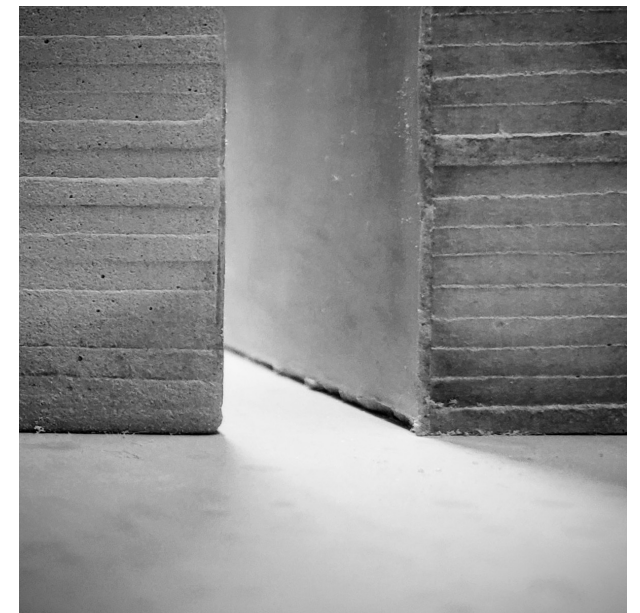


BETWEEN
THRESHOLDS IN SPACE AND TIME



Jonathan Asbell

BETWEEN: THRESHOLDS IN SPACE AND TIME

JONATHAN ASBELL

Thesis submitted to the faculty of the
Virginia Polytechnic Institute and
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in
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ABSTRACT

In architecture there is perhaps no better opportunity to capture movement and change than in the design of thresholds. They can be a simple strip of metal beneath a doorway, barely noticed as you pass over it, or a grand atrium that you stop and marvel at on your way into the office. They can manifest as a change of materials or finishes, or of some parameter such as ceiling height. They might even be immaterial altogether, like the boundary between light and shadow.

Thresholds transcend the physical to effect a psychological experience. They can be spatial or temporal or some combination of the two, but whatever form they take, all thresholds can be said to be mediators of our movement from one spatial status to another. Inside to outside, public to private, here to there. Too often our buildings relegate these changes to doors or openings that have little connection to the buildings they are a part of, and so our awareness of passage from space to space is diminished. This thesis explores ways to enrich the architecture of the threshold so that it doesn't merely recede to the bounds of our perception.

BETWEEN: THRESHOLDS IN SPACE AND TIME

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GENERAL AUDIENCE ABSTRACT

The term "threshold" often brings to mind a strip of material at the base of a doorway, but architecture considers thresholds more broadly as moments of movement or change. This thesis examines such moments in an original building design, proposing several threshold types and exploring their impact on occupants.

ACKNOWLEDGMENTS

I would like to thank my advisor, Kevin Jones, for his unending patience and thoughtful mentorship. The COVID-19 pandemic disrupted life in an unprecedented way during the making of this thesis and I could not have asked for a more understanding and empathetic teacher to guide me through it all, both before and after. I hope to one day be half the role model that Kevin is to me, and to have a tenth of his dad joke skills.

I thank Jim Jones for offering his insights into poetics and philosophy. With his help I learned to touch the walls with my eyes and my architecture will forever be better for it.

I thank Michael Ermann for helping me balance science and artistry in my designs, and for teaching me what it means to be an educator in architecture and beyond. Michael is a paragon of good teaching and it was an honor to be his teaching assistant during my final year of graduate school.

I thank Leslie Novilla for her immense support throughout my graduate school career, without which I would not have made it half as far as I did.

I thank my mother, Dolores Asbell, for always believing in me through career changes and otherwise.

Last but certainly not least, I thank my fiancée, Cara Conway, for her love and support along the way. I can't wait to see what adventures are in store for us next.

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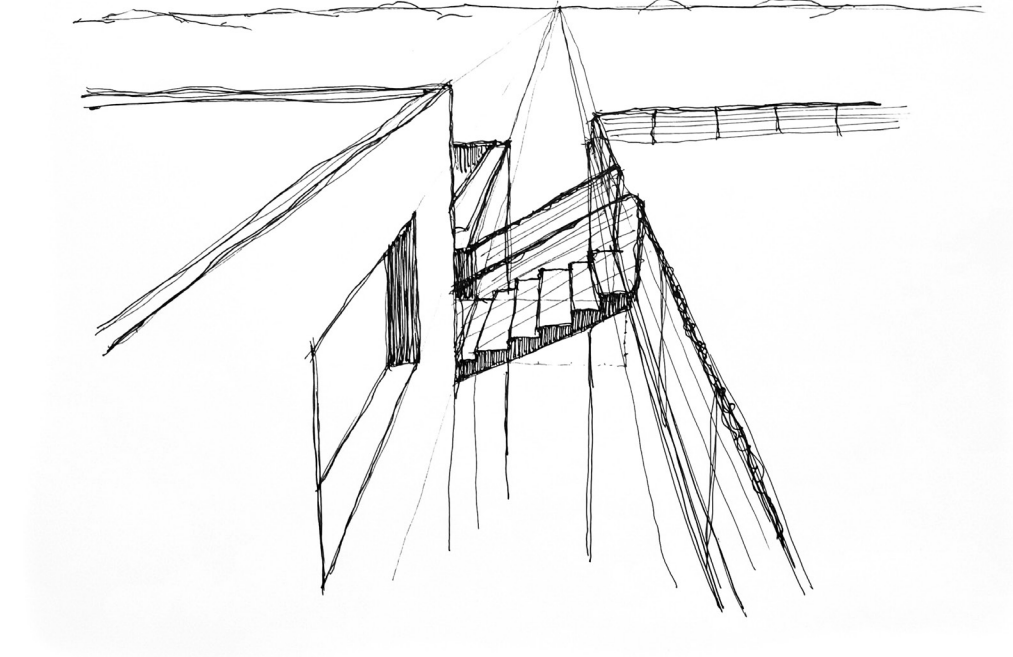
THRESHOLD EXPERIENCE

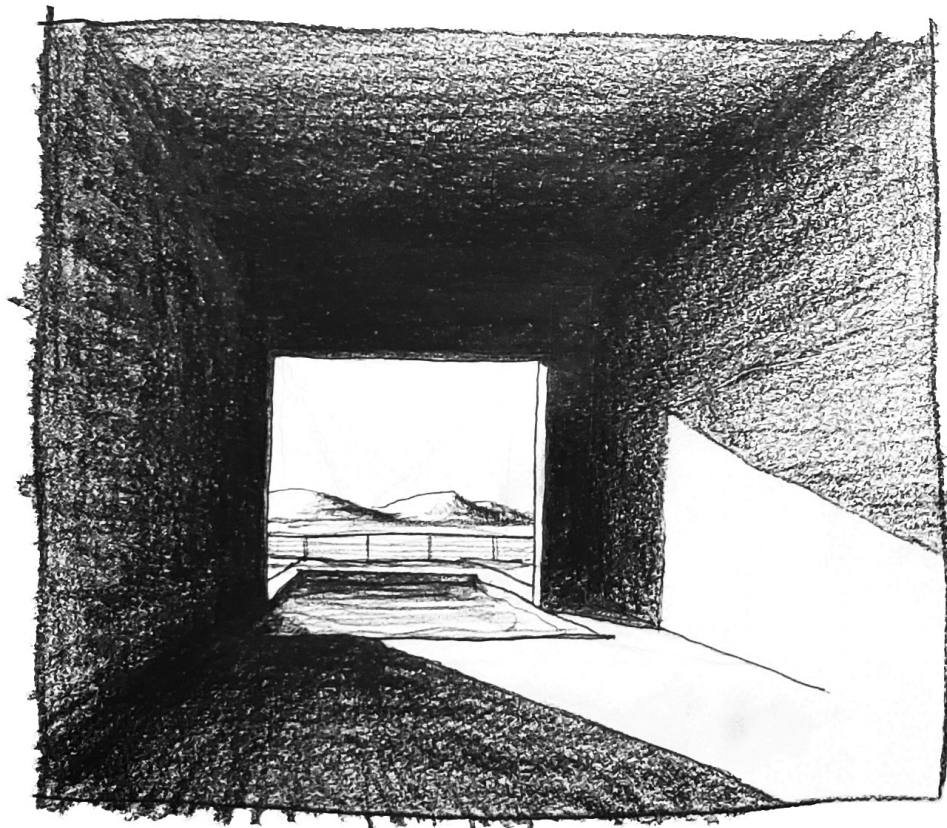
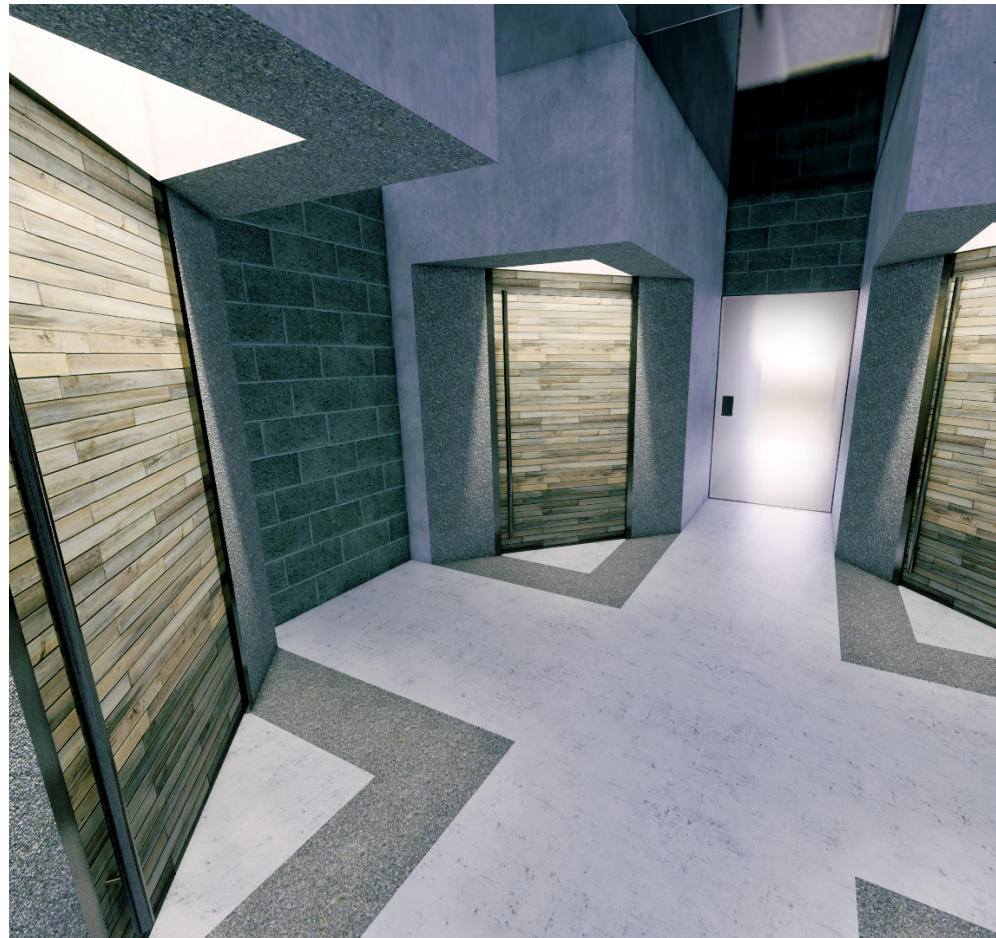
The threshold is the moment where the duality makes itself known, where the two are at once separated and together, and we experience it in a multitude of ways. But however various the experiences, they can all be loosely categorized into those that are more spatial in nature and those that are more temporal in nature.

A spatial threshold is one whose identity is tied to a physical measure of some sort. It can be so large as to be an inhabitable space, though it need not be. Spatial thresholds are explored in this thesis through the concepts of **GAP**, **RIM**, **PRESSURE**, and **STEP**.

A temporal threshold is one that occurs at juxtapositions and is tied to the infinitesimal. It is sensed and anticipated before it is crossed, and thus is inhabited only in time. Temporal thresholds are explored in this thesis through the concepts of **SHADOWLINE** and **TEXTURE**.

Thresholds do not always fit neatly into the spatial or temporal, nor are they experienced in a vacuum. In exploring the above types we will see how the categories can be blurred, and how the thresholds can be overlapped or aligned such that they comprise a larger, more complex, even processional threshold experience. It is this quality that allows for the emergence of whole architectures defined by the threshold concept.





Examples of the threshold types as they appear in the project.
CLOCKWISE FROM TOP LEFT: gap, rim, pressure, step, shadowline, texture.

PRECEDENT EXPLORATIONS

The origins of the thesis can be traced to the study of two significant works of modernist architecture, the Indian Institute of Management by Louis Kahn and the Inn at Middleton Place by W. G. Clark.

Kahn's design is distinguished by the massive brick rings that adorn its walls. The rings are varied throughout the complex to serve several architectural purposes. These include framing views, lending depth to the facades, and capturing the passage of time as they interact with sunlight.

Clark's design is also concerned with the passage of time, albeit on a larger scale. It is characterized by wood-frame enclosures nested into concrete frames, a move that asks questions about permanence, transience, and the nature of ruin. Additionally, its concrete stairs with their gently arced hollows form unusual intersecting entry conditions. This feature was a formative influence on the thesis.

In the initial thesis explorations Kahn's brick apertures were reimagined as portals with Clark-inspired stairs running through them. Questions quickly emerged about layers of complexity in the crossing of thresholds. Changes in depth, material, compression, and overhead activity were all combined to enrich one's passage through the ring until it became apparent that the ring was no longer essential to the design. It was removed, leaving a distillation of the threshold concepts to be studied in new forms.

The images to the right highlight the Kahn and Clark designs, and pages 5-10 show studies that they informed.



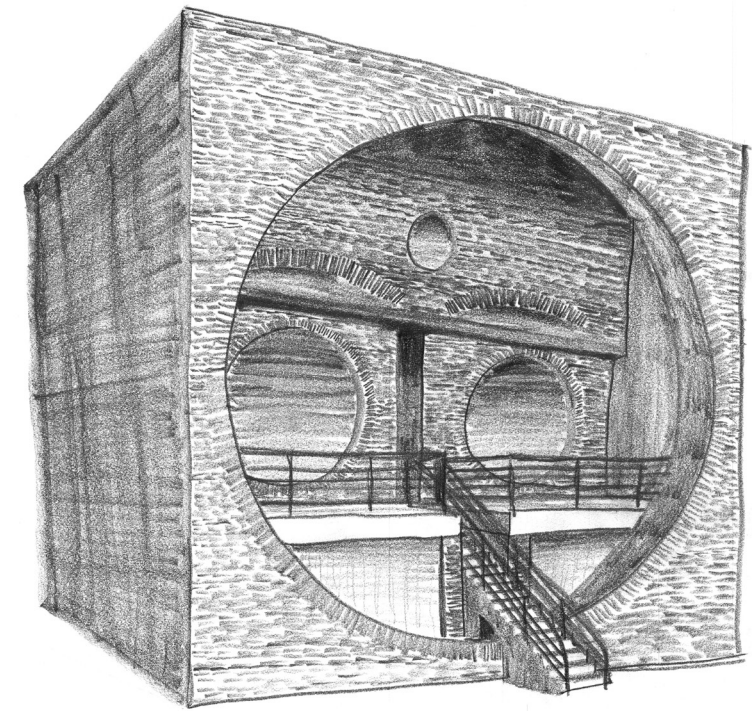
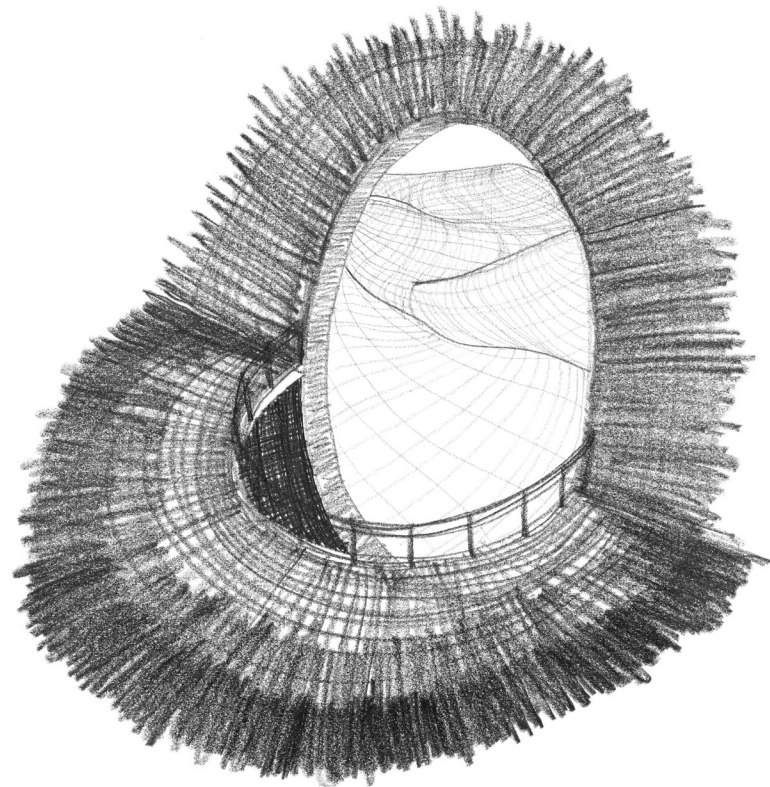
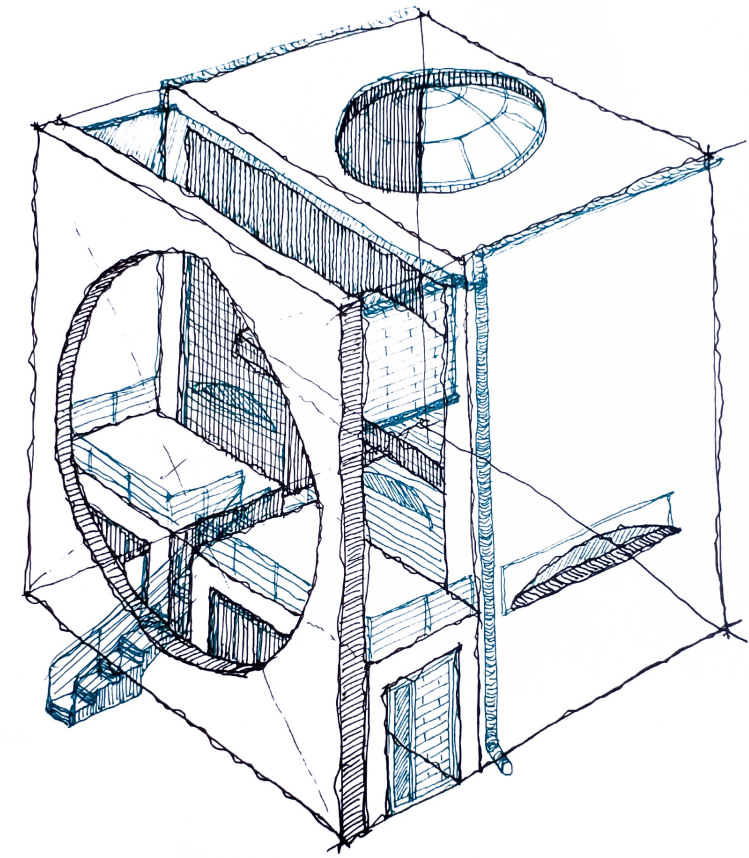
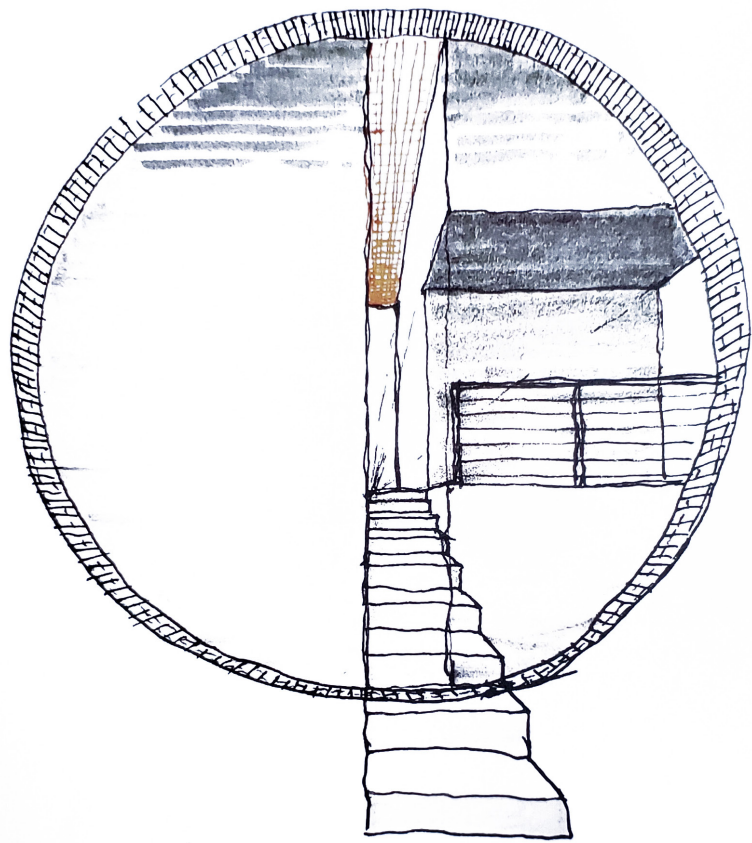


FAR LEFT: I.I.M. by Louis Kahn. Emden, Cemal. 2017

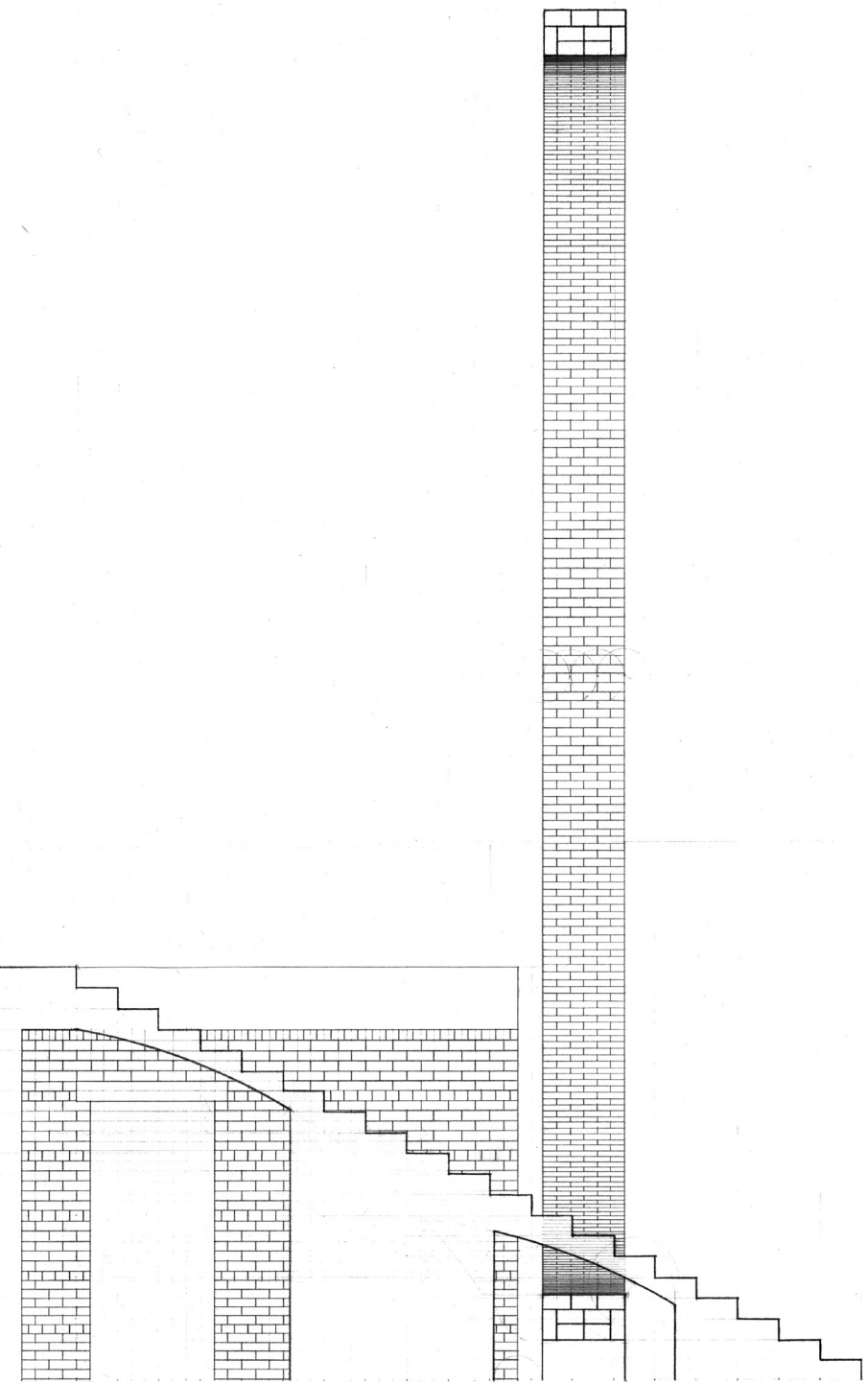
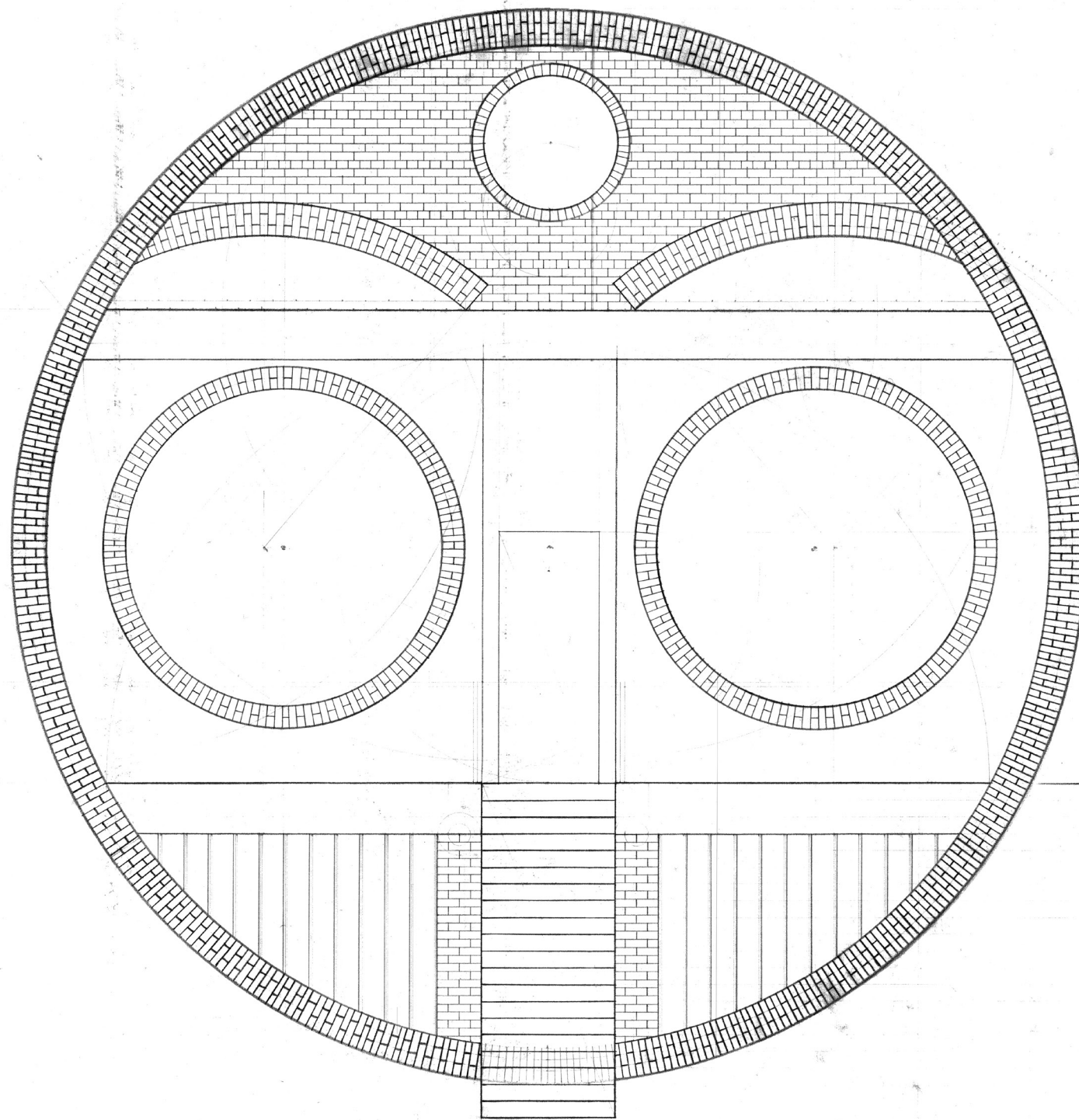
LEFT: I.I.M. by Louis Kahn. Emden, Cemal. 2017

TOP: I.I.M. by Louis Kahn. Emden, Cemal. 2017

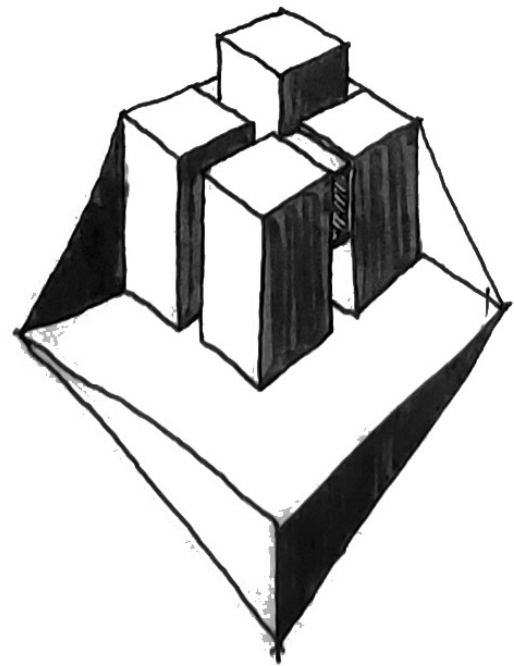
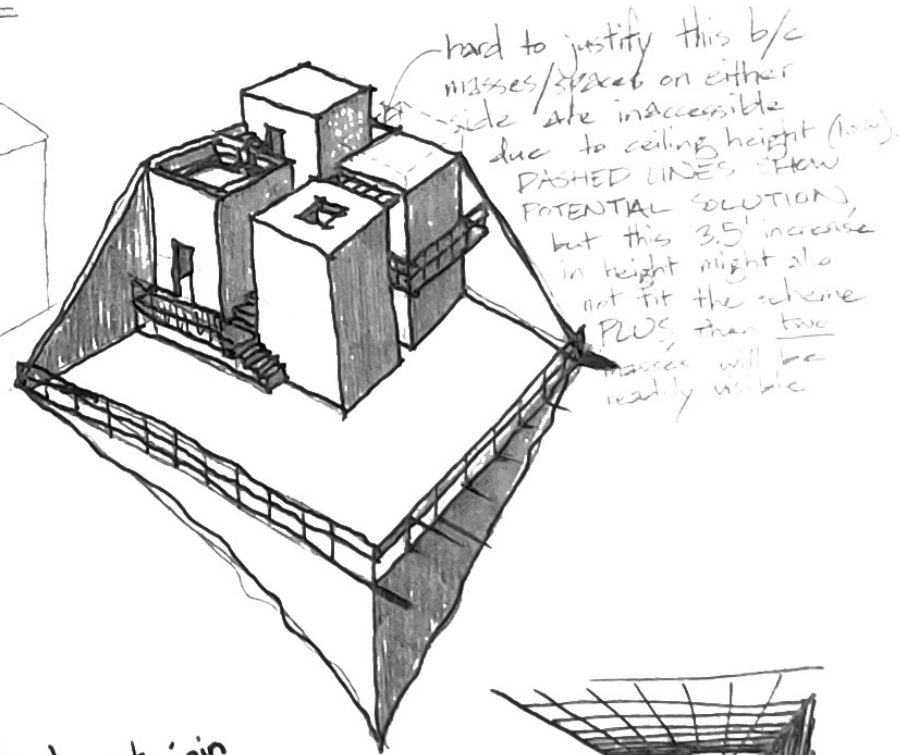
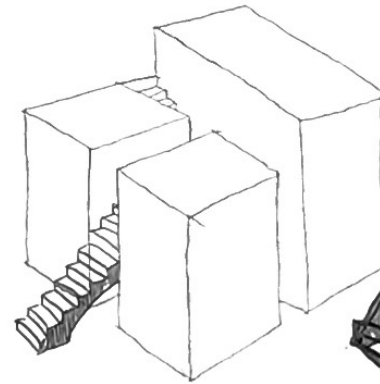
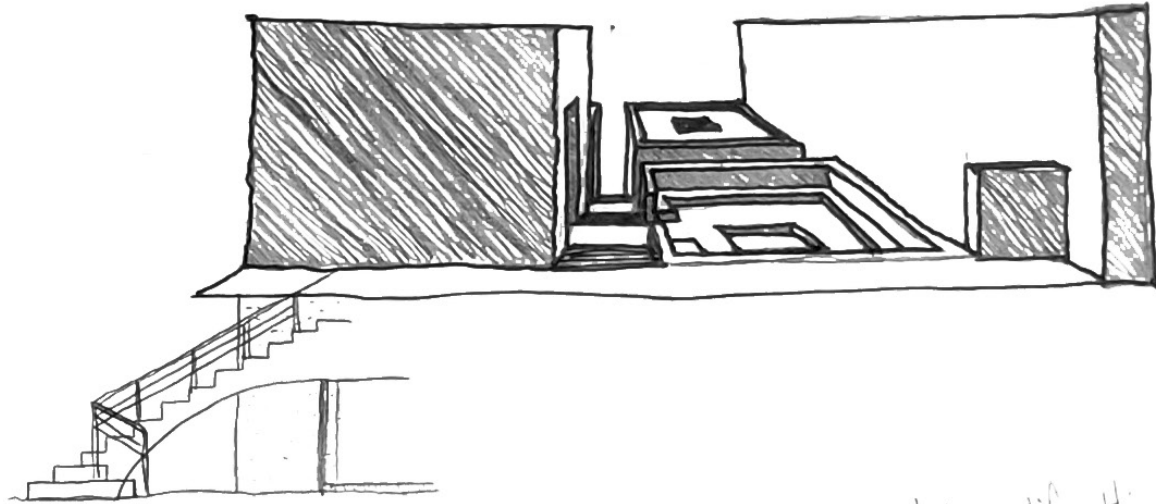
ABOVE: Middleton Inn by W. G. Clark. Fodor's Travel. 2020.



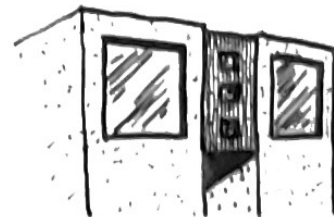
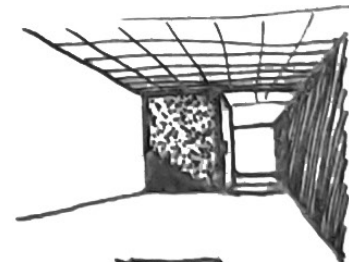




we don't normally see
in plan, but this
building might be
visited from above.

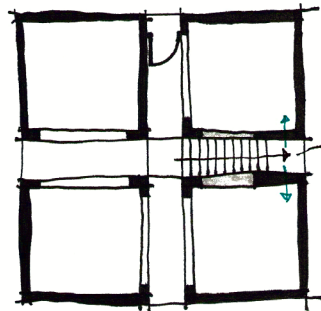
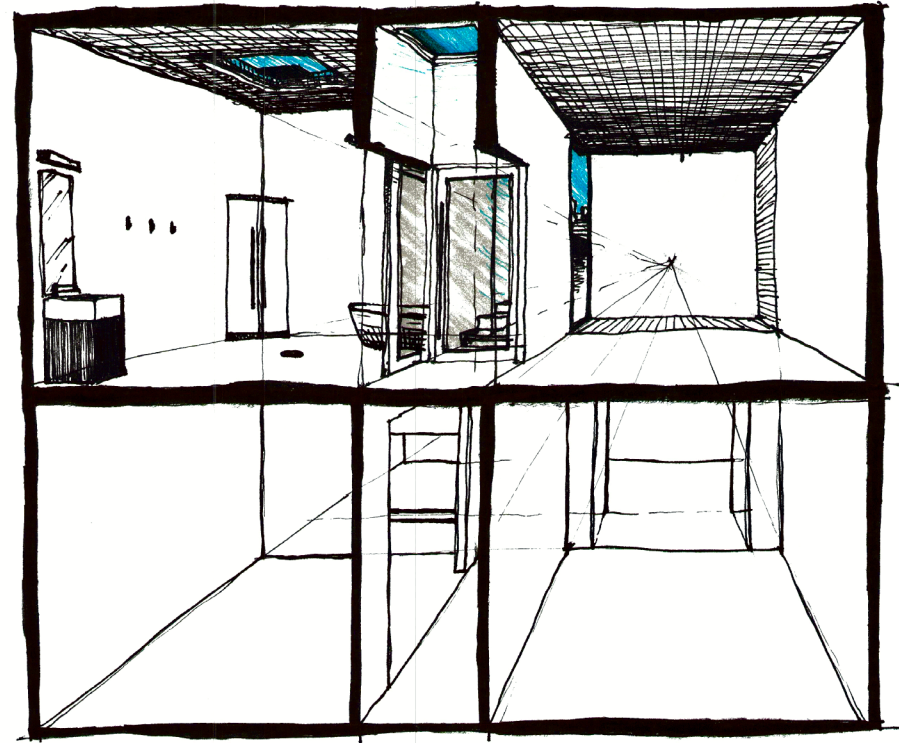
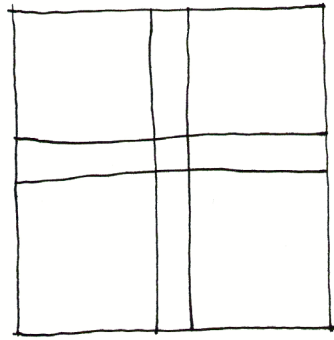


how to join
masses in a
subtle but
intelligible way...



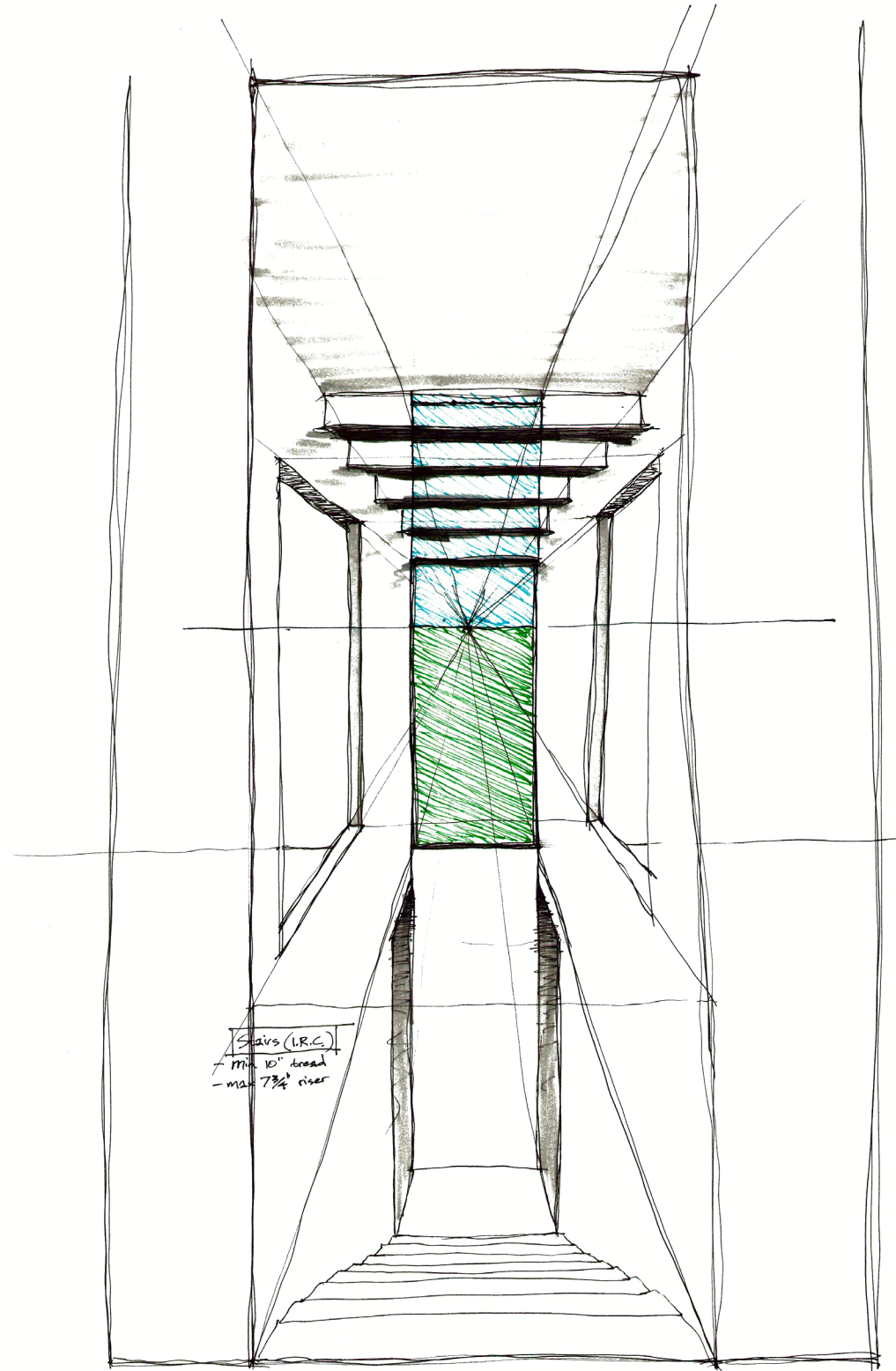
Concrete
with
wood infill?





Down to
cellar - figure
out if stairs
can fit with
landings that
splits off to
either side
or even just
one side.

Current dimensions of
13' x 13' cells can't accom-
modate staircase with
enough headroom - must
expand dimensions.



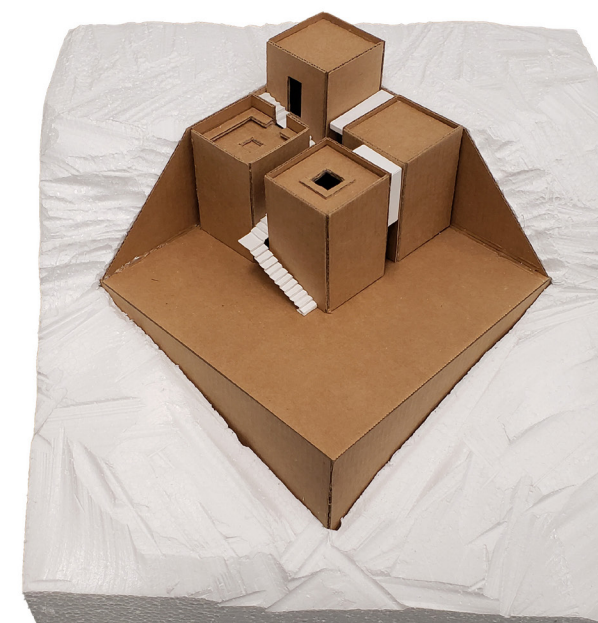
Stairs (L.R.C.)
- min 10' broad
- max 7 3/4' riser

PROJECT OVERVIEW

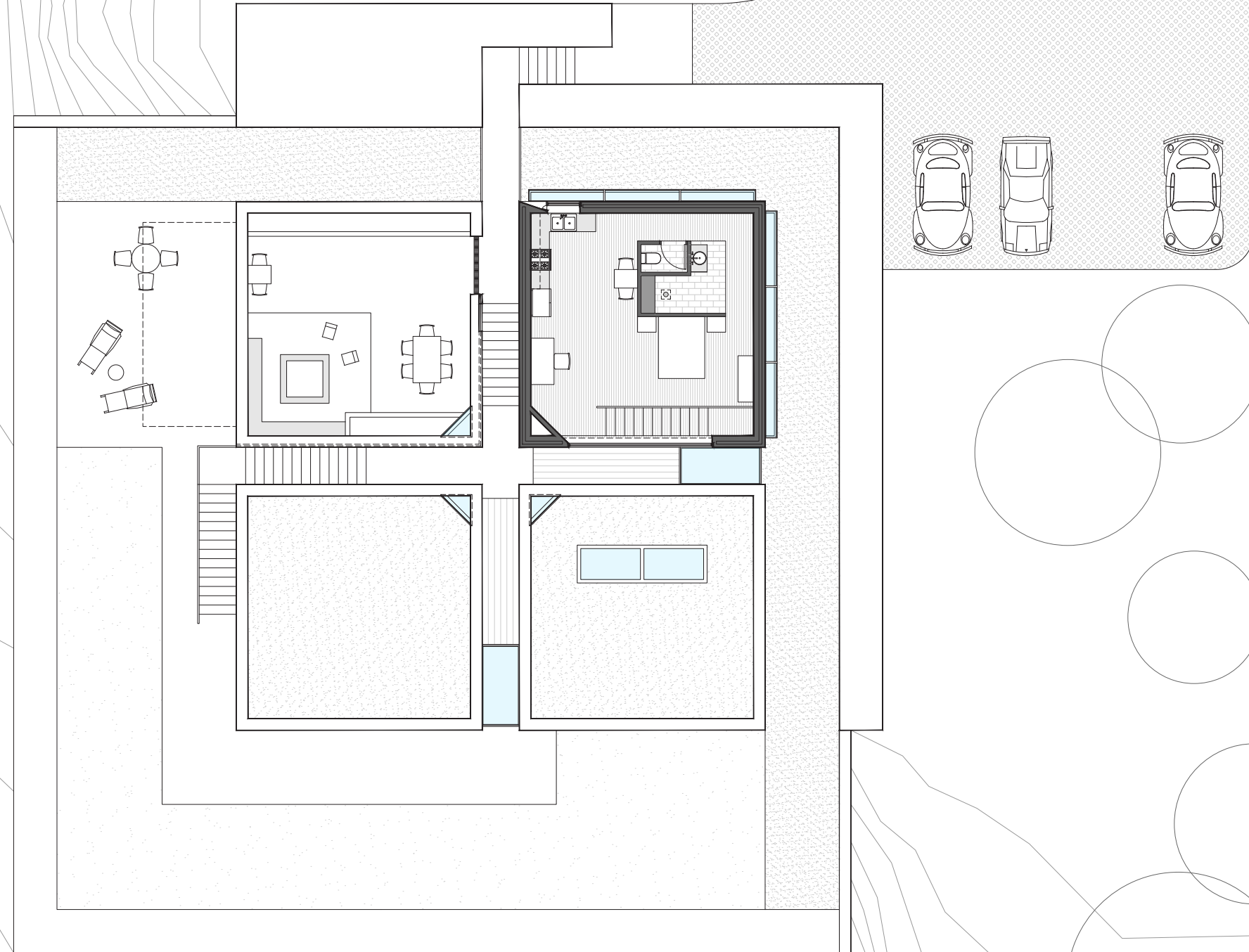
The project is a four-unit bed and breakfast in the mountains of North Carolina. It consists of four volumes, each square in plan and together comprising a larger square plan, nested deeply into a south-facing slope. The slope has been cut and filled such that the building rests on a 7,900 sq. ft. terrace, with only one of its volumes emerging above ground level on the uphill side. Because the building is entered on the uphill side, this makes it appear deceptively small on approach. Its true scale is revealed only by descending a stair between the volumes and to the terrace below.

The building is structured by 15-inch-thick concrete cavity walls, cast-in-place. The stairs threaded between its volumes are also built from cast-in-place concrete and form part of the enclosure for the lower story. Concrete is further used for the large retaining walls that back the building and support the lower terrace, and again for the exterior walkways. And while the upper and lower terraces both have significant drop-offs, they use only reflecting pools in place of guardrails, thereby enhancing the visual purity of the geometry and the concrete construction.

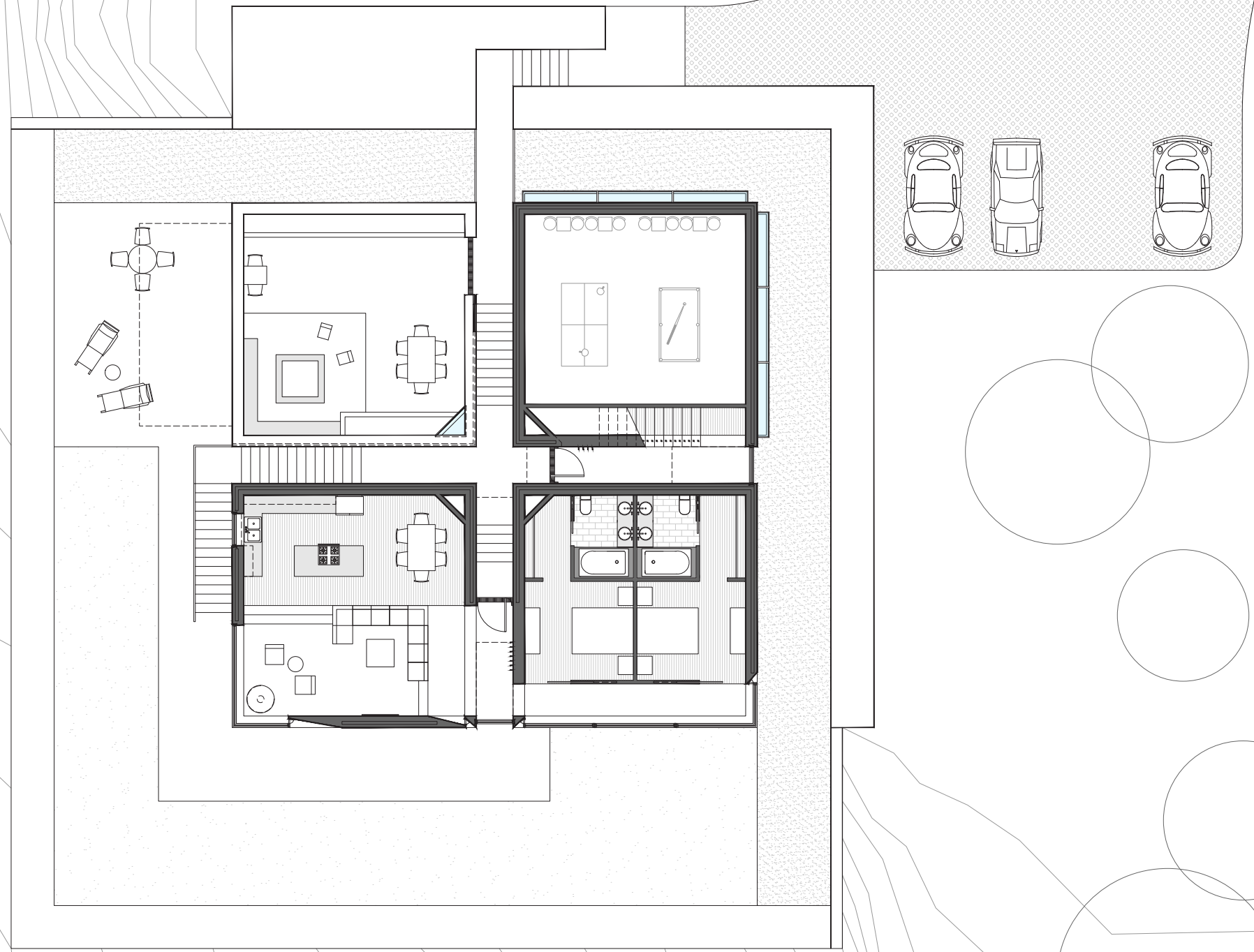
While concrete is primary, the material palette also features wood, stone tile, and concrete block. Furthermore, the concrete itself appears in boardform, polished, and exposed aggregate finishes. Porous pavers line the parking lot, serving as a mediation between the asphalt of the road and the concrete that awaits at the building proper.



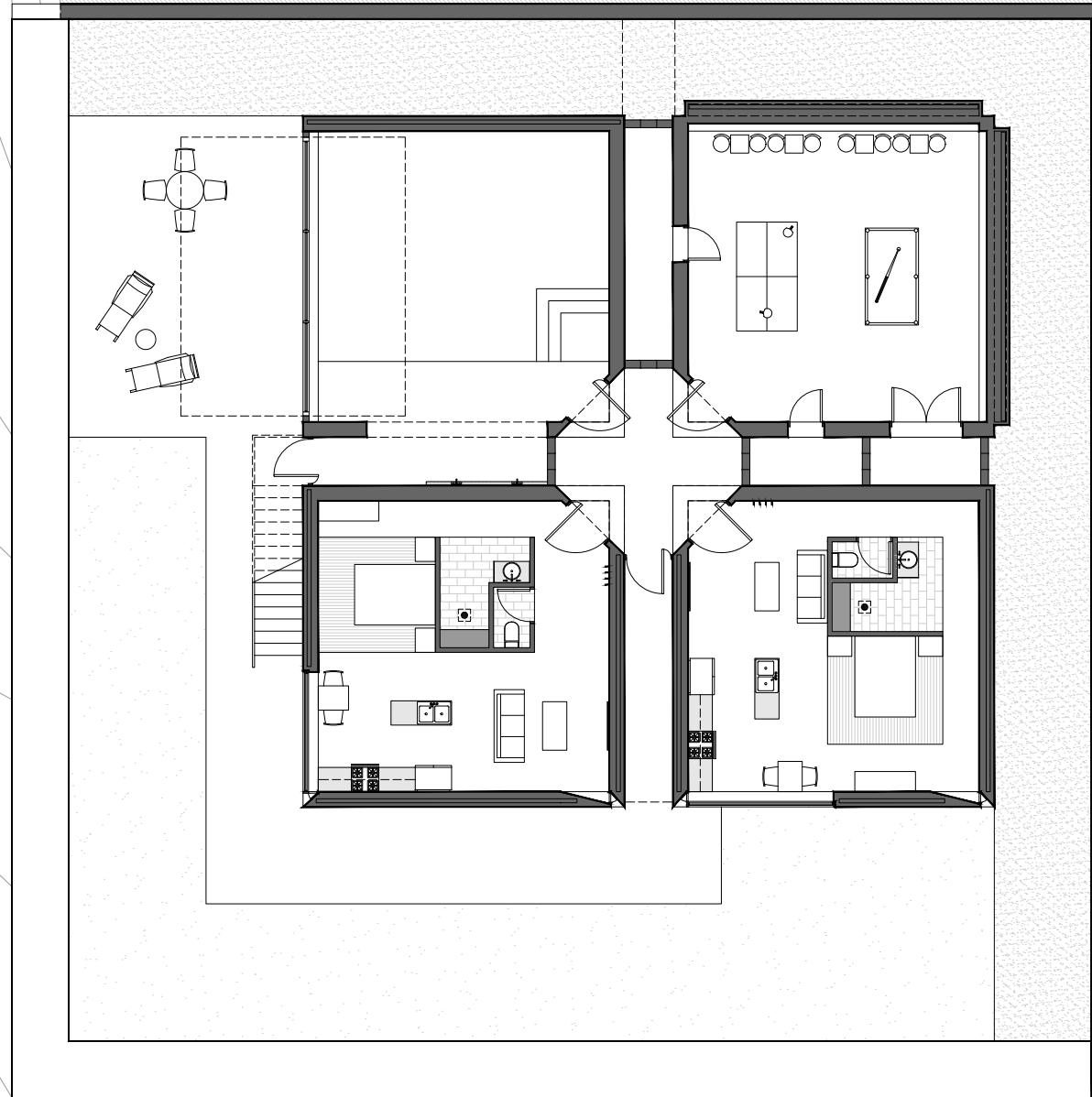
THIRD FLOOR PLAN



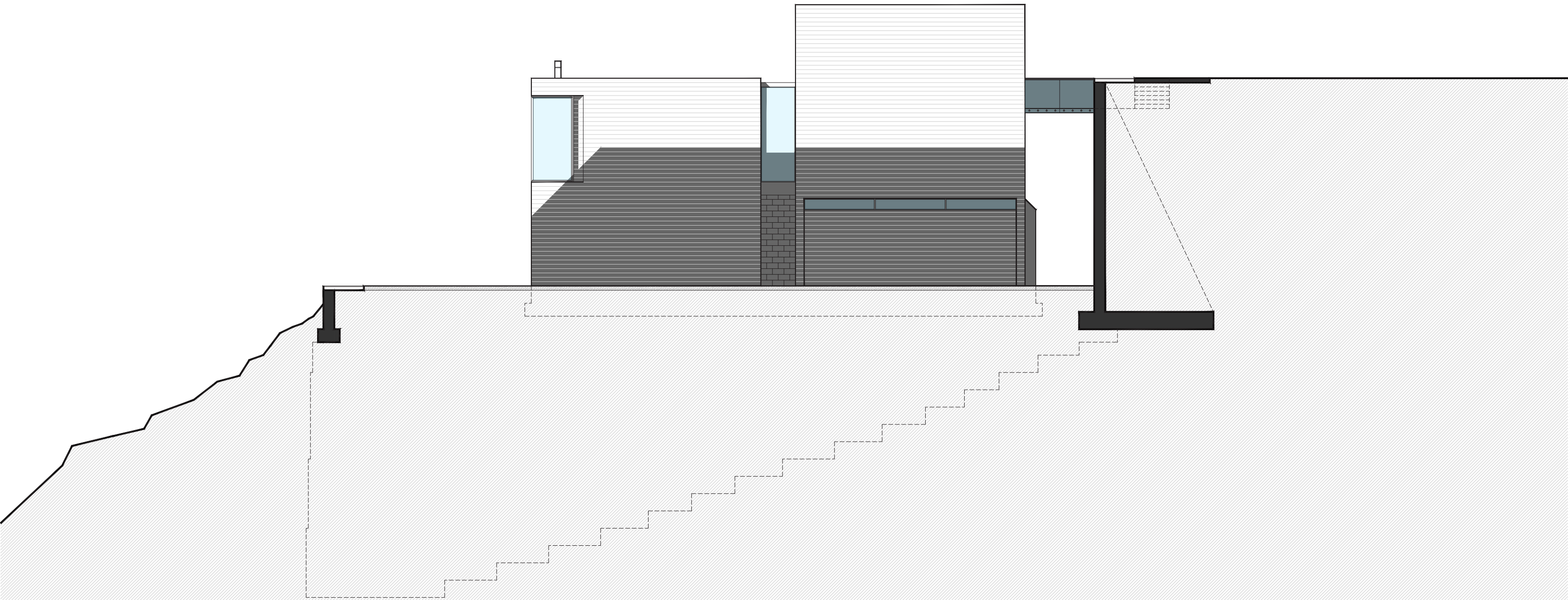
SECOND FLOOR PLAN



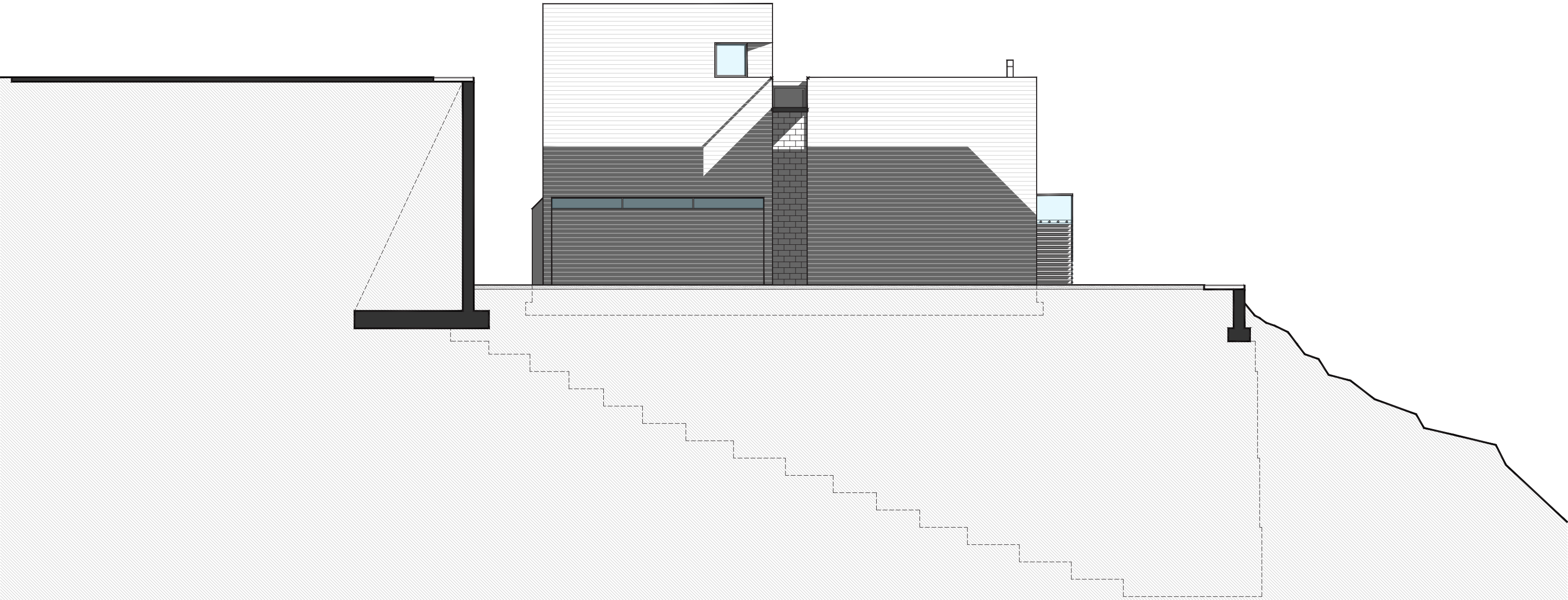
FIRST FLOOR PLAN



NORTHEAST ELEVATION



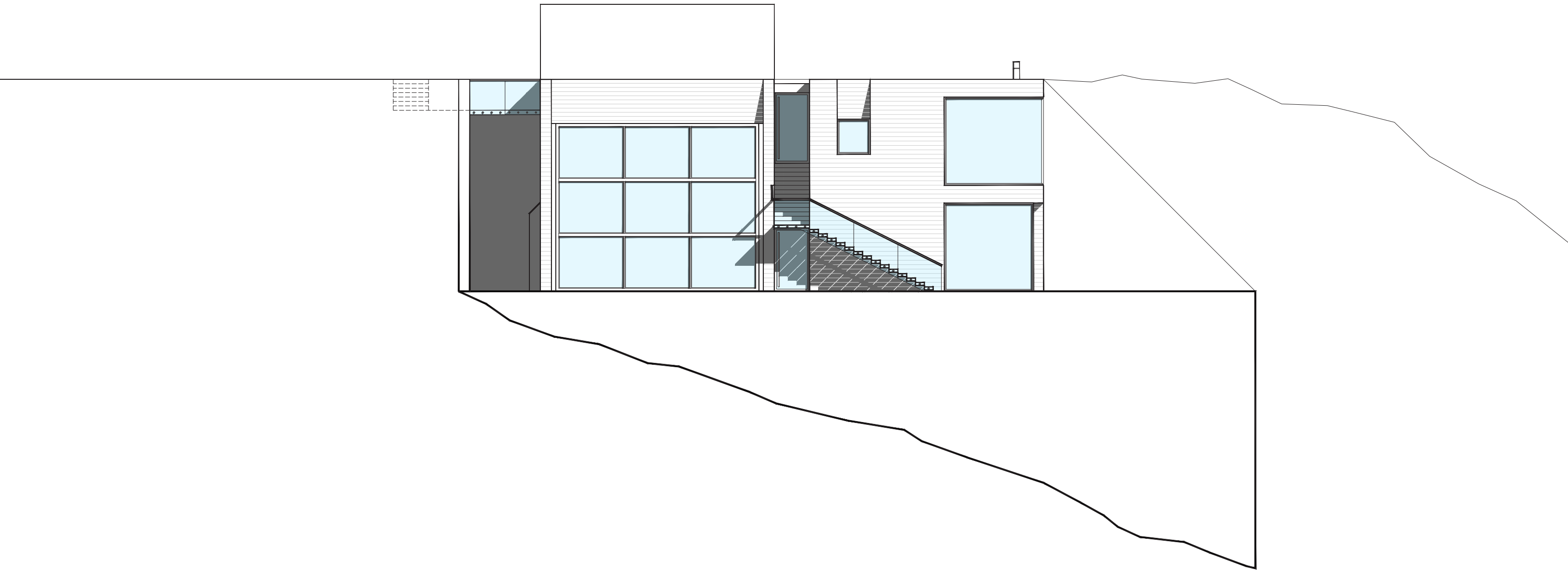
NORTHWEST ELEVATION



SOUTHEAST ELEVATION

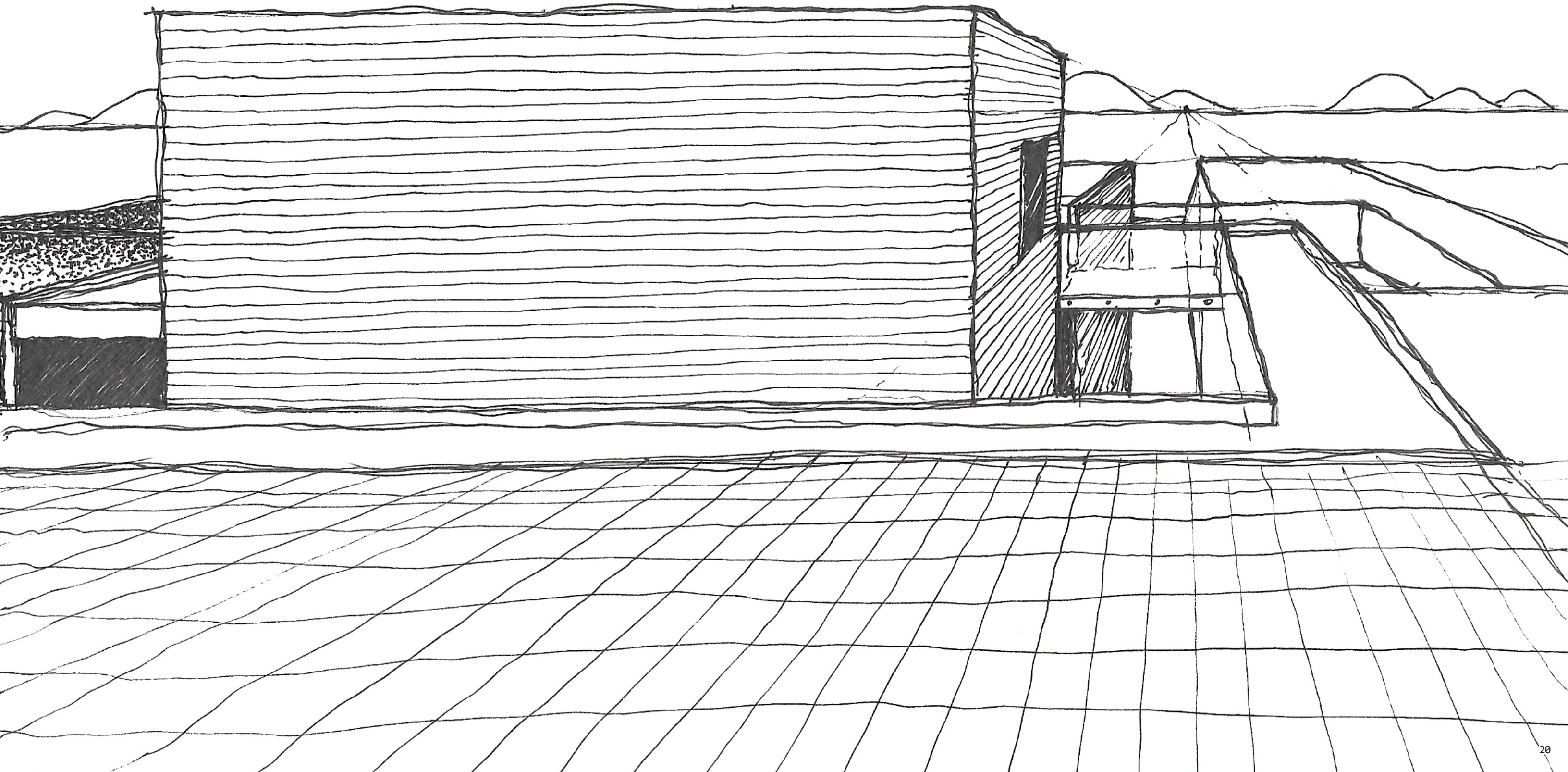


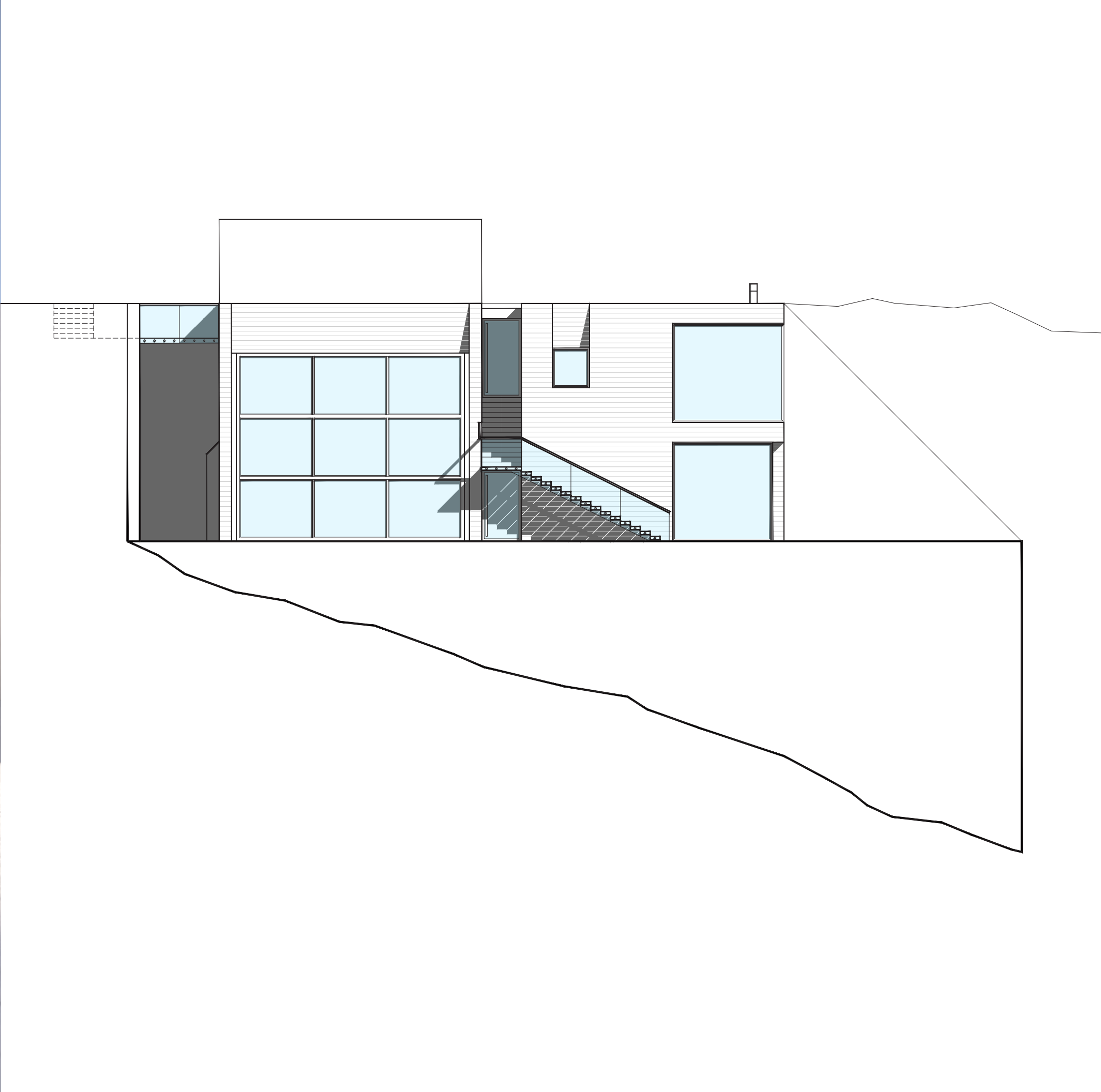
SOUTHWEST ELEVATION

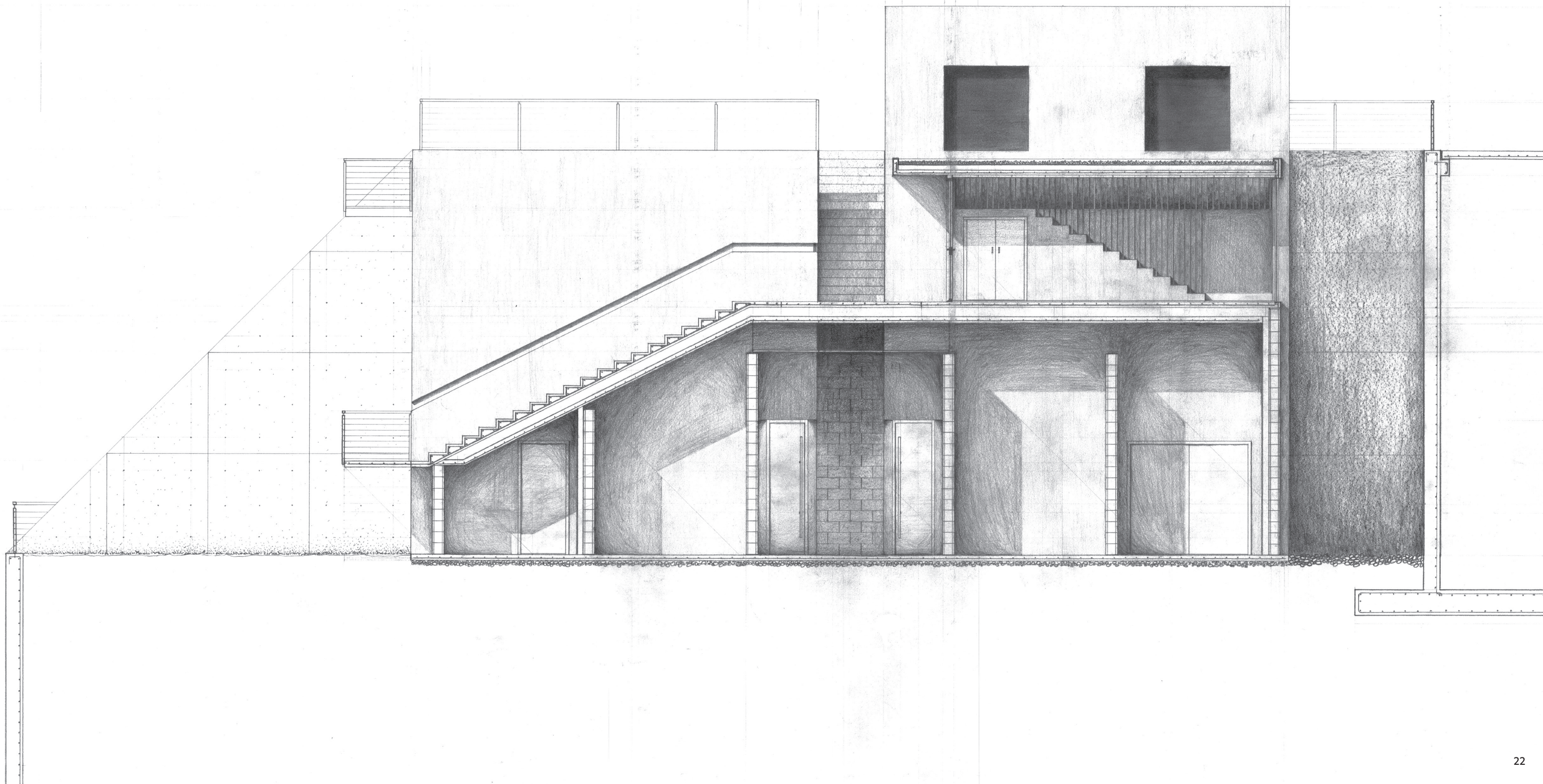


ARRIVAL

As I round the bend a beam of light parts the trees. Slowing down, I steer to where it lands and the car begins to gently murmur. The driveway leads me around one more turn before I park and step out and turn toward the sun. Between me and the horizon a monolith carves up from the earth, its edge facing me, featureless save for a glint of light that beckons to one side. As I approach it I feel a rhythm in the soles of my feet, the same I felt in the car, but this soon gives way to a walk that is smooth and unyielding. Pools of dappled light hem me in as I descend a few steps, passing the small window, and round a corner to a bridge. I pause as I cross it and, sensing a deep void to either side, I realize the monolith is much taller than it had seemed. I press on to another stair and three more monoliths rise to surround me, but a wash of daylight interrupts their cool embrace. I'm soon bathed in it as I emerge and descend the remaining steps to the terrace below. I stop and take in the unfurling countryside. After a while I turn back to the monoliths now towering over me. They are not four after all but one building standing gently apart from the hillside and glimmering in the sun, its scattered windows a chorus of cloud and sky. I linger there a moment longer before making my way inside.







ANALYSIS

The Arrival narrative highlights several threshold moments in the architecture. Before even exiting his car the narrator senses a change as he transitions from the asphalt of the road to the porous paving of the parking lot. He feels another shift underfoot as he approaches the building and steps onto its concrete walkway. These are both examples of texture thresholds, juxtapositions of differing materials or finishes. The threshold experience arises from seeing the line where the materials meet and anticipating its crossing. It is this anticipatory quality that defines the threshold as a temporal experience.

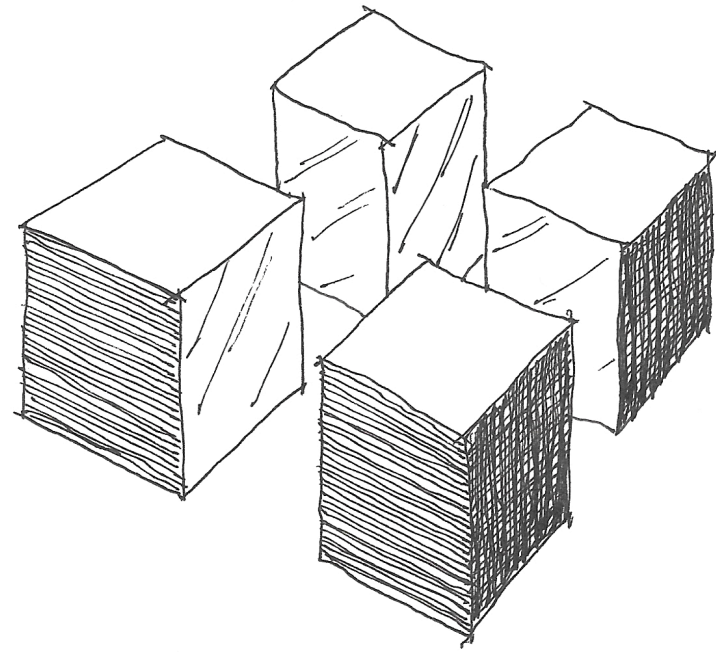
As the narrator progresses he descends between two reflecting pools, crosses a bridge, and descends further between the concrete masses before exiting them to reach the lower terrace. These are examples of pressure, gap, and step thresholds. All are defined as spatial threshold experiences because they are associated with physical measures, in this case measures large enough to be inhabited: the narrator pauses within the gap spanned by the bridge, he is enclosed by pools and concrete walls, and he momentarily occupies several flights of stairs along his path.

Near the end of his walk the narrator is drawn out from between the concrete masses by a glimpse of sunlight. This crossing from shadow into light is an example of a shadowline threshold. Like the earlier texture threshold, it is characterized by a juxtaposition, this time of light and dark, rather than a stretch of space. Thus the experience is one of anticipating and crossing a line, denoting a temporal threshold.

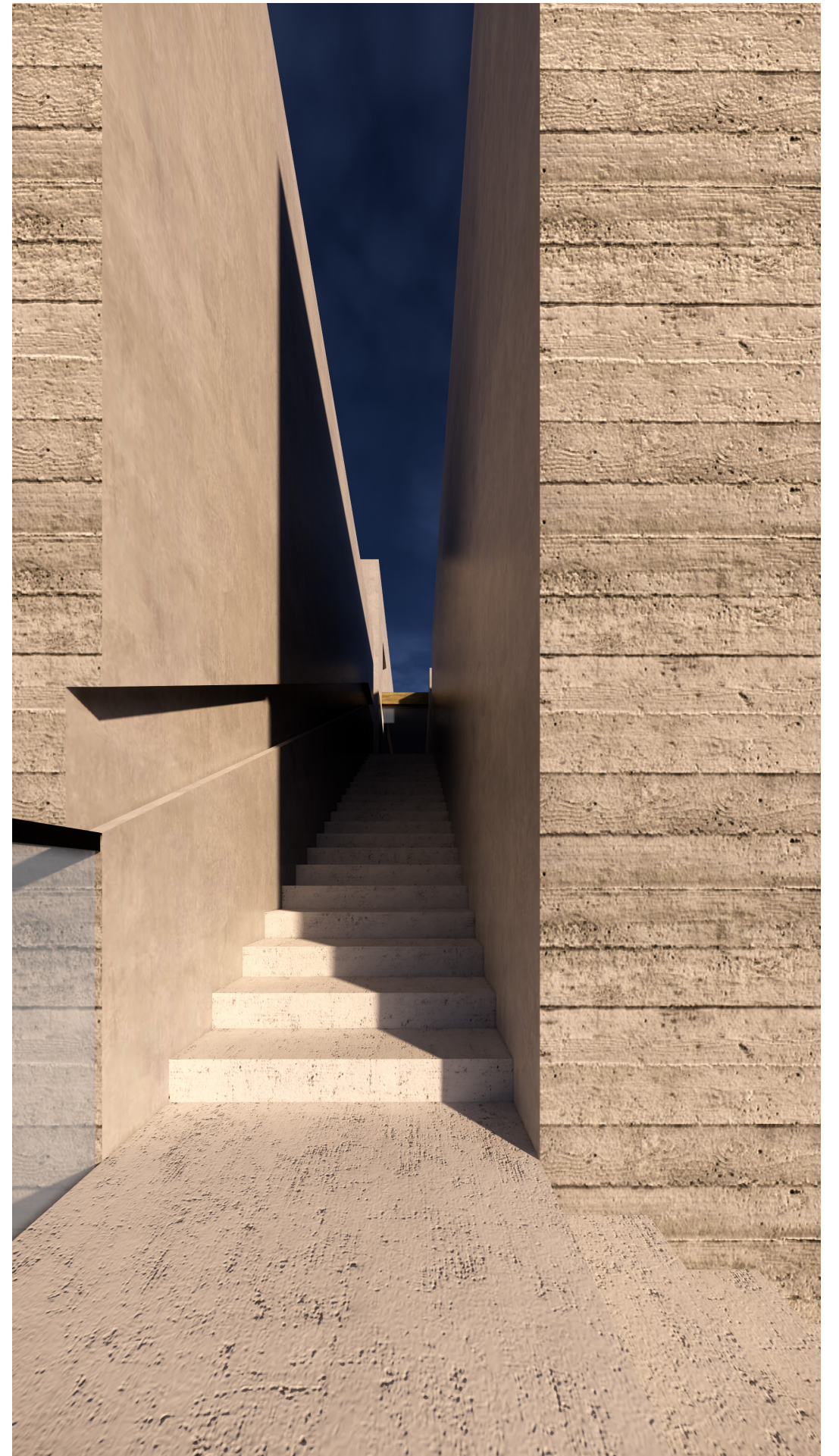
There are a few related threshold moments that are passed by or otherwise unmentioned in the Arrival narrative. First, the outward-facing walls of the concrete volumes have a boardform finish, while the inward-facing ones have a smooth finish, as shown on the opposing page. This is another texture threshold, and again a temporal one, as it suggests an infinitesimal plane to be crossed between inside and out.

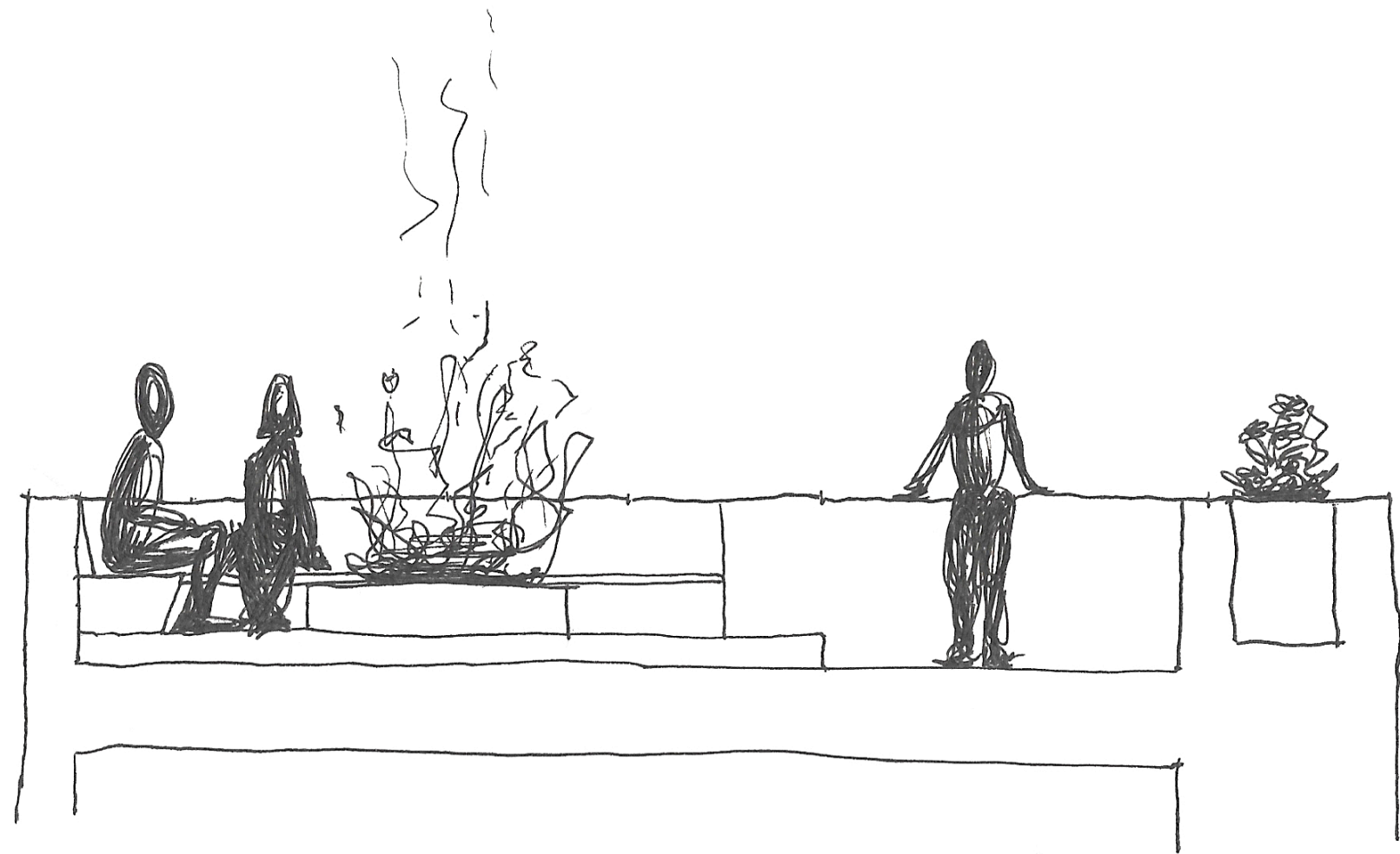
Also on the opposing page we see a recessed handrail meeting a more conventional one of glass and aluminum. There is a half-inch space between them. In contrast with the bridge, this space is not inhabitable, but it still constitutes a gap threshold. The hand is sensitive to minute changes and as it glides from rail to rail the occupant senses the small void between them, signaling a transition to a new space. Note that the material change also suggests a texture threshold. This ambiguity is found in almost all threshold moments to varying degrees, be it a blurring of types or an exception to them.

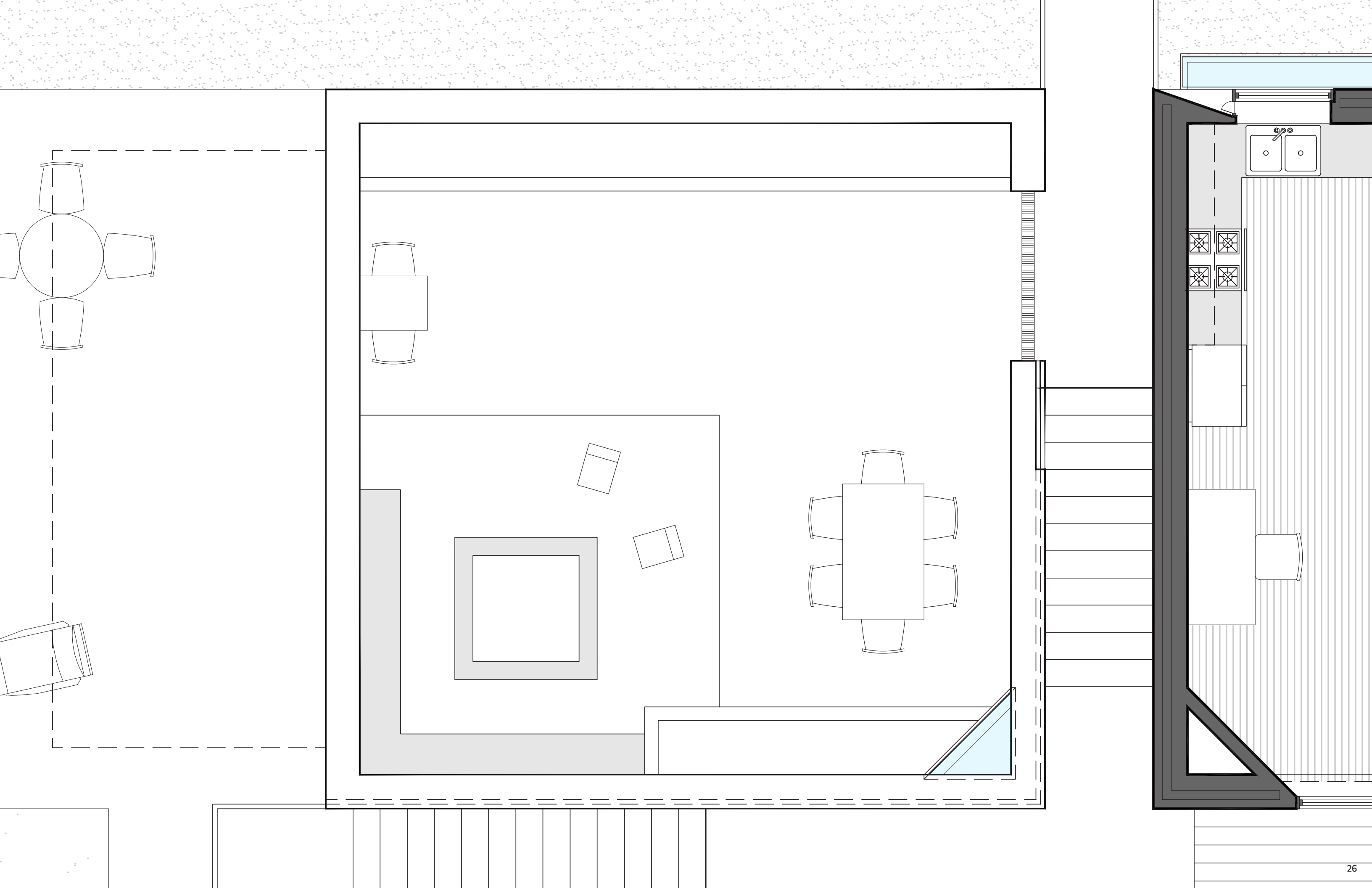
Consider the example on the next spread. We see a rooftop gathering space, the focal point of which is a firepit on a concrete plinth. This plinth clearly forms a step threshold, but as it is a single step it bears an important difference from the other step thresholds in the building: a single step does not in itself form a space but rather a juxtaposition of two different levels, thus signaling a line to be crossed. It is therefore a temporal threshold, an exception in the "step" typology.



*coarse exterior, polished inner;
imply slicing. reverse to
imply breaking*

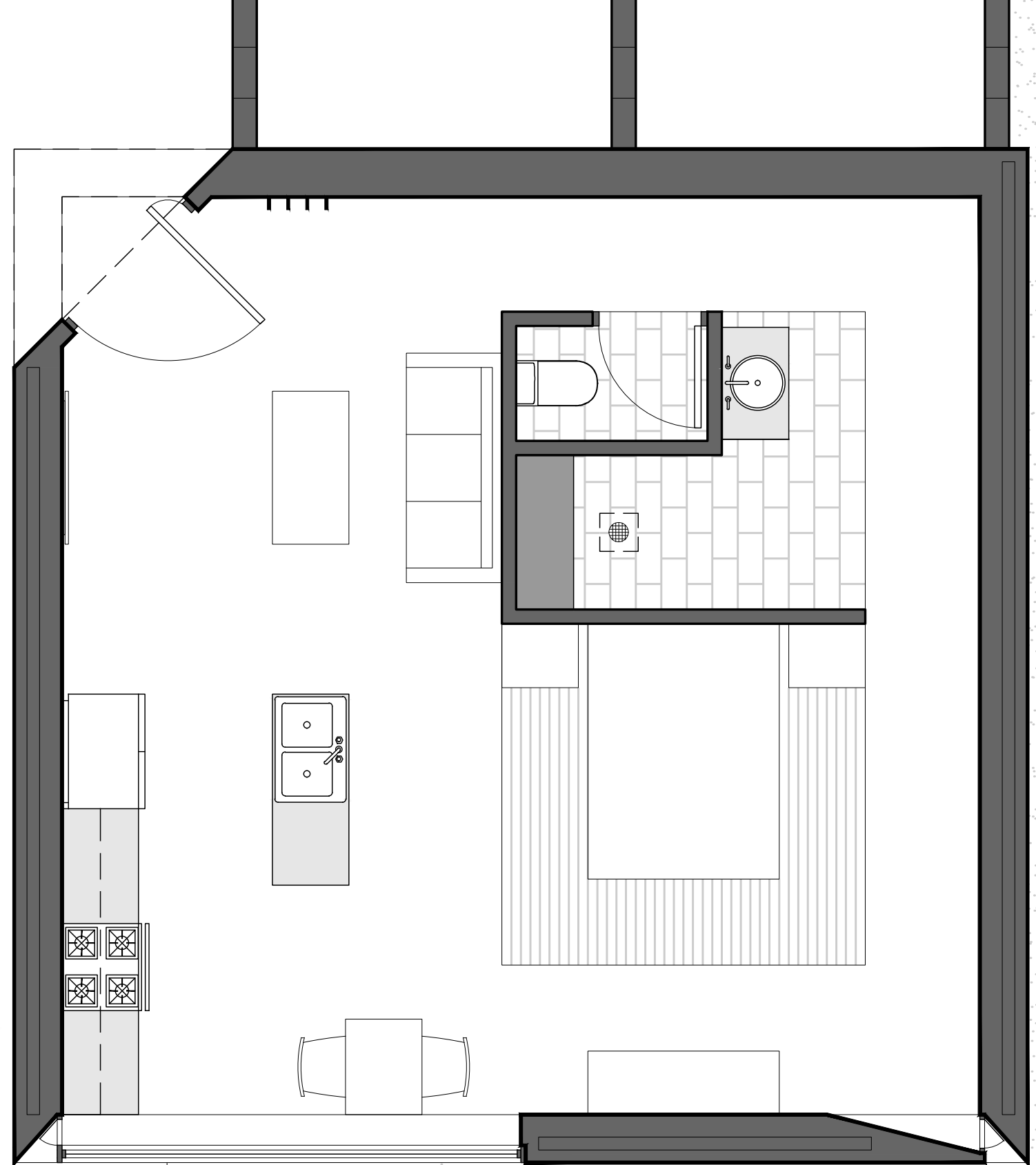
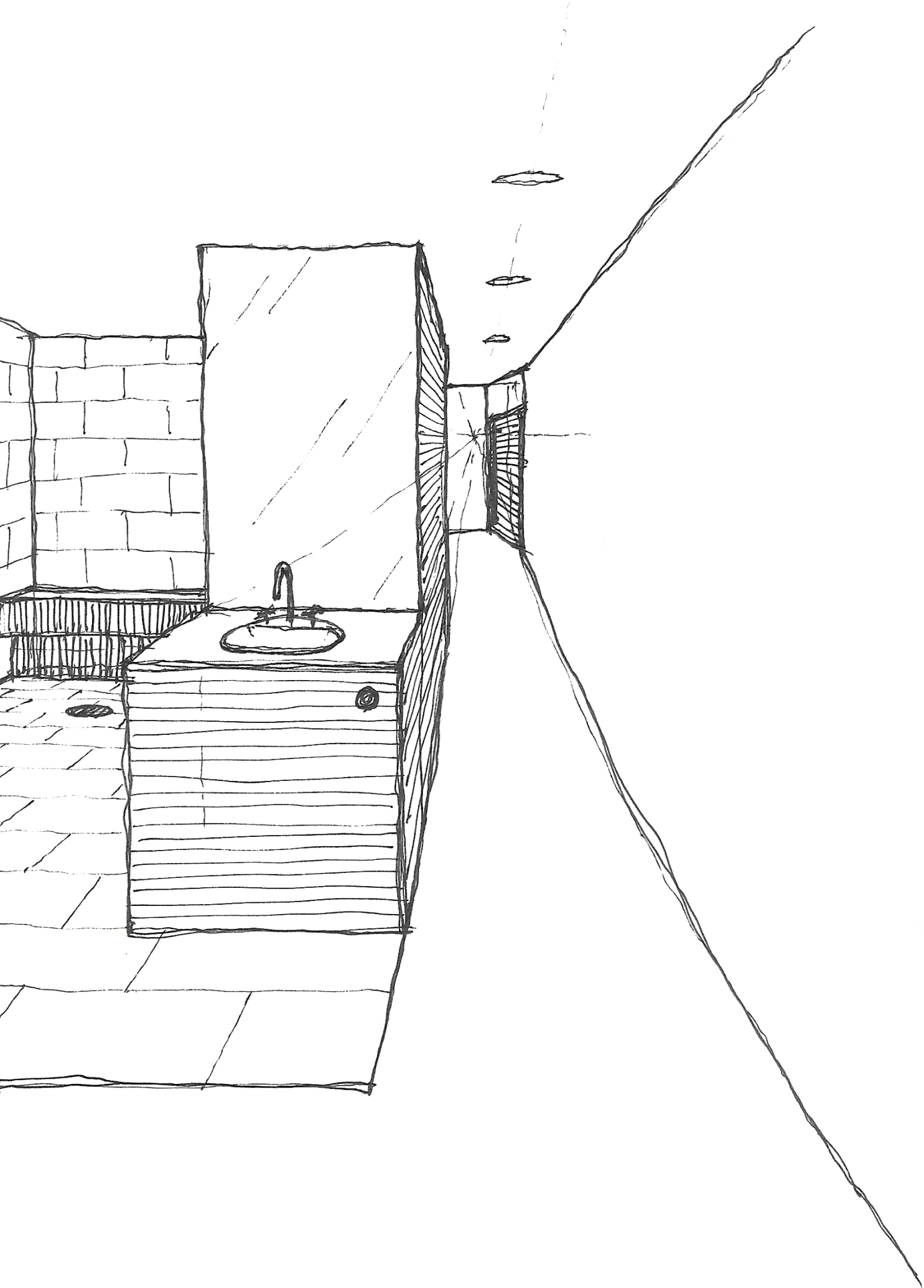




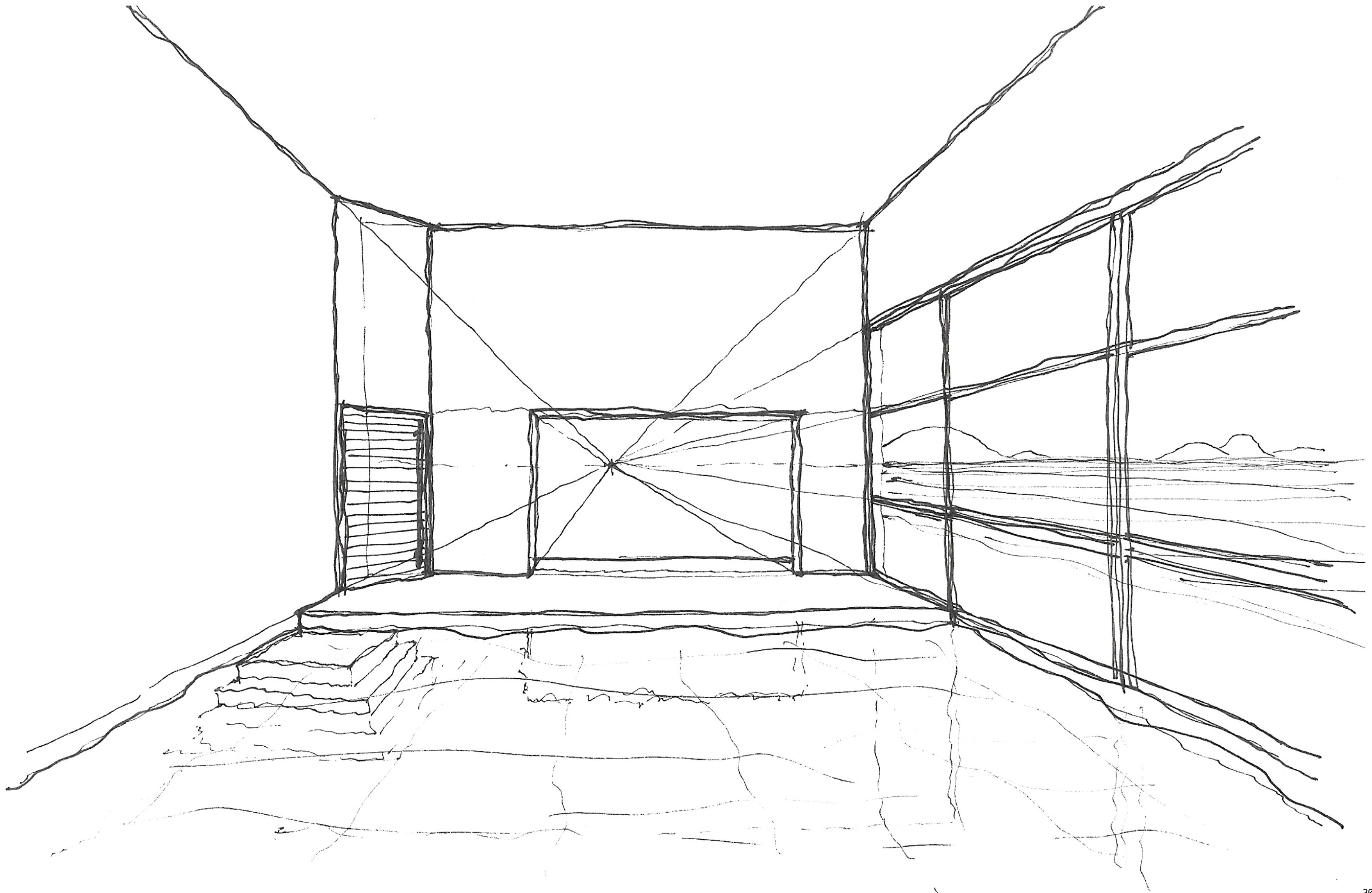


STAY

I turn off the shower and cross to where my towel hangs on the wall. With each step the stone tile reminds my feet of its presence, its subtle texture no longer masked as I leave the wet behind. After drying off and donning my swimsuit I step out of the bathroom and the texture vanishes. The concrete is polished but by the time I've reached the door its faint porosity has wicked the remaining moisture from my feet. I leave the unit and diffuse daylight drapes over me from above. A similar glow meets my eye from across the foyer, and though I'm momentarily shadowed as I approach it, I soon feel its warmth as I reach to open the pool room door. Inside the pool is ablaze with the afternoon sun. A smoke of light and shadow ripples over the concrete wall abutting it. From a top corner of the window a shadow cuts obliquely down the wall, its edge striking a crisp path before it bursts into disarray at the surface of the water. The door shuts silently behind me and I'm soon easing my way into the pool, lured along by the light show playing out before me. My skin pulls taut against the cold and goosebumps scurry over me but as I wade further into the water, into the sunlight, I've never been so warm.







ANALYSIS

The Stay narrative features several threshold moments, some in new forms and one new altogether. First there is a shift in material from stone tile to polished concrete, a clear instance of a texture threshold. But the text highlights an important distinction about this example. As the narrator makes his way off the tile and across the unit, the porous concrete perceptibly dries his feet. This heightens the temporal character of the threshold by tying it not only to anticipation but also to memory.

We see two examples of shadowline thresholds, first in the foyer outside the unit and again in the pool room, contrasted by quality of light. In the foyer the light is diffused by long tubular skylights, making for an indistinct boundary to the shadow. This exaggerates the temporal aspect of the threshold by making the occupant aware of a gradual shift between light and dark. In the pool room the light is direct, but the crisp shadow it casts is disrupted by the water, making for another indistinct threshold within the pool. As opposed to the foyer example, this threshold would move throughout the day with the motion of the sun, imparting yet another level of temporality to the threshold experience.

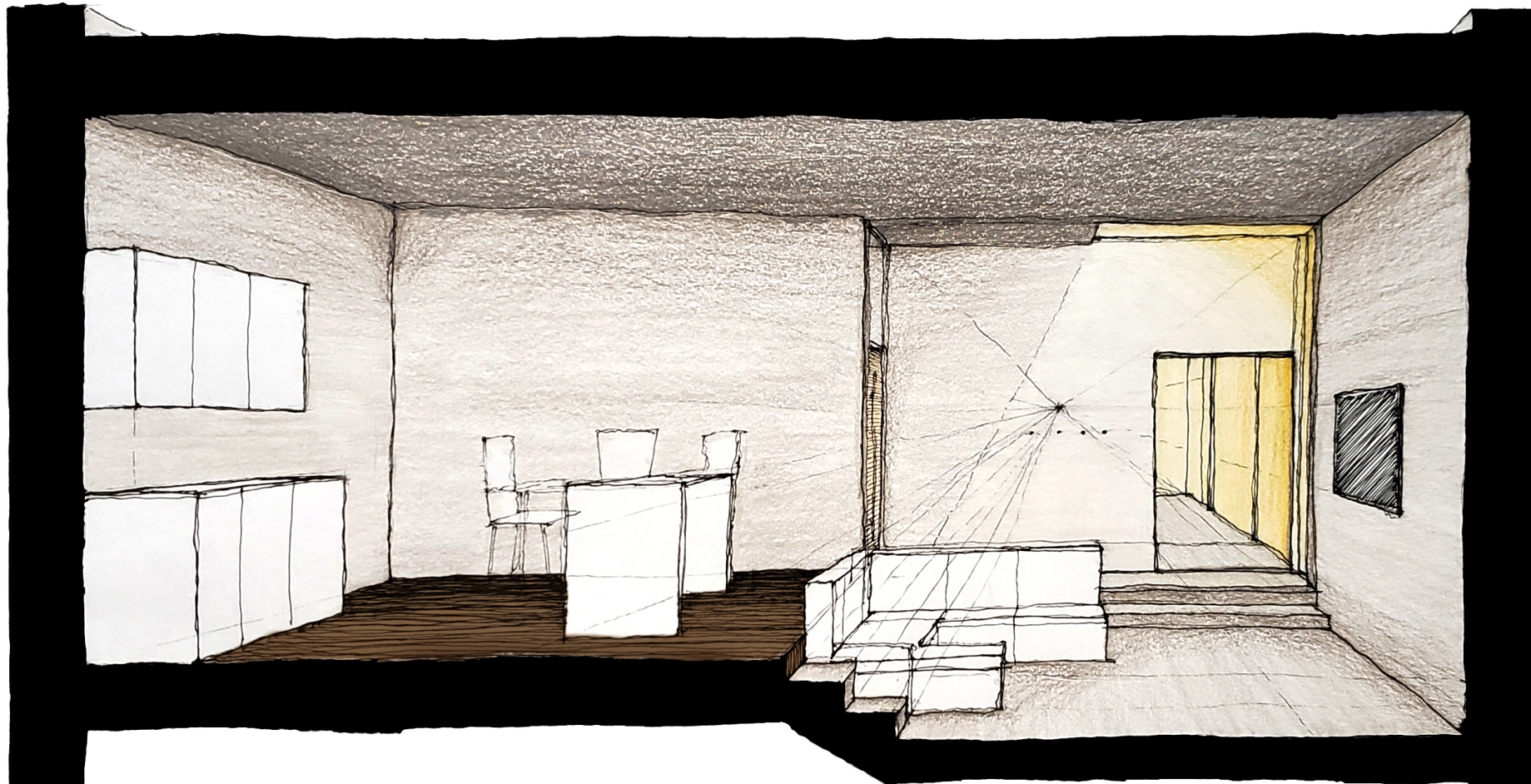
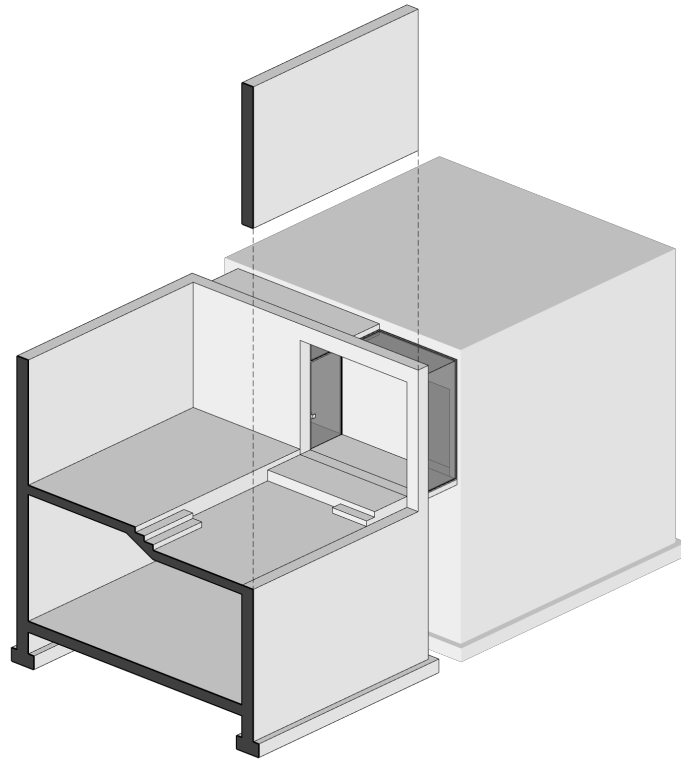
The final threshold moment seen in the Stay narrative is the change in floor finish in the foyer. This is a rim threshold, so named because it represents the rim left by a cut through some object. In this project the objects being cut are the concrete enclosures. Every penetration through their walls leaves an imprint in the form of an exposed-aggregate finish, a contrast to the smooth and boardform finishes that dominate. As the finish takes up a certain width of space this is considered a spatial threshold, and because the walls are fifteen inches thick, it is an inhabitable one in this case.

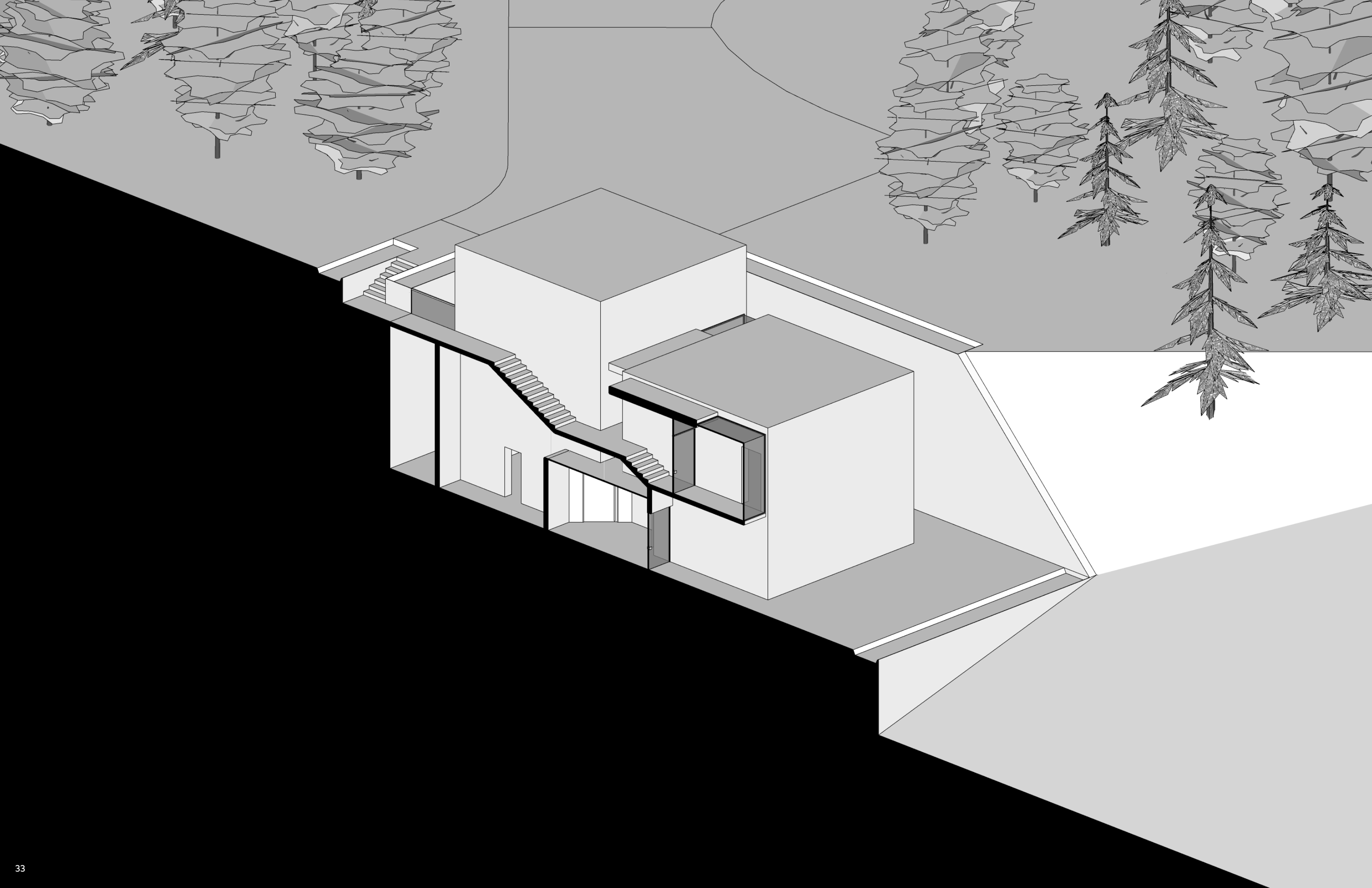
Once again there are threshold moments beyond the narrative that warrant discussion. First, the largest suite has a public space distinct for its varied step thresholds. As shown on the opposing page, there is a single step between the foyer and kitchen, two steps between the foyer and living room, and three between the living room and kitchen. This scheme is an experiment in defining a space by its thresholds, but it also serves a practical purpose. Because the living room is stepped below everything else the furniture height is effectively shortened, making the open plan feel more expansive and reducing obstruction of the views out the window.

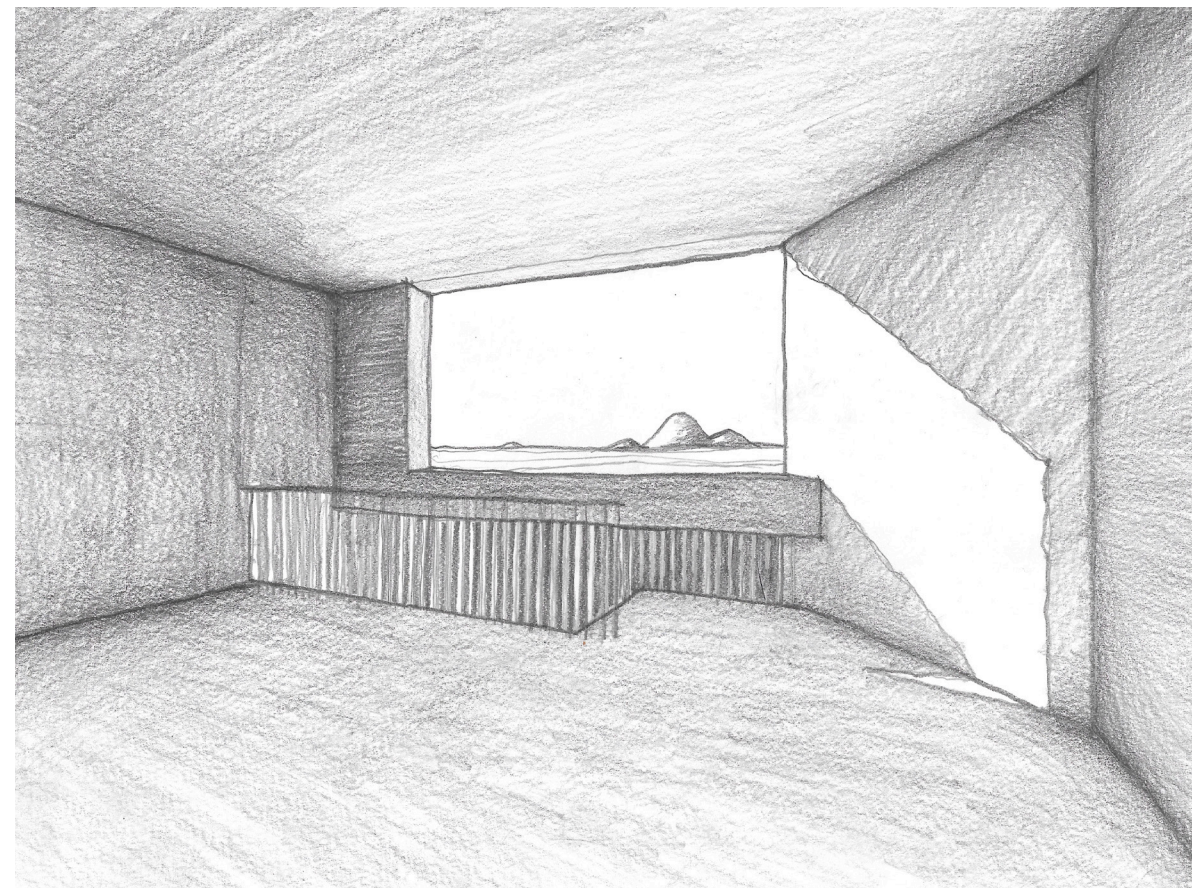
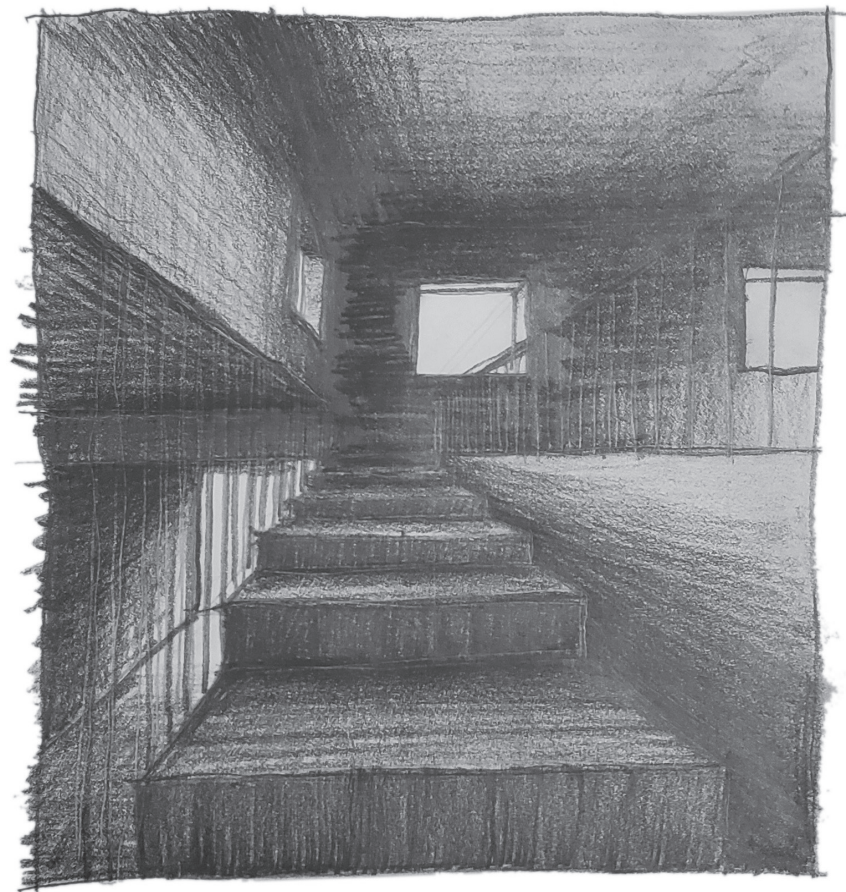
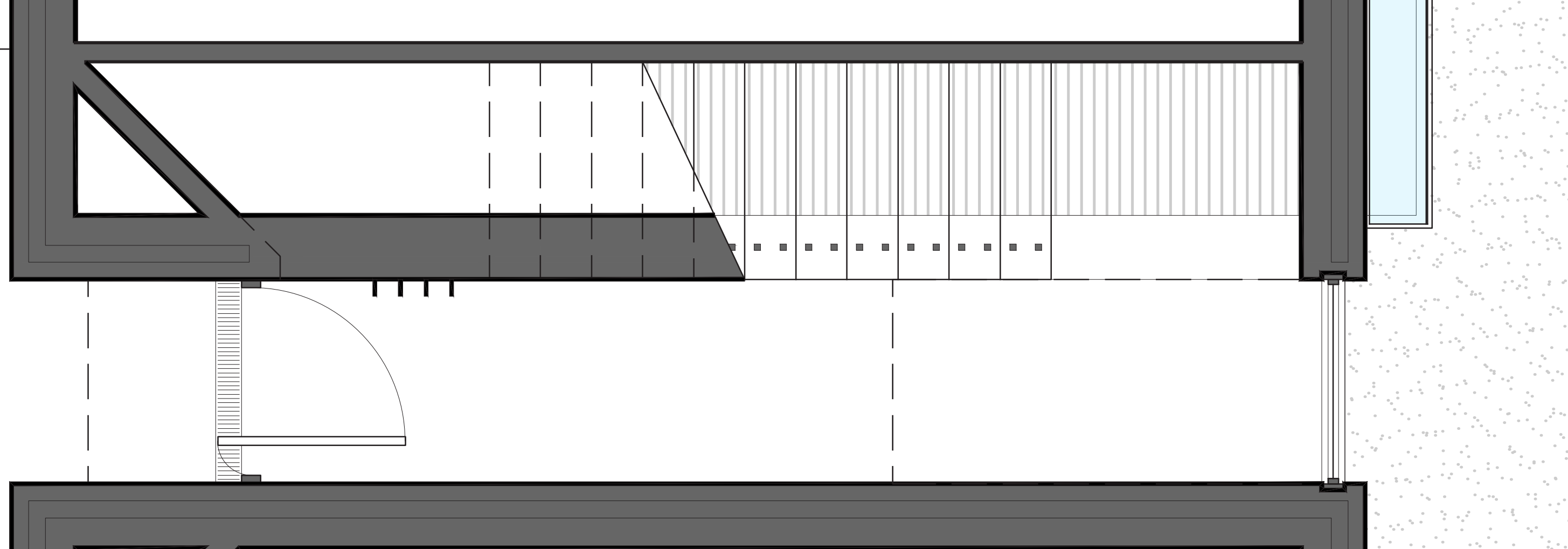
Elsewhere in the project thresholds are combined to lend a processional character to the experience. The most obvious example is in the main approach and entry, an axonometric of which is shown on page 33. Several texture changes happen, from asphalt to porous pavers to concrete, and from boardform to smooth finish. A gap is traversed at the bridge. There are several flights of stairs, all of different lengths. Pressure thresholds occur both in the changing closeness of the walls and of the ceiling at the entryways. Once inside the large unit (shown in the axonometric) an eaves window imparts shadowlines and there are rim thresholds flanking the foyer, one narrow and one wide, denoting private and public, respectively.

The procession idea might seem overly elaborate, but it is this succession of thresholds that enriches arrival and departure beyond otherwise mundane acts. The concept is developed in a more subdued way in the uppermost unit, shown on page 34. A narrow foyer with low ceiling greets entrants, followed by shadowlines from an eaves window. A rim threshold is crossed between the foyer and unit proper, with a change from polished concrete to wood flooring happening simultaneously. Finally entrants ascend a short stair to a more expansive space, where one more shadowline awaits them.

Note the unusual window that makes the final shadowline threshold. A diagonal wall breaks step with the rectilinear geometry, crossing over the window sill. This design is not a true threshold but rather a symbol of one: the diagonal wall is crossing the boundary of the sill to inhabit the space between inside and out. This idea is developed in the windows throughout the project, as shown in the drawings on page 35. Here the windows have operable vents placed within the thickness of the wall, with nooks cut into the facade to house them. This serves the practical purpose of ventilation while also lending depth to the facade. And as with the previous example, it does not form true thresholds but rather references them. This all serves to demonstrate a simple notion: when we engage our design concepts from multiple perspectives, we approach a more coherent architecture in our final designs.









DEPARTURE

Having left my key on the counter, I shut the door and turn for a final look at the foyer. The five doors stand circled around me in solemn farewell. I look up into the deep skylight, then down at the shadow feathered at my feet. It rests in a broken corner of the concrete mass that has housed me, and the would-be corner is traced around it on the floor by a band of exposed aggregate. I have both left and have yet to leave. I make my way out the entry door to find the morning light creeping in at the end of the enclosed walk ahead. The landscape steadily widens in its chiaroscuro frame until there is no frame and it has emerged, and I with it. Friends reunited in timeless ritual. My eyes balk at the new light but once attuned they take to the horizon, scanning it over in a vain attempt to resolve that misted threshold before finally finding some comfort there. I soon wind my way up the stairs, weaving between the stony masses as I go, and arrive at the bridge to the parking lot. I hover there a moment, eyes closed, hearing the seashell sigh of the hollow around me, embraced by that ethereal space between spaces. Between expanse and enclosure. Between nature and man. Between past and future. Between.



