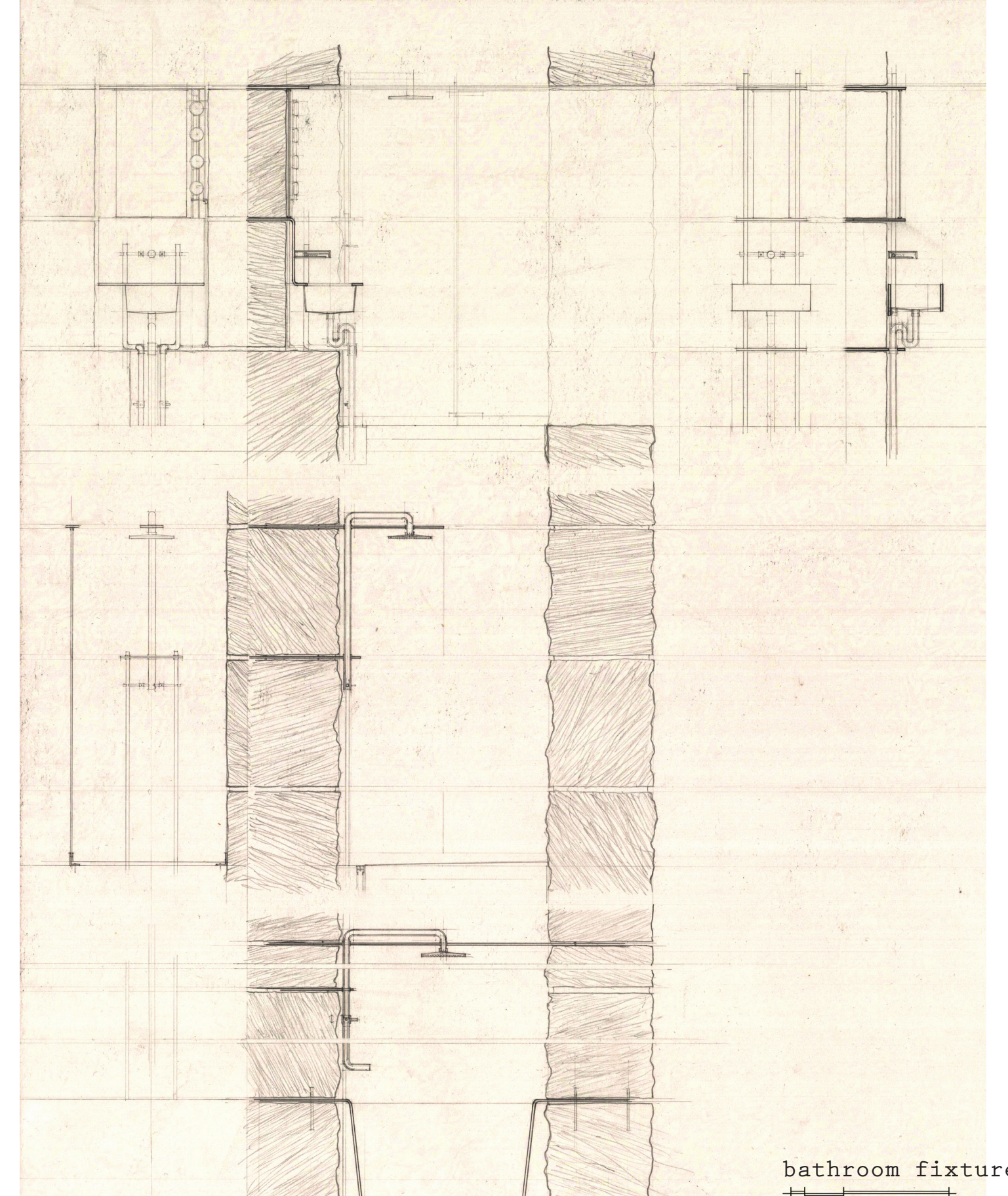
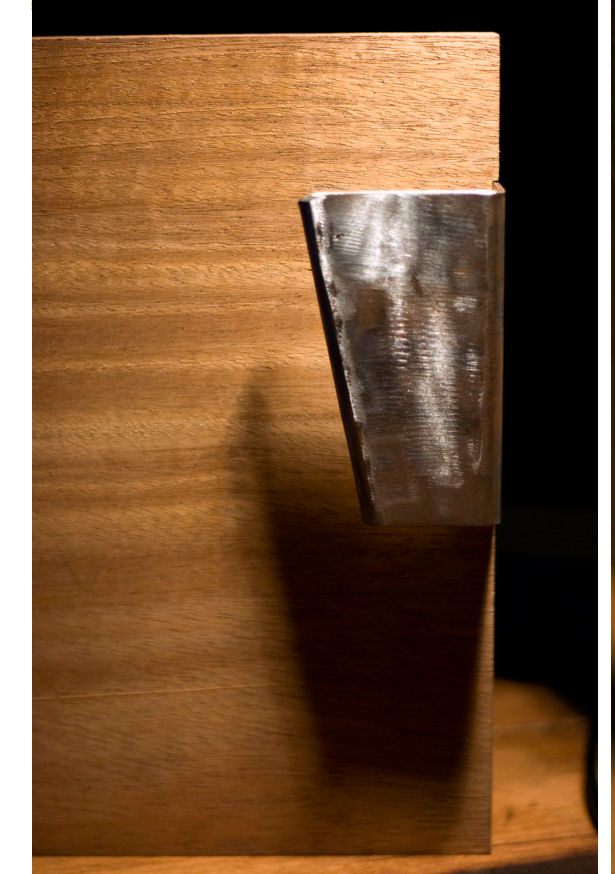


kitchen details
 0.3" 1 3 ft

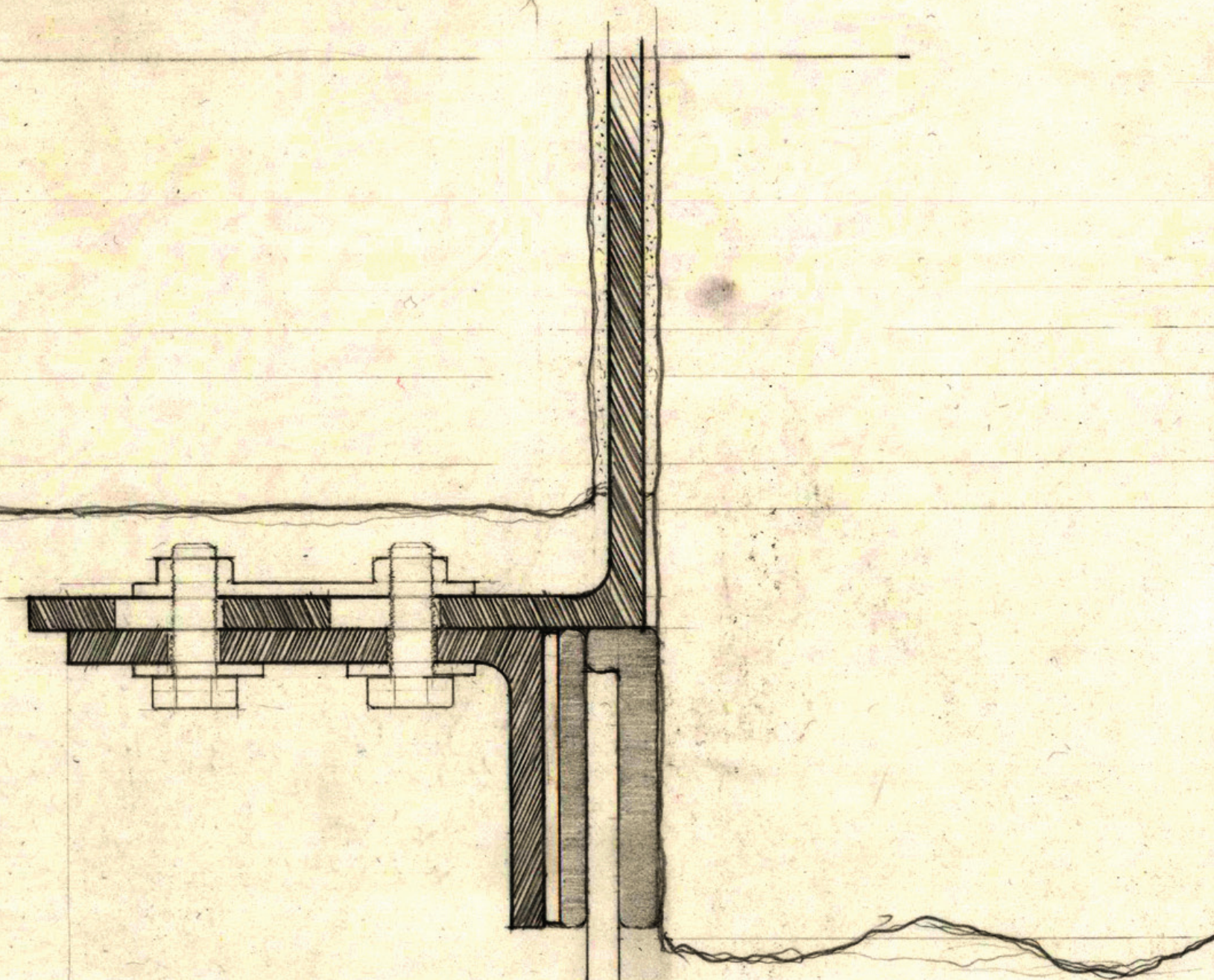


fixtures

The structural steel members in the kitchen(left) create a framework for counters and cabinets. Solid stone walls necessitate exposed plumbing fixtures in the bathrooms(right).



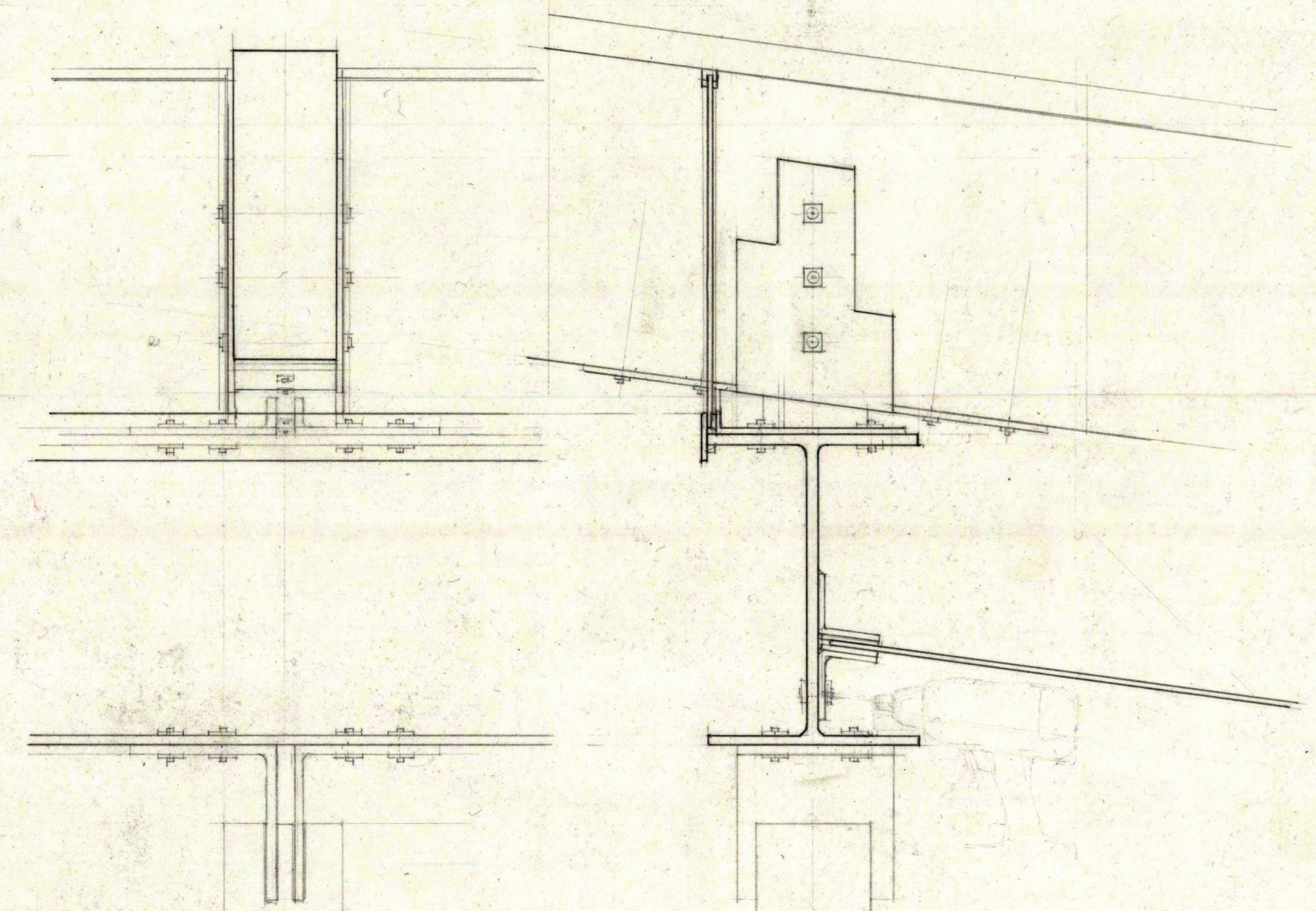
bathroom fixtures
 0.3" 1 3 ft



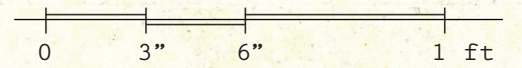
details

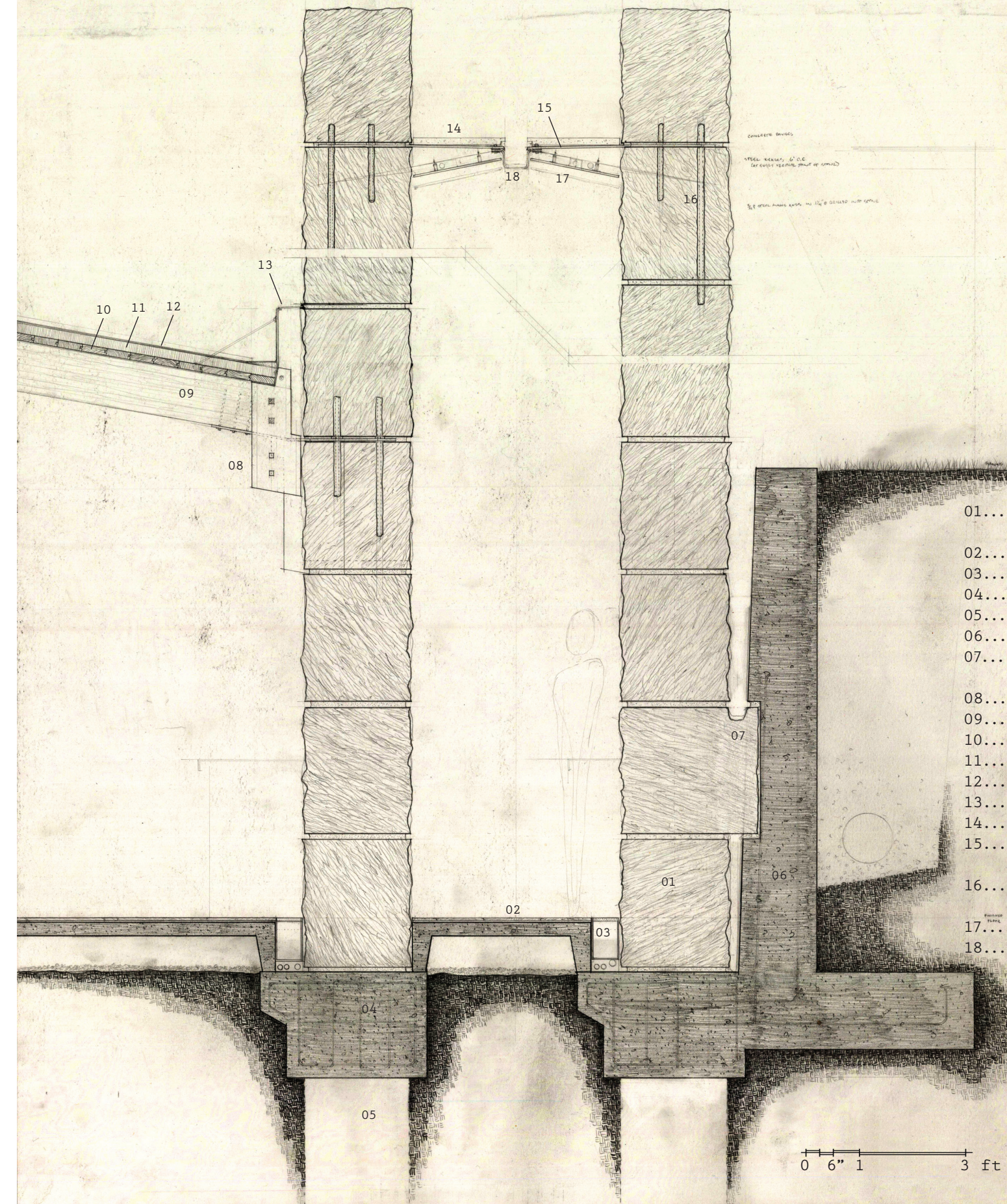
Crucial moments in architecture where two or more materials come together. Where glass meets stone, it is intervened with steel (right). Steel brackets with bolted connections join wood rafters to the steel beam (opposite).

window detail



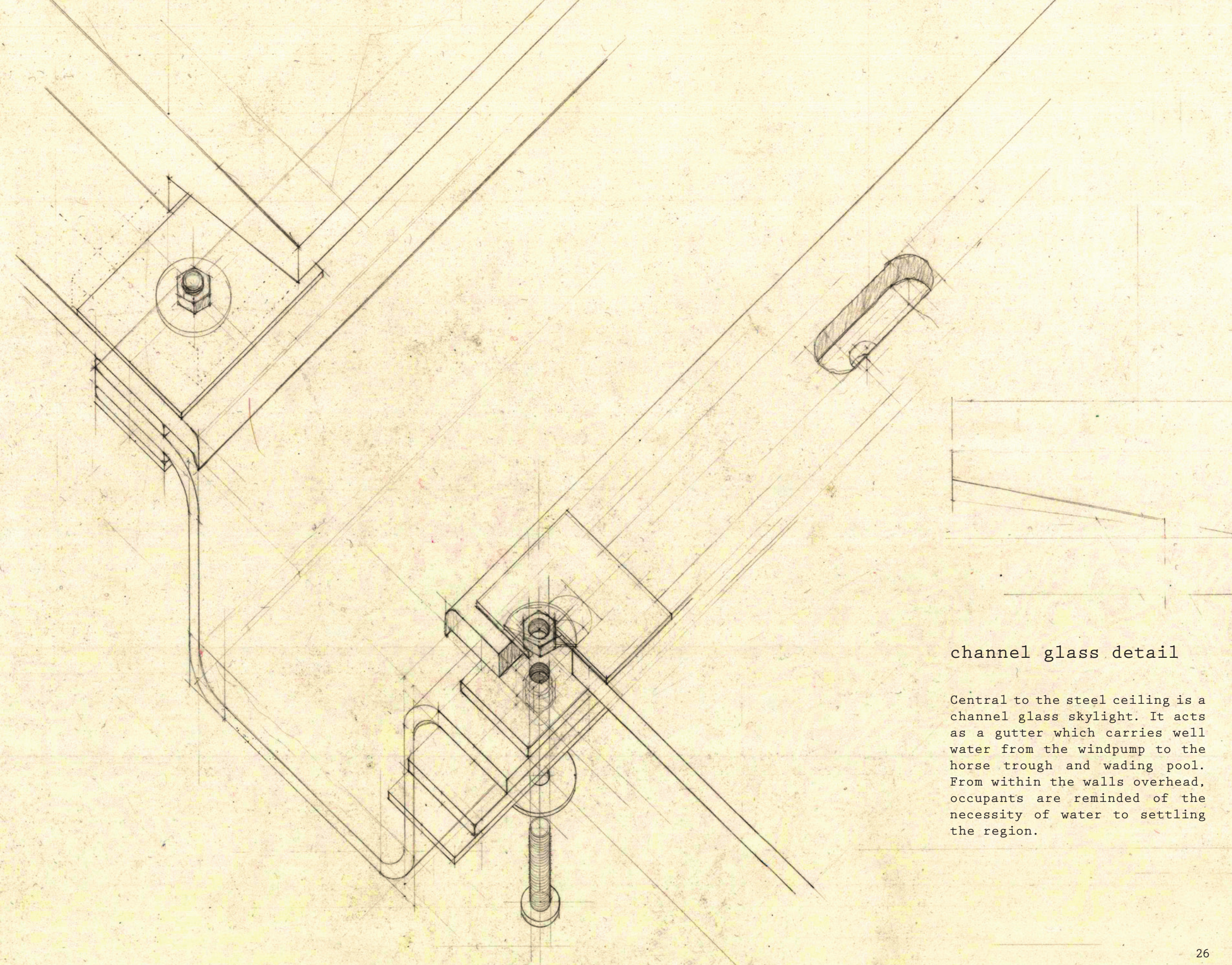
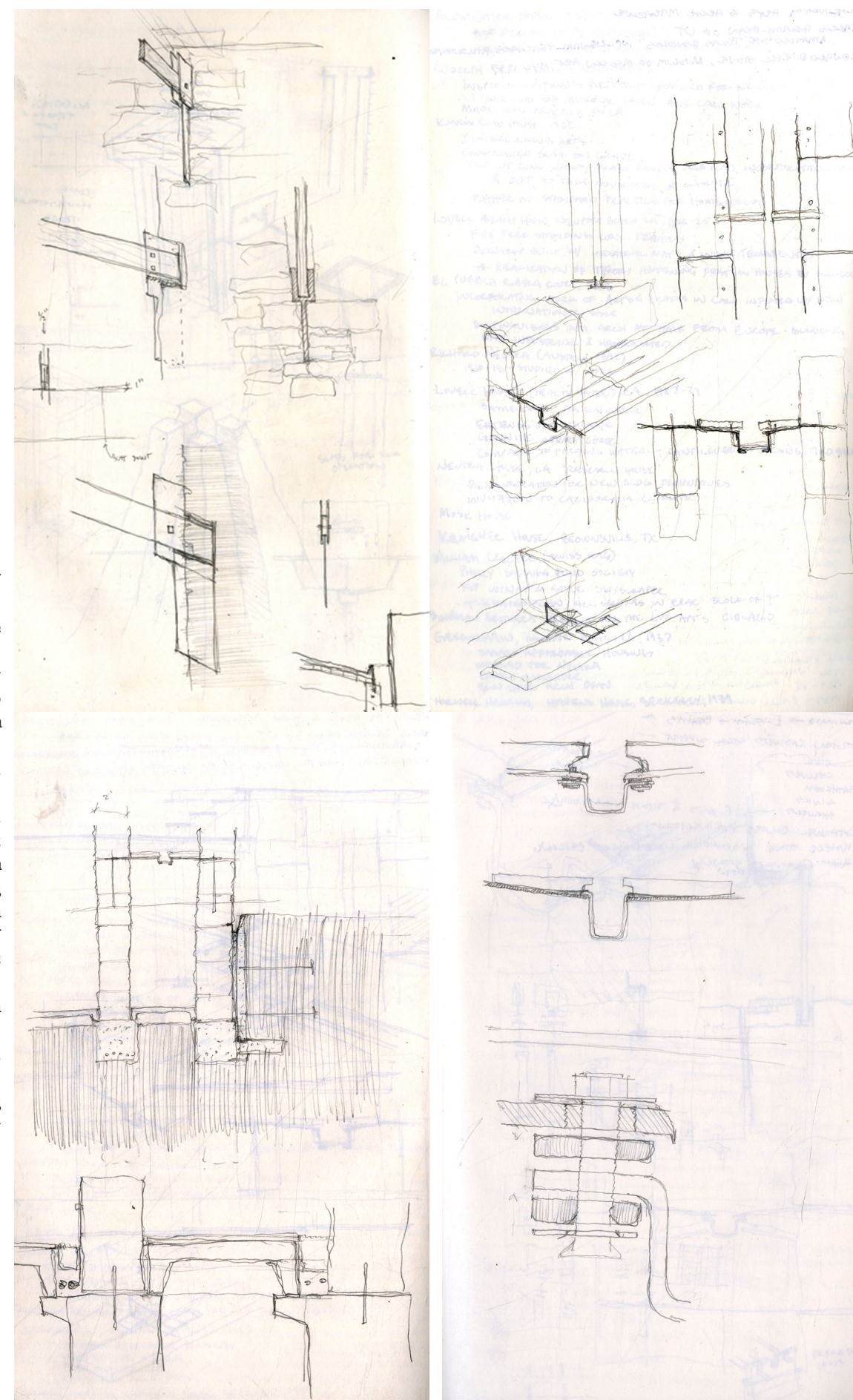
column-beam connection





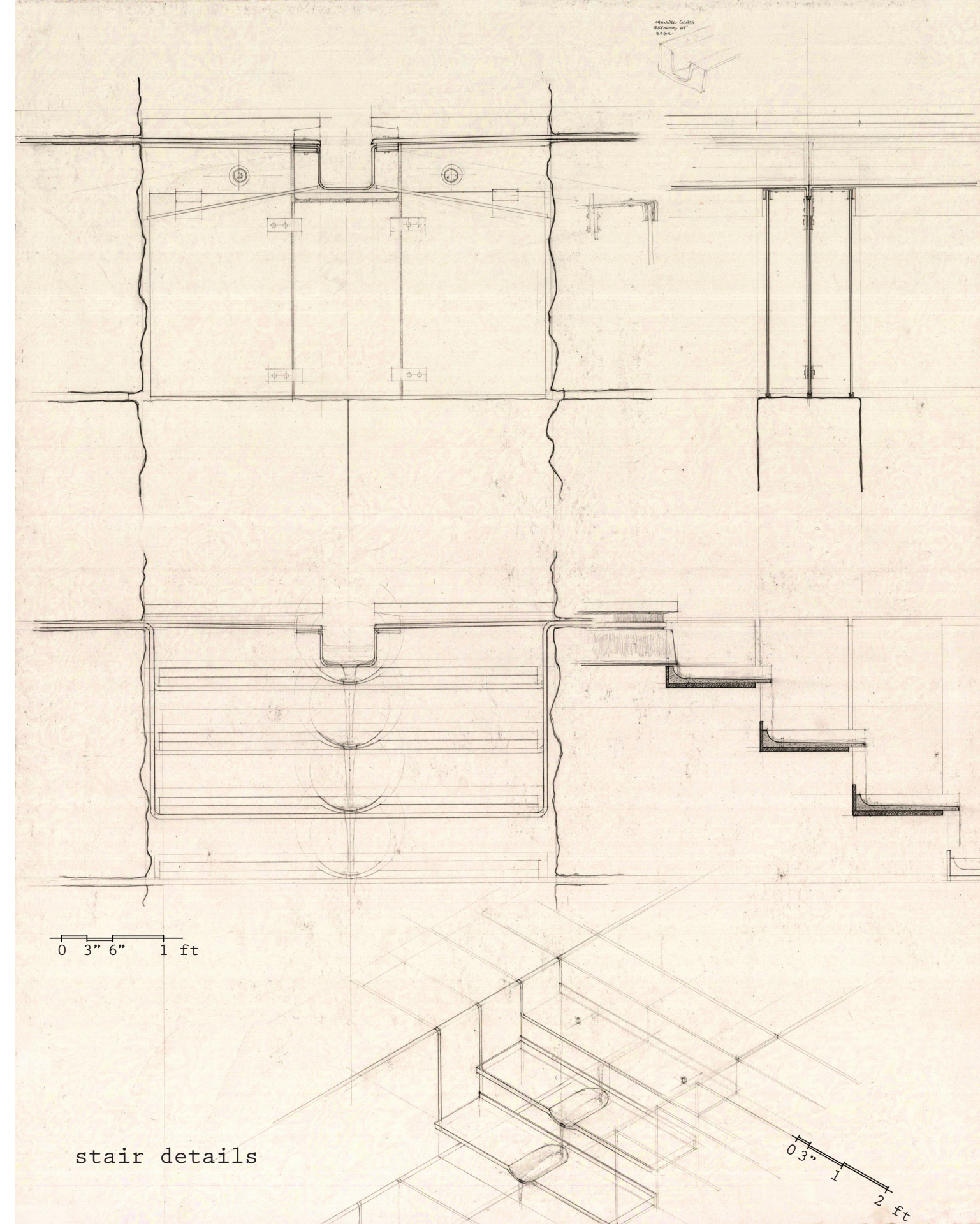
wall section

- 01.....2'x2'-5"x6' split-faced lime stone blocks (1" mortar)
- 02.....precast concrete floor
- 03.....6" services gap
- 04.....2' grade beam
- 05.....foundation piers
- 06.....concrete retaining wall
- 07.....gutter cut into stone - keyed into retaining wall
- 08.....steel bracket
- 09.....glu-lam roof beam
- 10.....2x6 tongue-&-groove decking
- 11.....rigid insulation
- 12.....standing seam metal roof
- 13.....glass tiles
- 14.....concrete pavers
- 15.....sheet steel deck with support kickers 6' o.c.
- 16.....3/4" diam stainless steel rods in 1-1/2" drilled holes
- 17.....gypsum drop ceiling
- 18.....cast channel glass gutter



channel glass detail

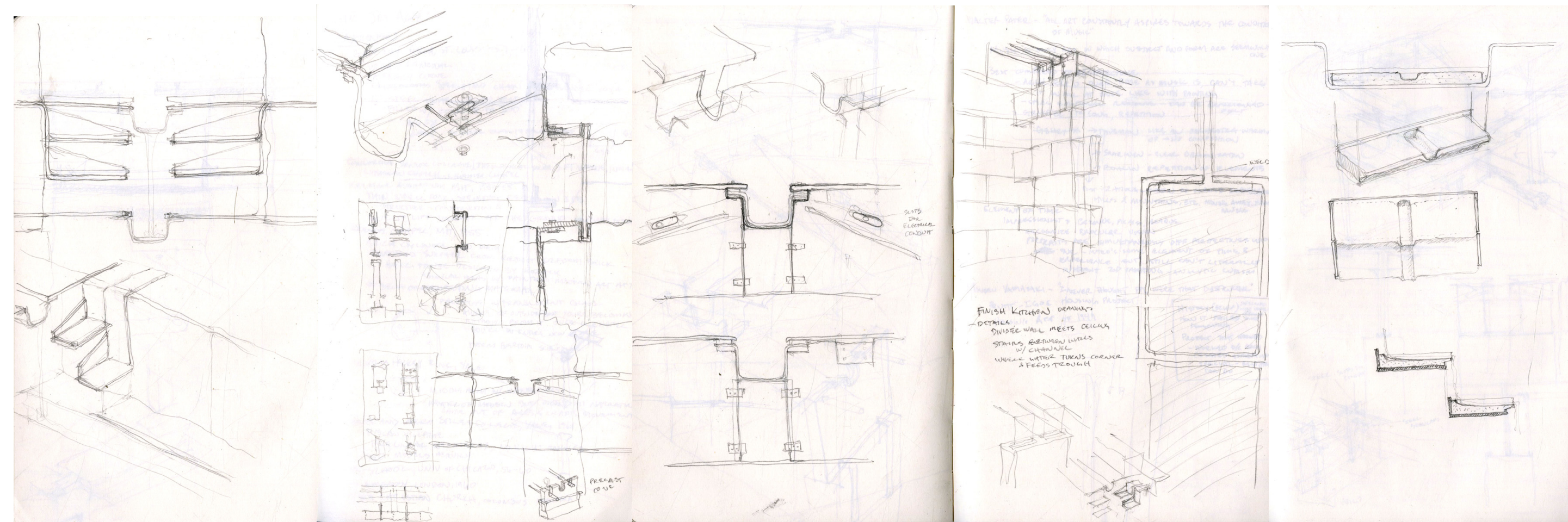
Central to the steel ceiling is a channel glass skylight. It acts as a gutter which carries well water from the windpump to the horse trough and wading pool. From within the walls overhead, occupants are reminded of the necessity of water to settling the region.



stair details

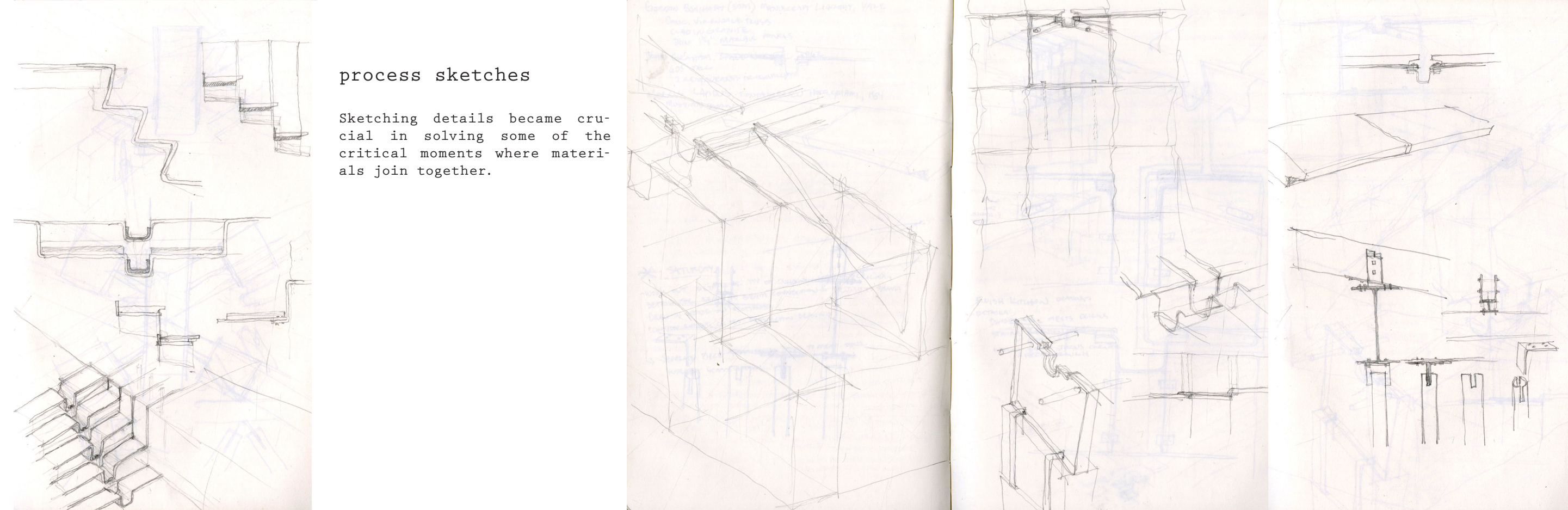
details

The channel glass expands to be framed by steel sheets (above). Two more layers of frosted glass conceal the connections. Concrete treads of the stairs continue the passage of water (below). The treads rest on bent steel sheets which tie into the coursing of the limestone walls.



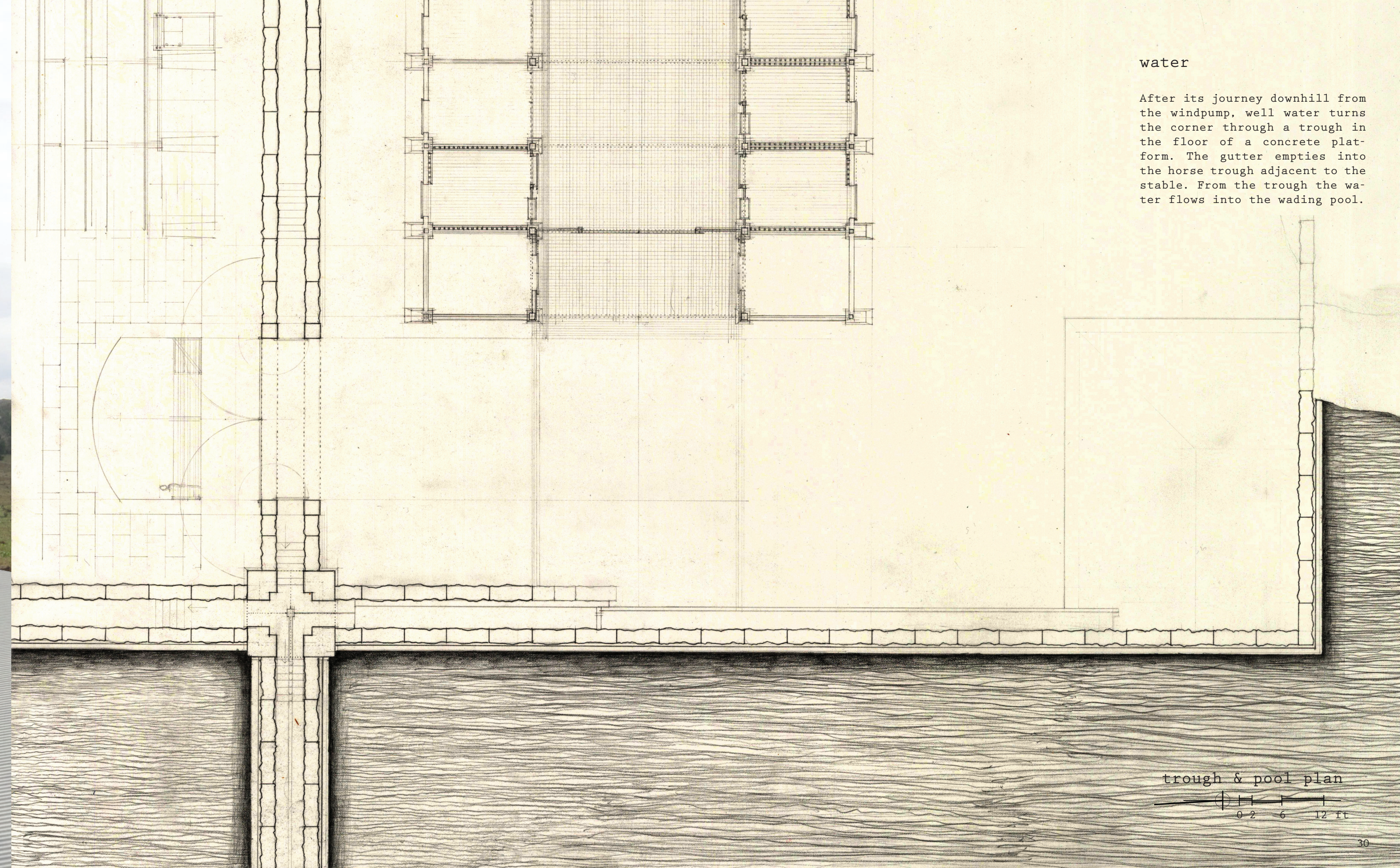
process sketches

Sketching details became crucial in solving some of the critical moments where materials join together.





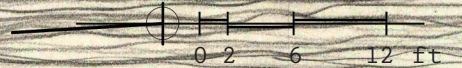
view from top of walls

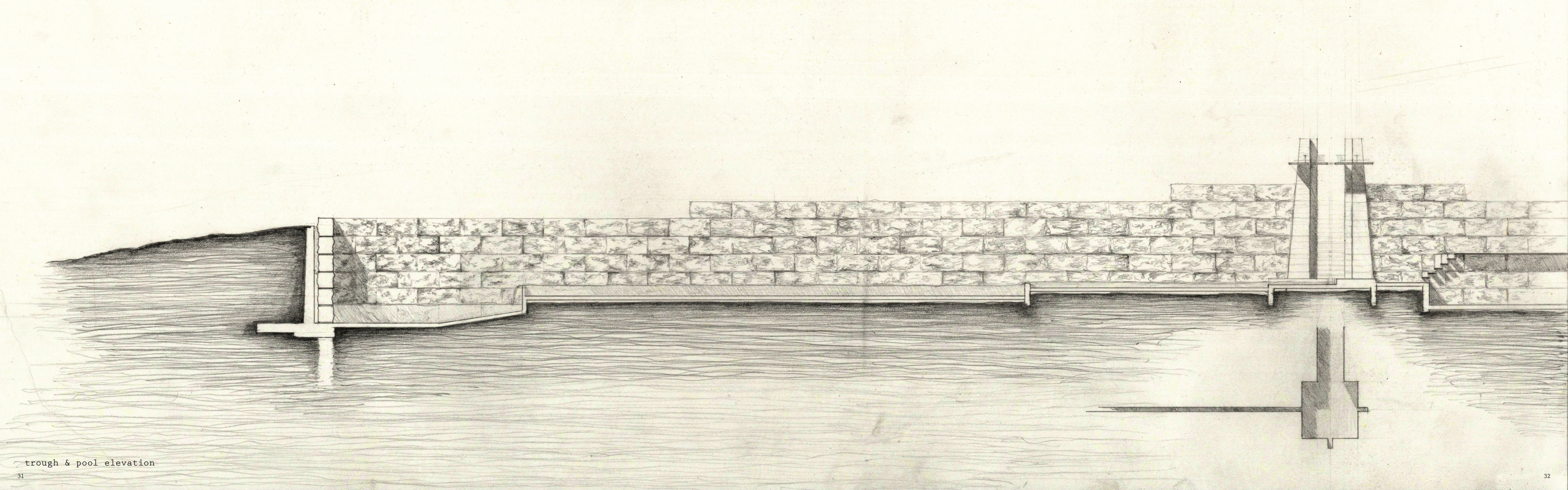


water

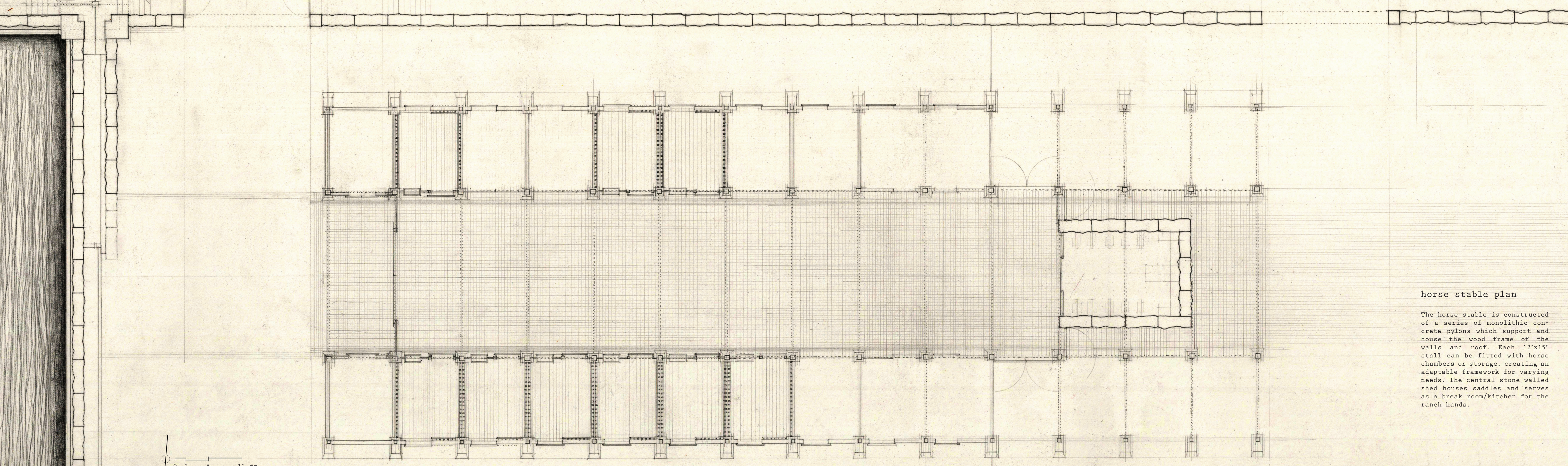
After its journey downhill from the windpump, well water turns the corner through a trough in the floor of a concrete platform. The gutter empties into the horse trough adjacent to the stable. From the trough the water flows into the wading pool.

trough & pool plan



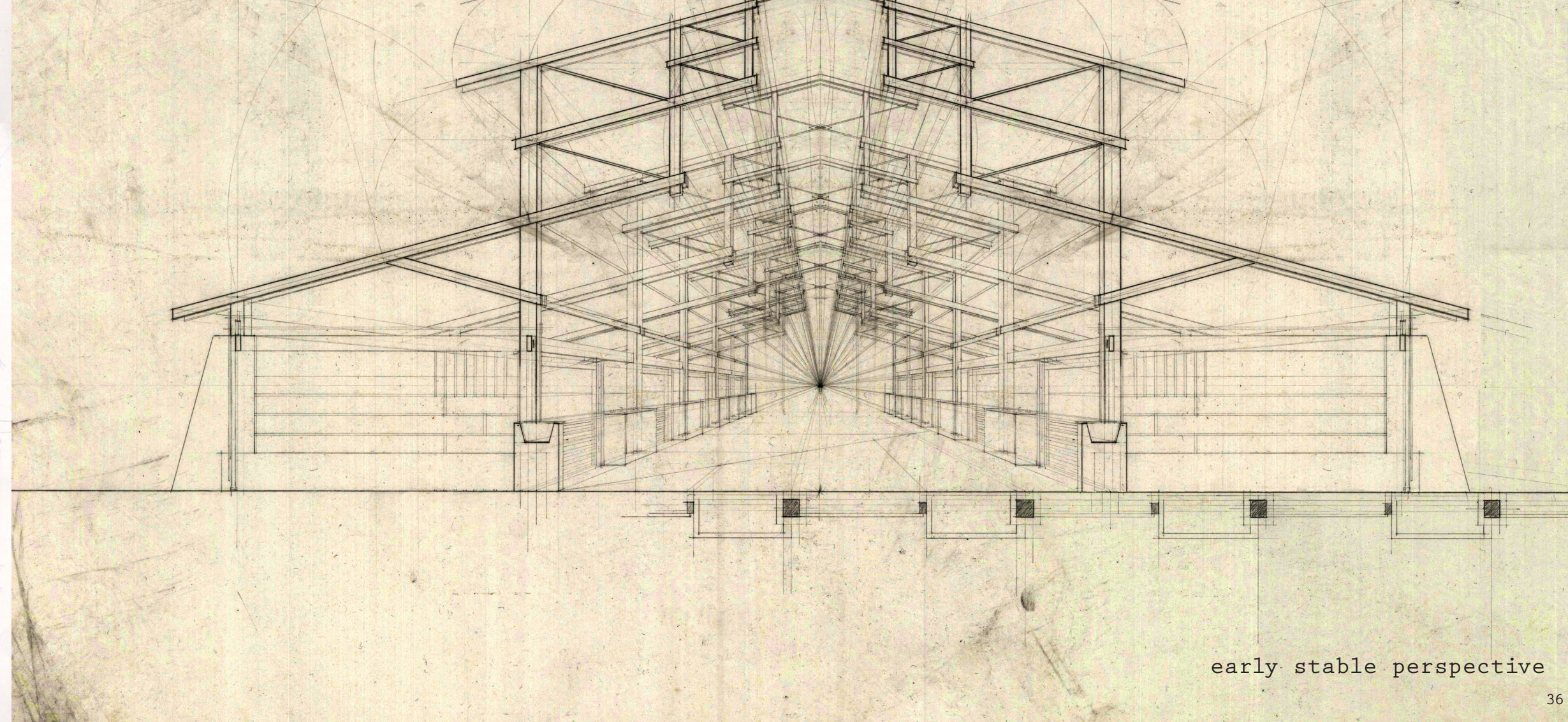
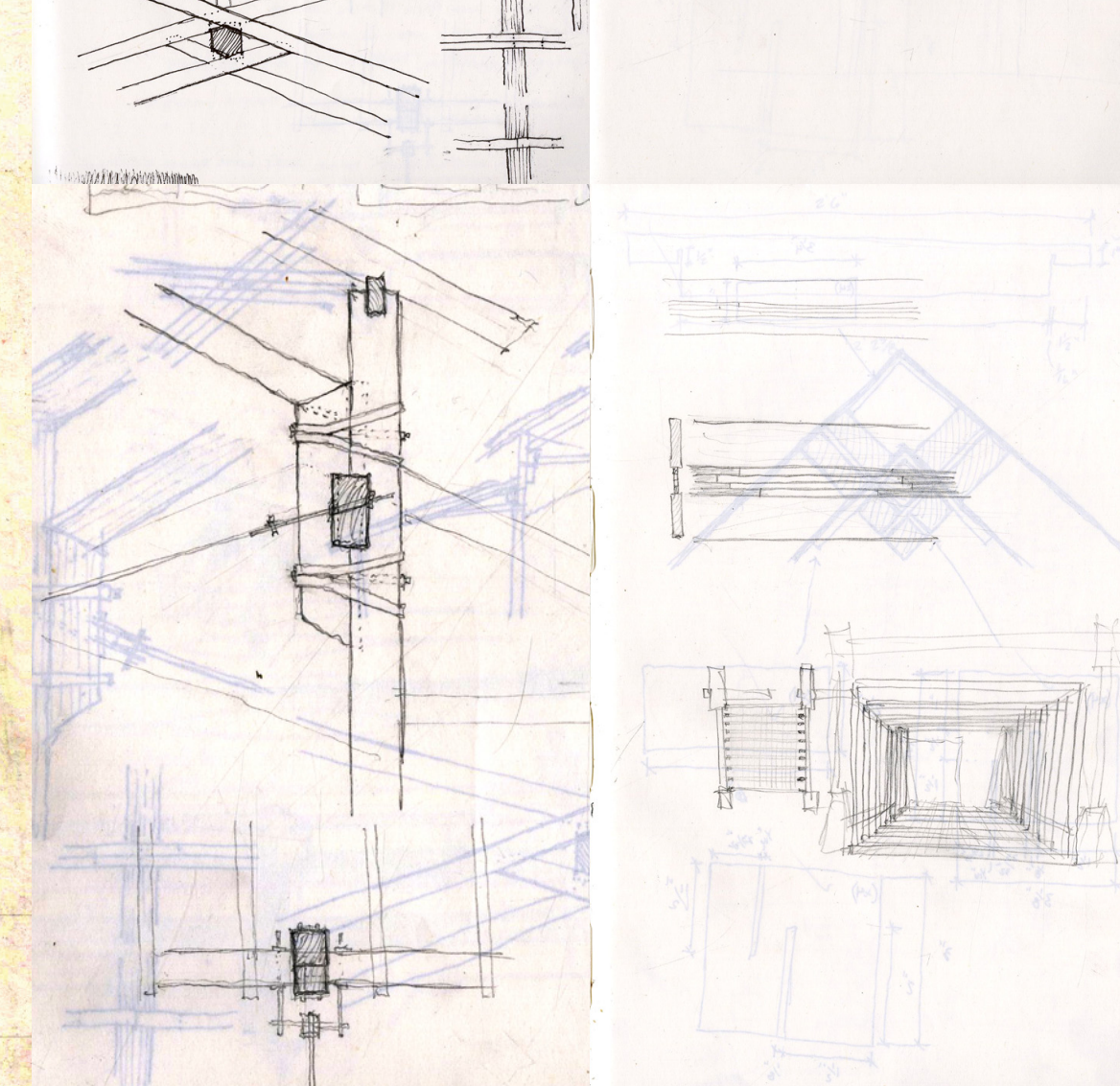
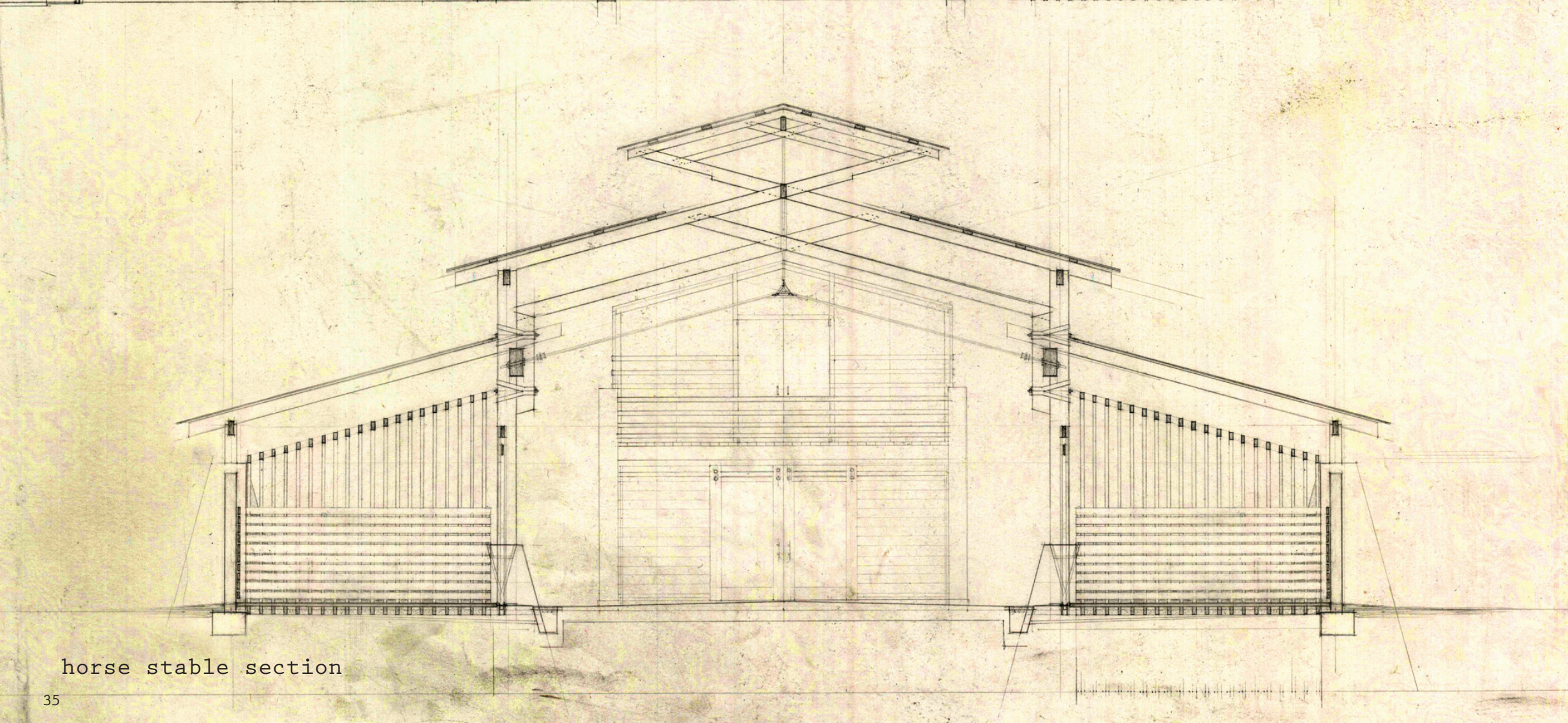
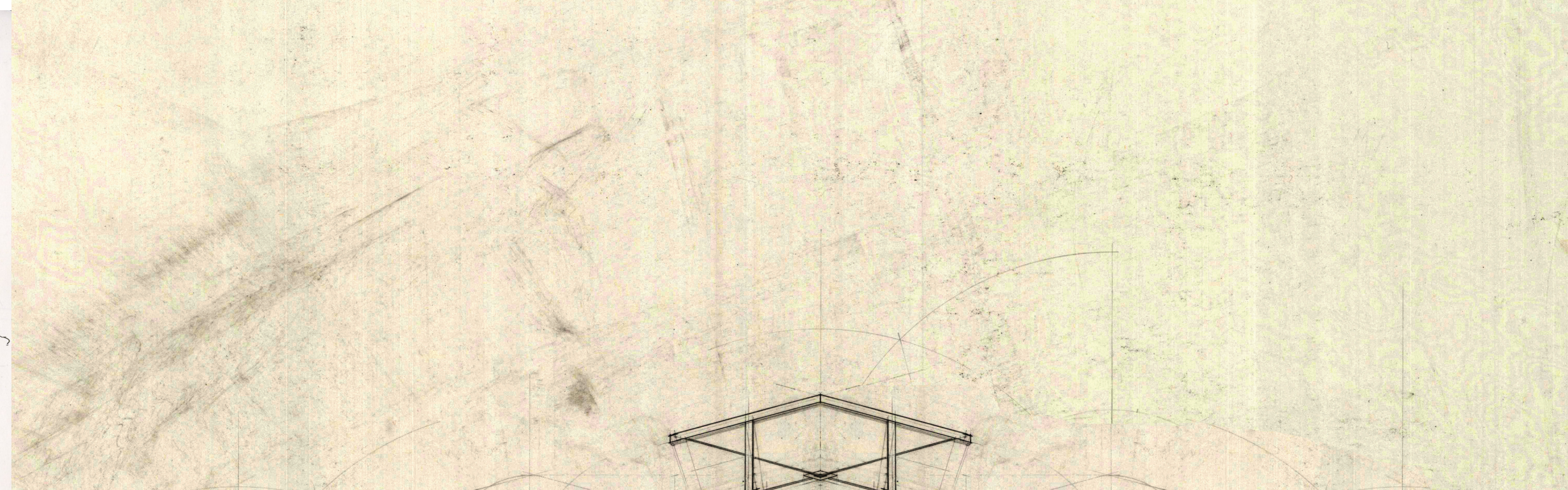
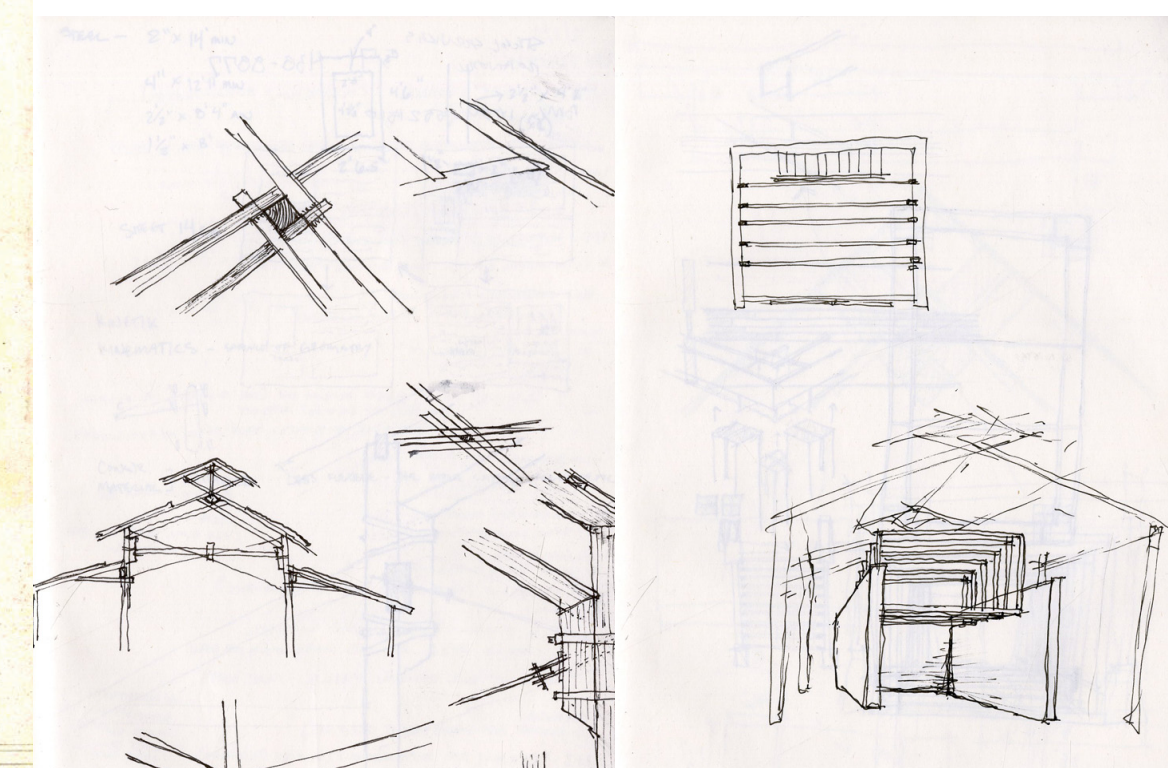
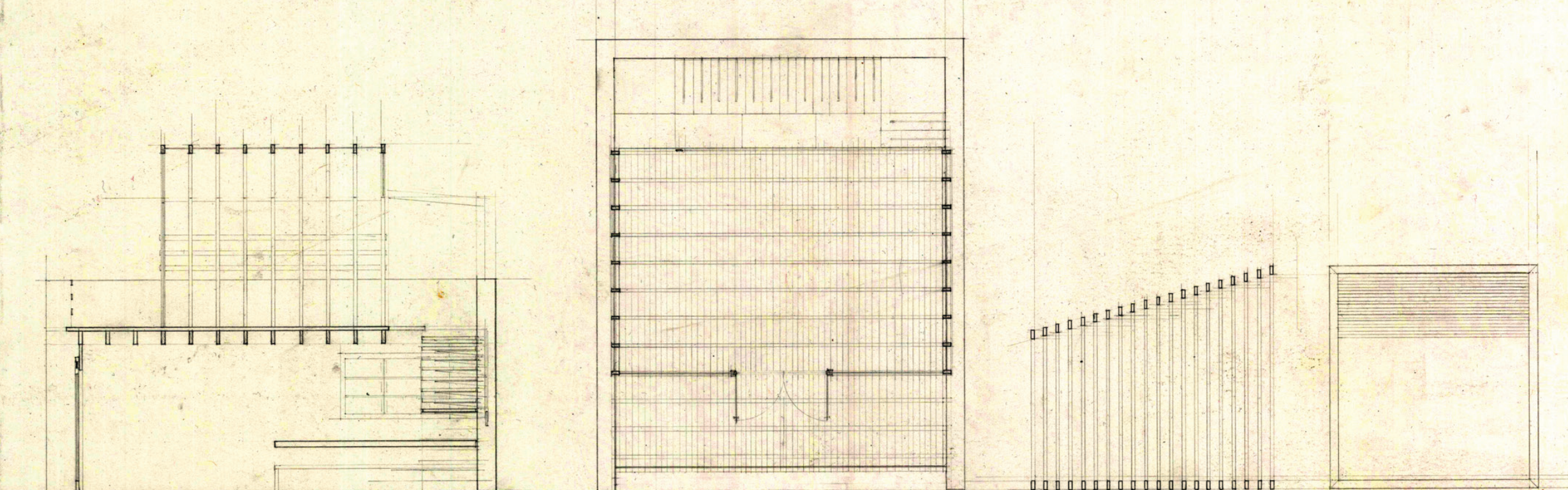


trough & pool elevation



horse stable plan

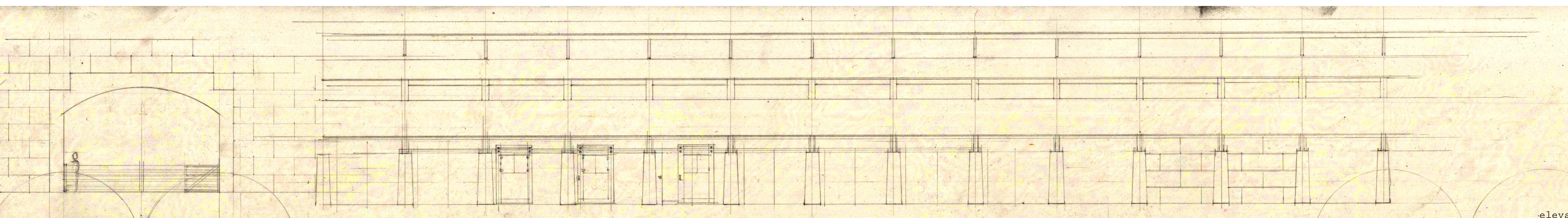
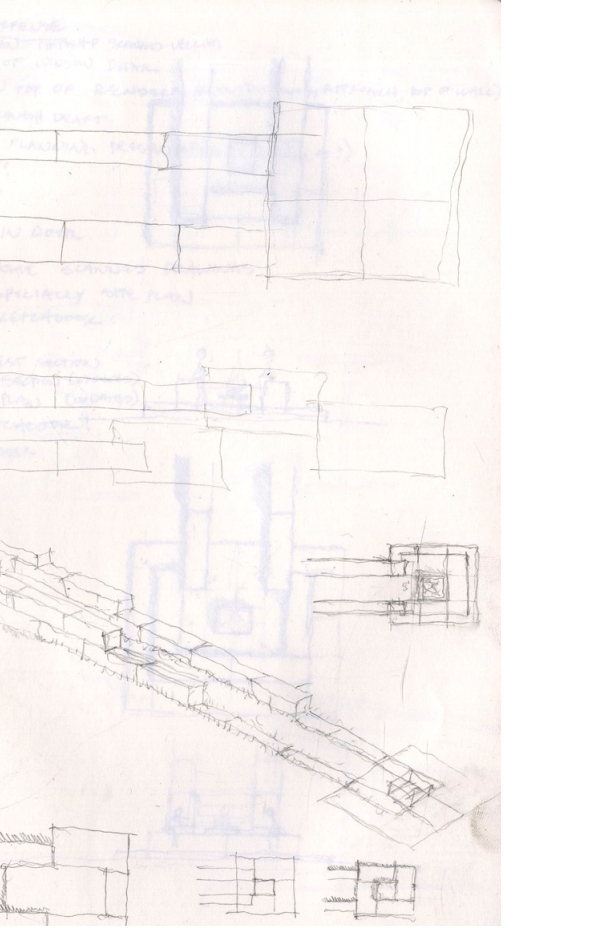
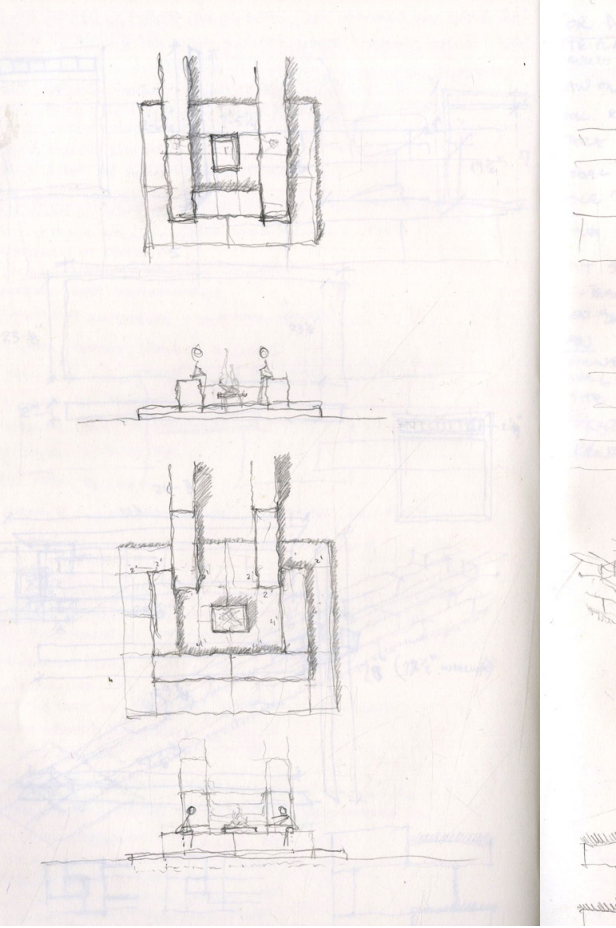
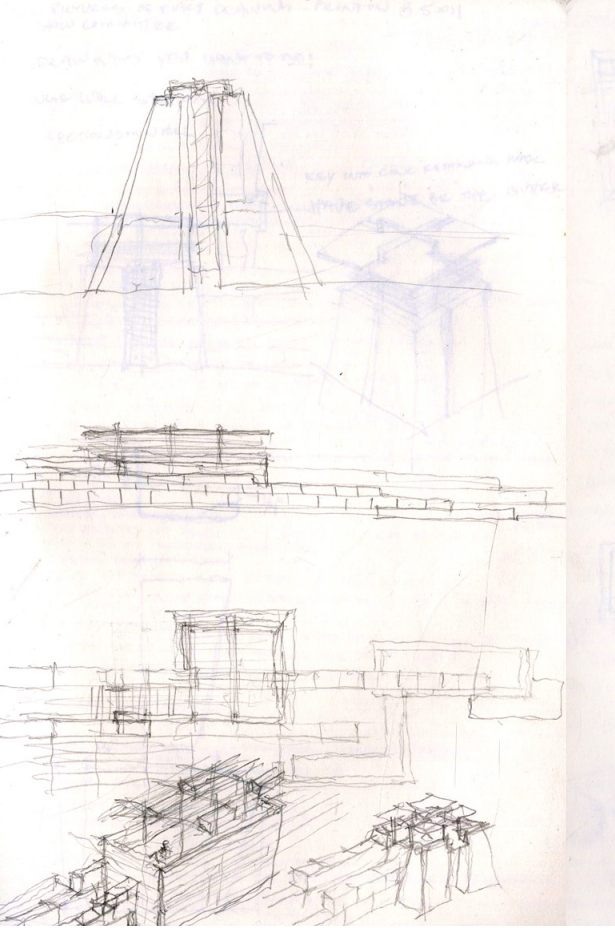
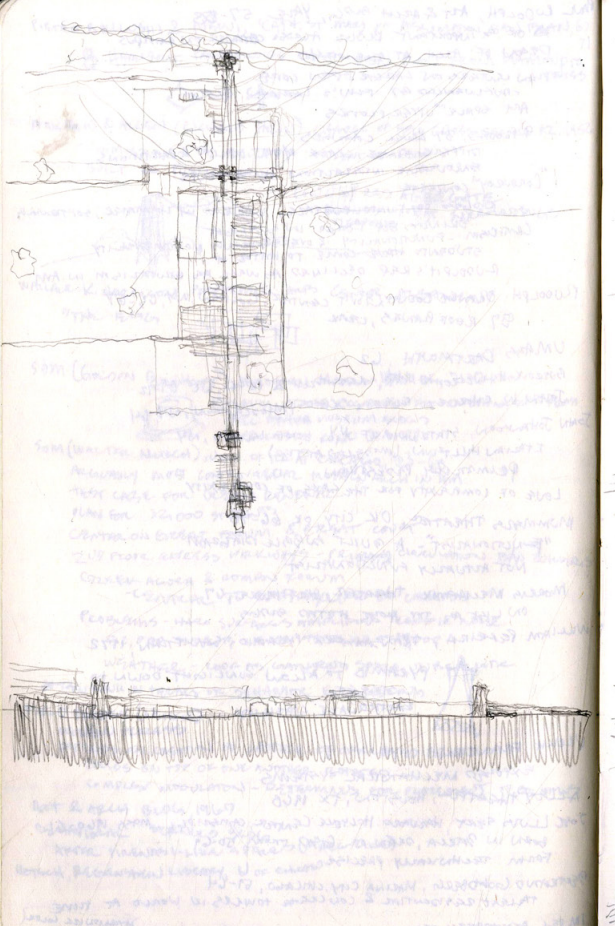
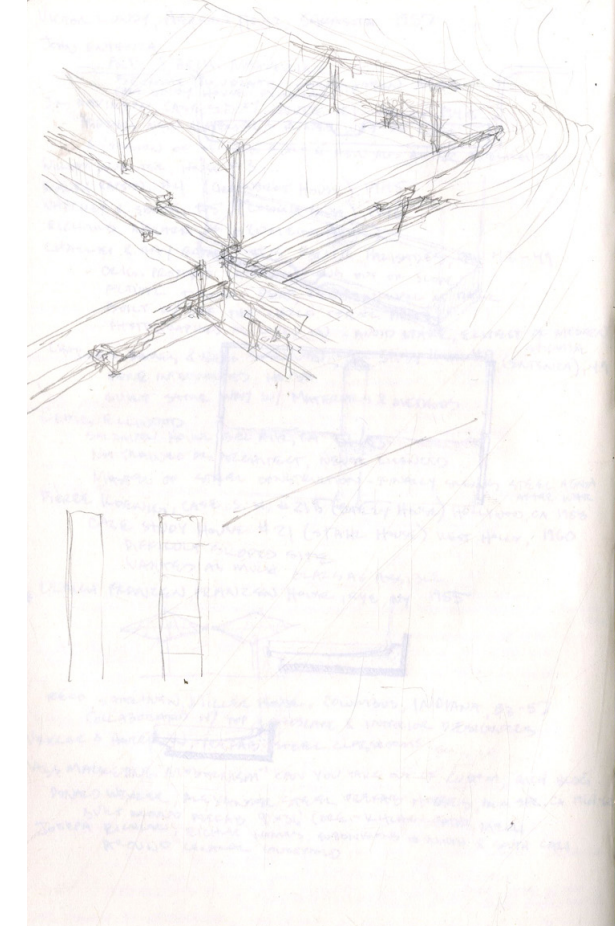
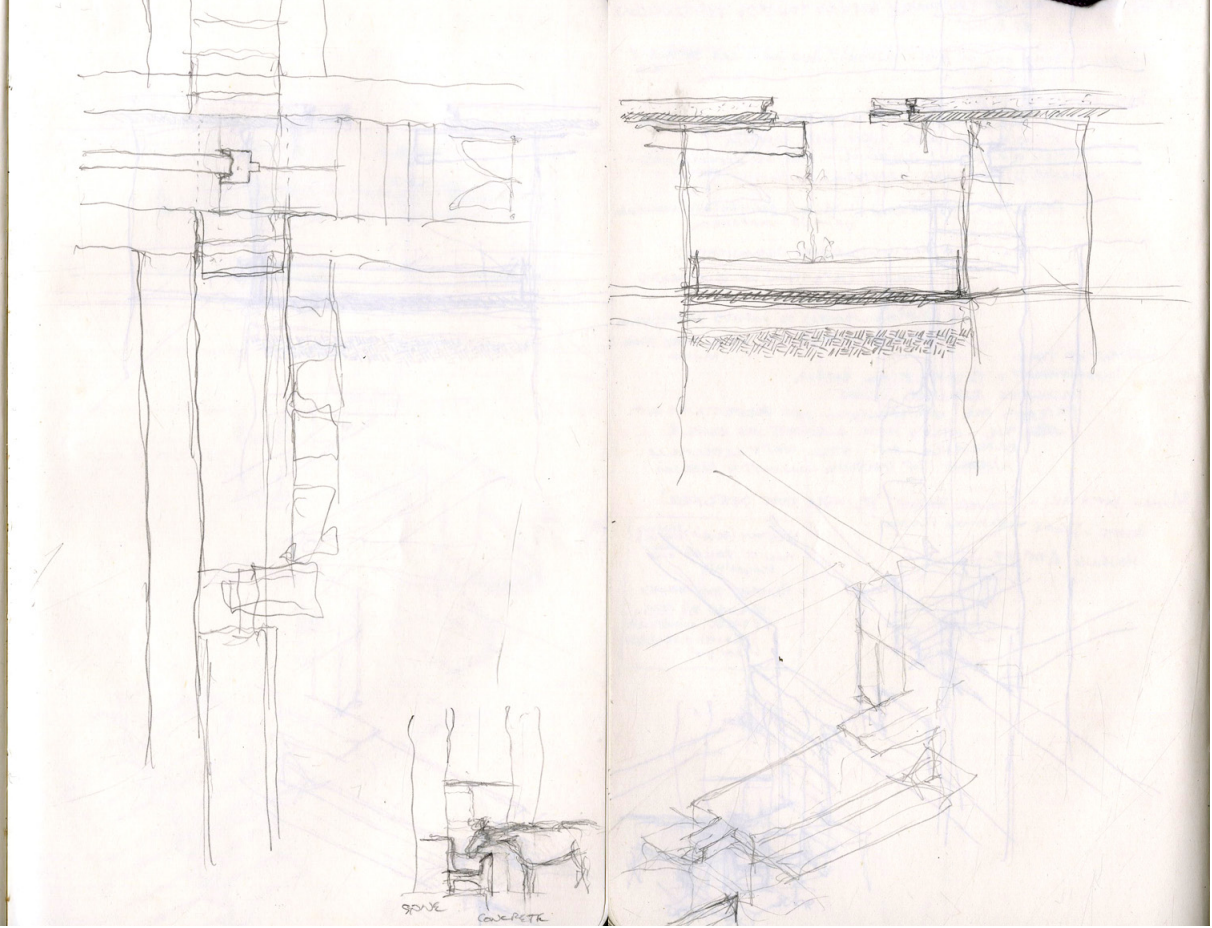
The horse stable is constructed of a series of monolithic concrete pylons which support and house the wood frame of the walls and roof. Each 12'x15' stall can be fitted with horse chambers or storage, creating an adaptable framework for varying needs. The central stone walled shed houses saddles and serves as a break room/kitchen for the ranch hands.



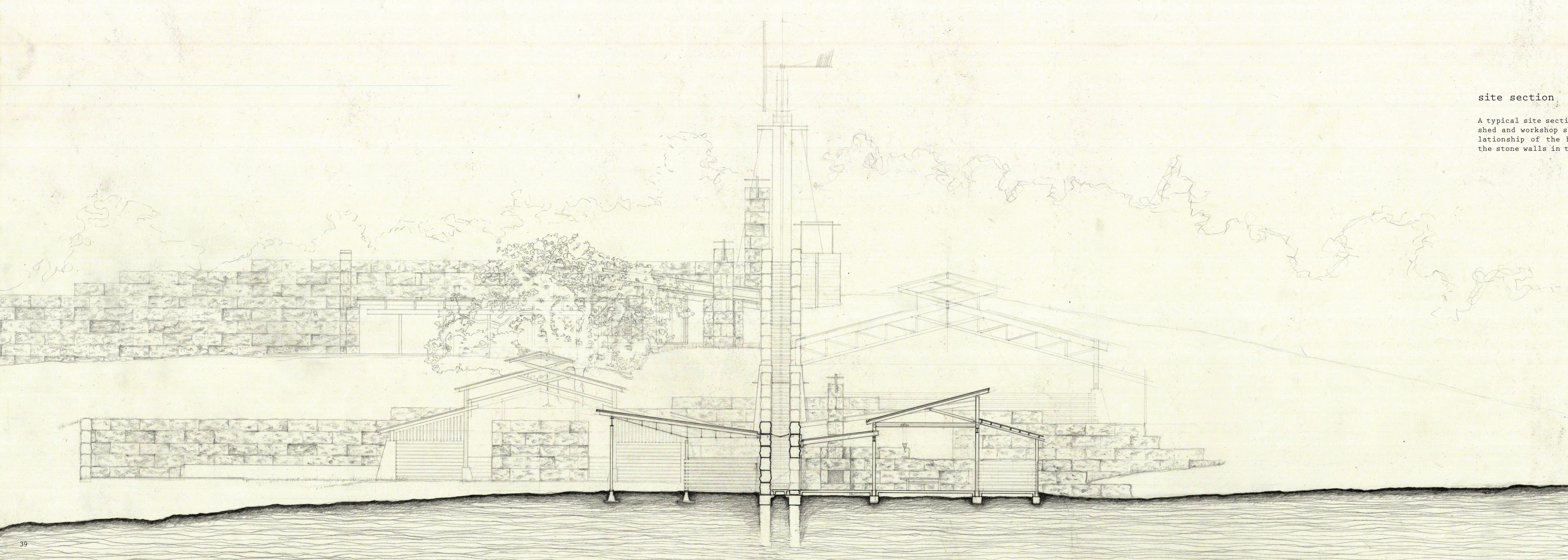
horse stable section

early stable perspective

Handwritten notes in a column on the left side of the top row of sketches, providing context for the architectural drawings.

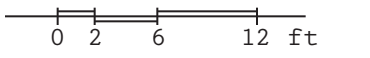


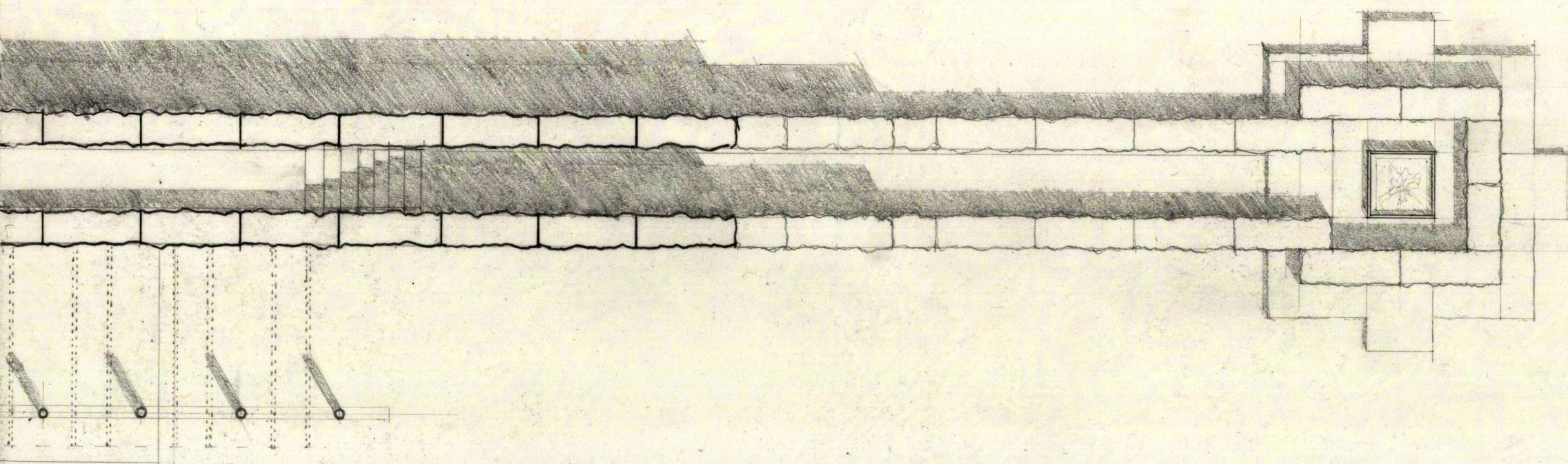
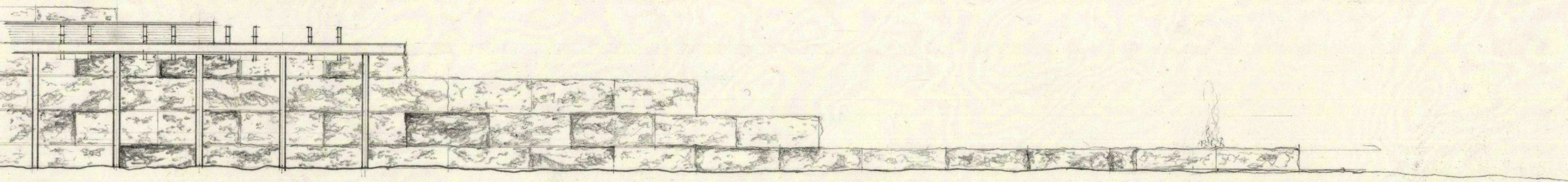
elevation & process sketches



site section

A typical site section through a shed and workshop shows the relationship of the buildings to the stone walls in the hillside.

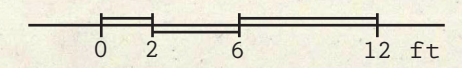
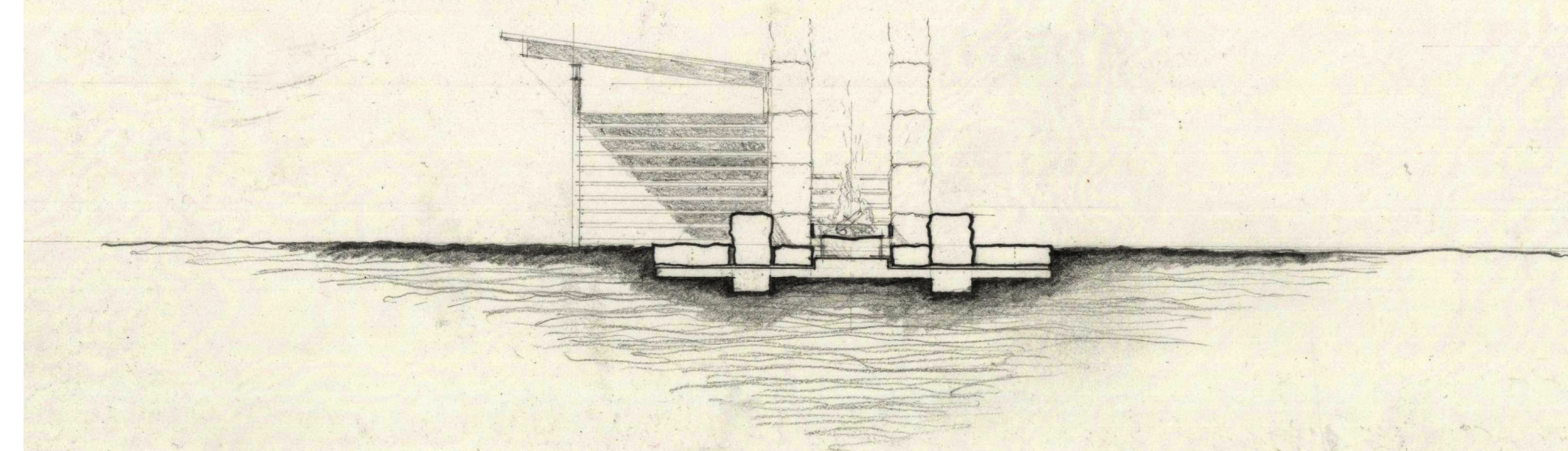




fire pit plan & elevation

fire pit

Past the ranch hand living quarters, the limestone walls support a simple horse shelter in the middle of the pasture. At their terminus, the blocks open to form a seating ring around a central fire pit in the center of the wide open pasture.



fire pit section

credit

All drawings, images, photographs,
and text by Mark Richardson