Aydelott Fellowship 2019

David Sweere, Aydelott Fellow

Marlon Blackwell, Faculty Mentor

Fay Jones School of Architecture + Design
University of Arkansas

Therme Vals, Peter Zumthor
Vals, Switzerland

Steilneset Minnested, Peter Zumthor & Louise Bourgeois
Vardø, Norway

Can Lis, Jørn Utzon
Mallorca, Spain

Bait Ur Rouf Mosque, Marina Tabassum
Dhaka, Bangladesh

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David Sweere is an honors architecture student at the Fay Jones School of Architecture + Design in Fayetteville, Arkansas, where he has developed a great interest in place and the multi-sensory experience of architecture, as well as love for travel. Sweere is also a fellow of the Gilman Scholarship Foundation through which he studied abroad at the University of Arkansas Rome Center, a period which was highly influential in this regard. Sweere has written on the suburban built condition in the United States, for which he developed a series of constructs to experientially assess walkability. He traveled to Washington DC as part of this honors thesis to analyze the qualitative character of walkable suburban retrofits in the metropolitan area. It's with this background in experiential analysis that he was awarded the 2019 Aydelott Fellowship. In conjunction with his studies at the University of Arkansas, Sweere has worked as an architectural intern at Marlon Blackwell Architects in Fayetteville since 2018 and at Polk Stanley Wilcox Architects the year prior. Since 2011, Sweere has served as an enlisted member in the Arkansas Air National Guard. Through his work in studio, Sweere has been awarded the Lyceum Fellowship Merit Award, HBG International Design Merit Award, Comprehensive Studio Design First Prize, and the Fay Jones School Annual Fund Award. Through a lens of architecture in the Ozarks, he believes place memory and cultural context are critical sources of inspiration in a world of increasing globalization and optimization.

An Emotional Reconstructive Architecture | Introduction

> "Cultural memory touches on something in man that is older and more durable than his immediate presence, something that moves him because in it he meets his immortal alter ego."[1] (Sibyl Moholy-Nagy)

Architecture serves as the reservoir of a place's memory. Man has left traces of use and life on the landscape though buildings, monuments, extractions, and exploitations since the dawn of civilization. These traces are full of rich histories and memories that give a place its character and identity. Architects, thus, can maintain and enhance cultural identity through the design and construction of architecture, the principal environment of the human experience. Architecture can connect observer to the history and memories of place through the conception of interior spaces which are engaging of a multi-sensual experience and deeply rooted in site specifics. Architecture with an immersion into these qualities of place inform us of who we are and where we are in the world by reflecting the culture, time, and place in which it is built.

Architect, educator, and author Robert McCarter discusses the subtle haptic senses of architecture as they relate to place in *The Space Within*, in which he makes a case for the primacy of the interior experience in architecture. He discusses the sensory and phenomeno-logical potential of architectural interiors with an immersion into the qualities and histories of place.

> "The way architecture makes room for experience and memory is exemplified in rooms that provide their inhabitants with a simultaneous sense of extending to the distant horizon and withdrawing into close places of repose; in rooms anchored to their sites and thereby integrated into the history and nature of their place; in rooms resonant with the memory of their making, legible in their structure, materials and joinery; in rooms brought to life by the play of light throughout the day, the season and the year; and in rooms tailored precisely to the rituals of daily life that take place within them"[2] (McCarter)

Through genuine consideration of the natural light quality, texture

of local natural materials, cultural characteristics, site topography and surroundings, vernacular traditions, and collective memories of place, an appropriate yet critical (Frampton's term) architecture can create spaces for human habitation with the power to move individuals emotionally and even spiritually, regardless of program.

This essay seeks to define an architecture that exemplifies these tactile and phenomenological qualities of architecture as they relate to the history and memory of place through a series of experiential architectural analyses. Four buildings (to include the following) have been selected from four distinct physical and cultural contexts for their contemporary engagement with place and the multi-sensual sublimity and tactility which results:

< **Therme Vals** by Peter Zumthor >

< **Steilneset Minnested** by Peter Zumthor by Louise Bourgeois >

< **Can Lis** by Jørn Utzon >

< **Bait Ur Rouf Mosque** by Marina Tabassum >

These buildings are exemplars of a place-derived architecture in which the tactile qualities of architecture can be experienced - a tactility which involves touch with all of the senses to include the phenomenological attachment to the landscape and its history.

In a lecture given by Zumthor in 2003, a lecture later printed in *Atmospheres*, he describes 12 qualitative and perceptual aspects of architecture that contribute to the creation of 'atmospheres.' Later, in a series of published conversations with Norwegian historian Mari Lending between 2014 and 2017, Zumthor describes these sensory and place-based qualities of his architecture as one of '**Emotional Reconstruction**.' This is a strongly perceptual aspect of architecture that is observed through personal emotional sensibilities. The selected buildings in this analysis serve as exemplar case studies of an Emotional Reconstructive Architecture.

Each of the 12 Points presented in the *Atmospheres* lecture have been filtered through the context of place and cultural memory for the purposes of defining an Emotional Reconstructive Architecture:

< the body of architecture, place tectonics >

< material compatibility, material culture >

< the tactility of air and climate, the temperature of a space >

< the sound and silence of a space >

< between seduction and composure >

< levels of intimacy >

< the light, shadow, and darkness on things >

< architecture as surroundings, a place for life and memories >

< surrounding objects, traces of use >

< tension between interior and exterior >

< coherence >

< the resulting beautiful form >

These points set up a framework through which the four buildings are experientially analyzed, in which a summation of influences from the peculiarities of place creates a tactile, multi-sensory interior experience. As opposed to a form-based design process, form is a resultant product of interior experience and cultural influences, critically adapted through a contemporary lens.

Two Zumthor buildings have been selected as part of this analytical project, Therme Vals and Steilneset Minnested. The former was completed prior to the 2003 delivering of the *Atmospheres* lecture and the latter was designed after. Bait Ur Rouf Mosque by Marina Tabassum and Can Lis by Jørn Utzon offer opportunities to apply the same perceptual analysis to buildings and their contexts which are unique from each other in architect, program, setting, and nearly every cultural construct, but strongly exemplify place-based architecture and offer specific cases of similar architectural languages.

In “Towards a Critical Regionalism,” Kenneth Frampton notes Utzon’s ability to reflect place in his work through the lens of transcultural influences, siting Bagvaerd Church as a contemporary lens on Nordic vernacular stave churches, influenced by non-Western traditional timber architecture. According to architect and first director of the Utzon Research Center Adrian Carter, Utzon was fascinated by ancient vernacular building techniques and developed an architecture that is appropriate to context, climate, and local materials. While Utzon continued to develop a “Nordic Modernism,” his ability to respond to widely varying cultural and physical contexts demonstrate his attentiveness to issues of place in his architecture. Can Lis is an exemplary project in this regard, built by local craftsmen of local materials and based on vernacular housing architecture of the area.

Marina Tabassum shares the sensibilities towards place-based architecture that characterize the work of Zumthor and Utzon. Local climate, materials, and cultural identity are central to her work in Bangladesh. In describing her inspiration for Bait Ur Rouf, Tabassum explains,

> “What I like to do in my practice generally is, root architecture to its place. To find its root, architecture needs to come from history, culture, climate etc. It’s not just about the visual aesthetics. It’s about combining all these elements of a place into a language of architecture. Not only is the historic reference of Islam important in this case but also the historic references of Bangladesh.”

Demonstrating great attentiveness to memories and histories, she presents an architectural language throughout her work which is contemporary but clearly influenced by place, establishing a critical lens on the region’s vernacular architecture. While Tabassum’s work, in the context of this project, allows for a look into a non-European culture, this is not the only reason for the inclusion of Bait Ur Rouf in this analysis. The qualities of sublime light, the use of local materials, and influence of vernacular architecture produce an architectural language that is akin

to Zumthor and Utzon and of equivalent value in the realm of Emotional Reconstruction.

A certain timelessness emerges from these four buildings in their primordial character. While clearly driven by local influences, the works are transgressive in their ability to resist a commodification of their place. They transcend into a universal discourse through the architects' use of light, space, and material. Experiential in nature, this analysis seeks to describe the sensual qualities of these significant works through an immersion of place.

Footnotes

1 - Sibyl Maholy-Nagy. Zumthor, Peter, Mari Lending, and Hélène Binet. *A Feeling of History* (Zurich: Scheidegger & Spiess, 2018) 72.

2 - McCarter, Robert. *The Space Within*. (London: Reaktion Books) 2016. 10.

Therme Vals, Peter Zumthor

Fig. 1 - Peter Zumthor, exterior view from east, Therme Vals, 1996
Source: author

In the Alpine village of Vals, Graubünden, Switzerland, a world-renowned architectural legacy has developed in a remote valley. An immense silence dominates the village, only occasionally interrupted by highway cars that roll by and disappear. Sounds of conversating birds and the rush of fountains disseminate through the cool evergreen-scented air, and every 15 minutes, the bells of the sole clock tower ring with their symbolic tones amongst the vernacular stone roofs of the village.

Cowbells from the steep grazing grounds of the mountainsides chime with the continuous movement of goats and sheep, and a chilled breeze shifts the bright green spring grass blades, dandelions, and branches of the tall cypress trees, adding another layer of soft sound to the atmosphere. Grey mountains emerge on all sides of the valley, spotted with traditional farm huts of wood and stone. Set along the narrow Valserrhein River are similar timber chalet houses densely connected with narrow meandering cobble stone streets. For much of the year, the surrounding jagged mountains are capped in snow above the evergreen tree line, creating horizontal bands of distinct colors in the landscape: white snow, grey stone, deep green trees, and bright green grasses (see Figure 2). In this old quaint setting, Peter Zumthor's Therme Vals emerges from the mountainside, proud and yet elegantly restrained.

Figure 2 - Horizontal Bands of Natural Colors in Vals
Source: author

Fig. 3 – Valley of Vals, Switzerland
Fig. 4 - Mountainside view from Therme Vals
Source: drawn by author

< Place Tectonics | Material Culture >

> "Going back in time, bathing as one might have a thousand years ago, creating a building, a structure set in the slope with an architectural attitude and aura older than anything already built around it, inventing a building that could somehow always have been there, a building that relates to the topography and geology of the location, that responds to the stone masses of Vals Valley, pressed, faulted, folded, and sometimes broken into thousands of plates – these were the objectives of the design"[1] (Zumthor)

Vernacular Inspirations

According to Zumthor, numerous local inspirations drove the design of an underground system of baths. In an essay published in 2007, Zumthor notes cliff-sided tunnels along the valley (see Figure 5) and the large dam of the Zervreila reservoir as powerful sources of influence in the design process. Several tunnels are constructed along the narrow and winding road through the steep valley to Vals. Therme Vals is cut into the landscape in much the same way. These tunnels, intended to protect the road from rock fall and avalanches, present views of the other side of the steep valley like a slow-moving old film projection reel, frame-by-frame, as one drives through them. According to Zumthor, this method of building into the topography of the mountain became an architectural

idiom through which the idea of underground baths could be expressed.

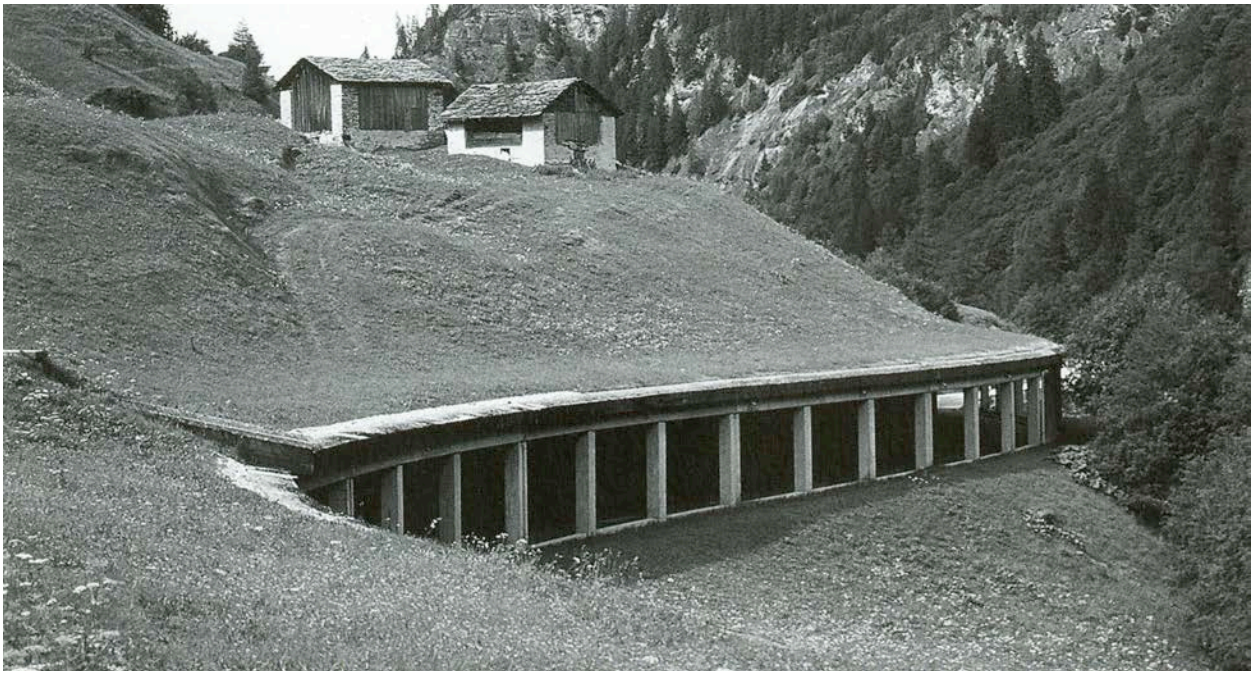


Fig. 5 - Cliff-side Tunnels Between Ilanz and Vals, Switzerland
Source: *Peter Zumthor Therme Vals*, 2007

The vernacular houses and farm huts of the village also influenced the design of Therme Vals. The farm huts are constructed by stacking the local quartzite stone as load-bearing masonry. As seen in Figures 6 & 7, this vernacular building tradition is critically rationalized and carried forward in Therme Vals.

Fig. 6 - Peter Zumthor, exterior wall, Therme Vals, 1996
Fig. 7 - Exterior Wall of Vernacular Farm Hut
Source: author

Throughout the valley, the roofs of vernacular houses are constructed of the same stone, broken into plates and stacked on a wooden skeletal structure. The building tradition has been used in Vals since the area was settled nearly 700 years ago for its weather- and fireproofing characteristics and its weight for protection against the föhn winds of the Alps. In 1913, Swiss physician and psychiatrist Johann Jörger described Vals, the place of his birth, in writing, “All buildings except for the church, all houses, stables, alpine cabins, are roofed with gneiss or mica slate slabs. These stone roofs have been relatively flat and constructed so solidly that you can run upon them like a paved road.”[2] Zumthor found the use of the quartzite stone throughout Vals inspiring and sought after a greater understanding of the material and how it could be used in a contemporary context.

Parallels can also be drawn between the formal language of the openings on the exterior of Therme Vals and the wooden infill walls of the farm huts. The thick, cave-like openings of Therme Vals resemble the mountainside farm huts as if the wood panels in between the stone corners have been removed (see Figure 8).

Fig. 8 - Wooden In-fillled Opening of Farm Hut and Therme Vals Across the Valley with Similar Opening
Source: author

History of the Site

Vals spring waters arise from the mountainside at a warm 30°C (85°F). A modest hotel dating back to 1893 occupied the current site of Therme Vals, where clientele would come to enjoy the natural spring waters (see Figure 9). The hotel contributed significantly to the economic prosperity of the village. In the 1960s, the current complex of Modernist hotel buildings of the bath complex were built. The buildings were slated for replacement as part of the 1986 competition through which Zumthor was selected as the architect for the project, but the towers remained as the "44-million project" proved impossible to finance. Zumthor was also reluctant to demolish the hotel buildings because of the craftsmanship that was involved in their construction, noting that the same building techniques could not be repeated in the contemporary building culture. The new baths would replace the obsolete spa from the 1960s and create a new relationship with the existing hotel complex.

Fig. 9 - 1910 Photo of Vals Bath Hotel
Source: C. Maggi, André Schenker-Nay: Die Surselva und Ilanz - Eine Zeitreise durch vier Jahrhunderte Somedi Buchverlag, 2015

Design Process

In describing the driving idea demonstrated in the famous sketch for Therme Vals (see Figure 10), Zumthor explained the design as “boulders standing in water.”[3] The large boulders carried forward through the final design are reminiscent of a quarry or a geometric cave in their solid-void relationship.

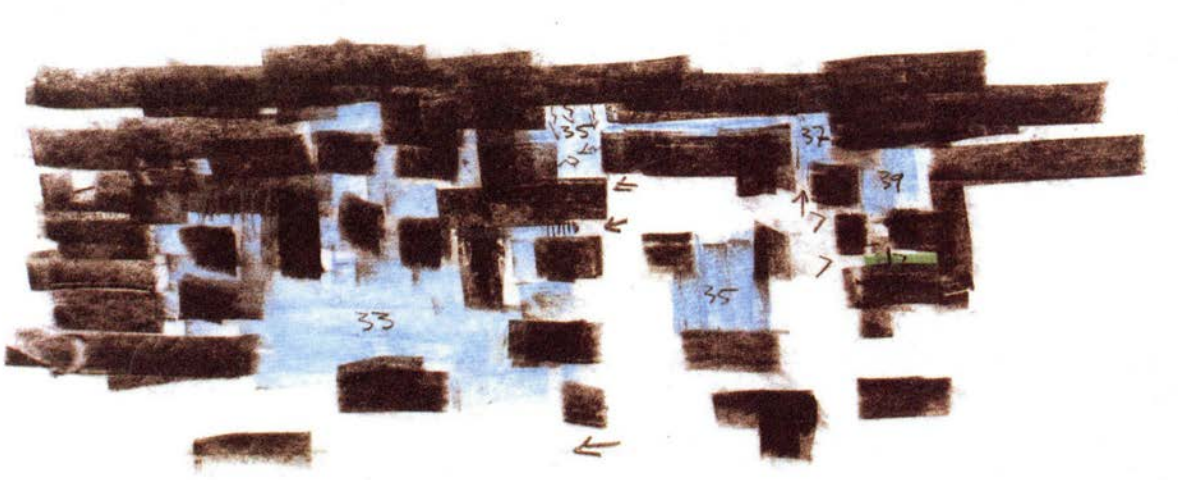


Fig. 10 - Zumthor’s Therme Vals Quarry Sketch
Source: Zumthor, Peter. Peter Zumthor. Tokyo: A U, 1998. 157.

From the original quarry sketches and early block models, an interplay of stone and water was choreographed through an intense process of iteration, in which blocks of the mountain were carved out and shifted in a spatial composition. Water flows and collects in the remaining cavities and gullies that emerged from this process. Reflecting on the design process of Therme Vals just two years after its completion, Zumthor wrote, “Right from the start, there was a feeling for the mystical world of stone inside the mountain.”[4] The relationship of natural stone and water in Therme Vals creates a spiritual and primal experience, connecting the observer to the geological history of the region.

As part of this analytical study, I visited Truffer AG quarry, where the stone for Therme Vals was extracted and processed. Owner Pius Truffer and Zumthor tested and developed the construction method for the

load-bearing walls on the grounds of the quarry, which sits in the steep and narrow end of the valley on the other side of the small village from Therme Vals. According to Truffer, unlike most clients who specific ratios of quartz, feldspar, and mica, Zumthor sought after a natural “cross section of the mountain,” that reflects the inherent randomness of the mountain’s elemental composition.

Fig. 11 - Waterfall at Truffer AG quarry, Vals, Switzerland
Fig. 12 - Truffer AG quarry, Vals, Switzerland
Source: author

Structure

The structure of Therme Vals is genuine in its expression of a load-bearing masonry building. In conversation with Truffer, he emphasized the integrity of the load-bearing construction, stating that the wall actually carrying the weight of the structure is “not common at all. The stone is part of the construction, not just cladding.” The quartzite stone acts as permanent formwork with a watertight concrete core, with which it shares the weight of the roof. Zumthor refers to the structural method as a system of tables and blocks; large blocks of Vals quartzite masonry support tables of cantilevered concrete green roofs. The concrete tables are separated by weather-tight reveals in the ceiling which allow light to penetrate into the interior space and also act as expansion

joints in a structure that must endure large differences in air and water temperatures (see Figures 13 & 14).

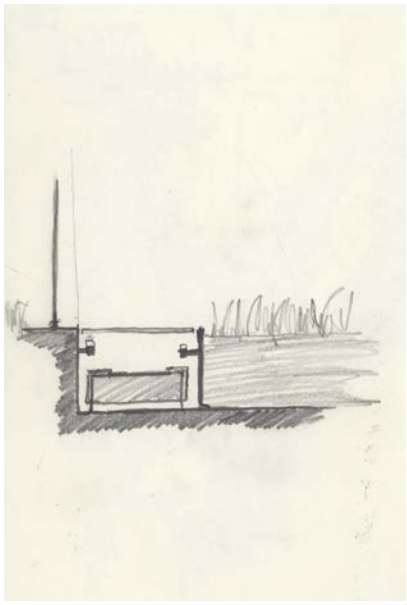


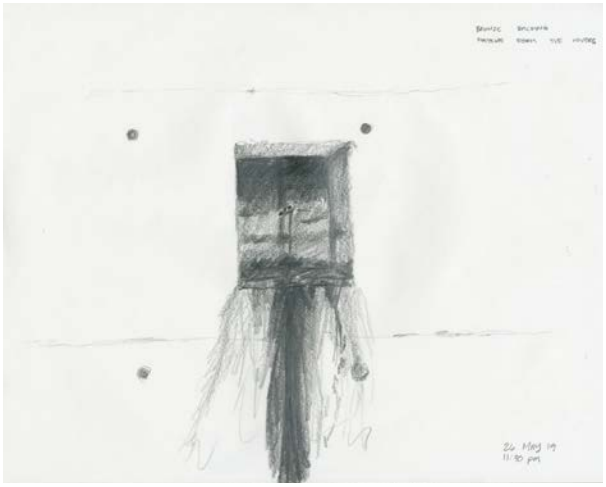
Fig. 13 - Peter Zumthor, ceiling reveal and expansion joint detail from exterior, Therme Vals, 1996
Fig. 14 - Peter Zumthor, ceiling reveal and expansion joint detail section sketch, Therme Vals, 1996
Source: author

Material

Therme Vals emerges from the mountainside as a rationalized cave, re-presenting the quartzite stone of which it is made. Each stone is infinitely unique as a natural material, transcending to an undeniable timelessness. The stone is a primary element of the region's < ***material culture*** >.

> "We observed the place, its surroundings. We were interested in the stone roofs, their structure reminiscent of reflexes on water. We walked around the village and, suddenly, everywhere there were boulders, big and small walls, loosely stacked rough plates, split material; we saw quarries of different sizes, slopes cut away, and rock formations. Thinking of our baths, of the hot springs pushing out of the earth behind our building site, we found the gneiss in Vals more and more interesting; we started looking at it in greater detail – split, hewn, cut, polished; we discovered the white 'eyes' in what is called augen gneiss, the mica, the mineral structures, the layers, the infinitely iridescent tones of grey."[5]

< Levels of Intimacy >



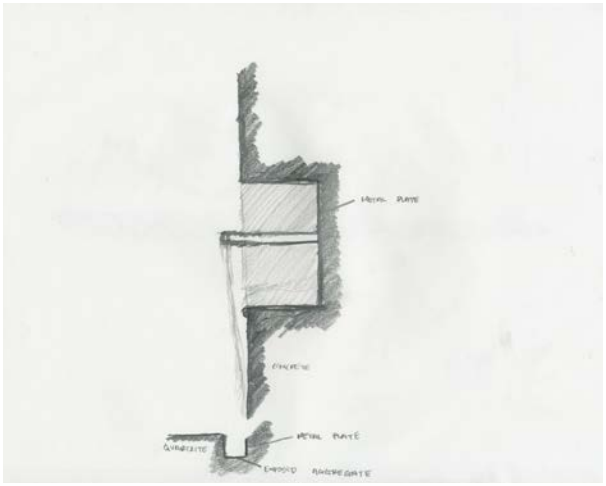


Fig. 15 - Peter Zumthor, brass fountain detail, Therme Vals, 1996
Fig. 16 - Peter Zumthor, brass fountain detail section, Therme Vals, 1996
Source: drawn by author

Working in concert with the stone, concrete, and water of Therme Vals are glimmering brass finishes and details. Railings and towel racks are set into the stone floor, casting shadows on the grey surfaces of the space. Zumthor intended for the sense of time to be lost while enjoying the baths. Per this intention, he designed two 3ft brass poles with diameters of nearly 2in, at the top of which he placed the building's only clocks facing up.

This minimal detailing with brass is also found in the entry 'fountain hall' in a series of fountains that rhythmically work their way down the long passage (see Figure 17). A simple brass pipe emerges from an inset in the concrete wall (see Figures 15 & 16) and presents the natural spring water of the mountain, allowing it to flow down the wall, which it paints in deep shades of rust. The tactile and audible qualities of both dripping and rushing water fill the space and reflect off the engulfing hard surfaces. The detail of the brass pipe, undecorated and unornamented, animates the natural spring water of Therme Vals, in which water is described by Zumthor as a central building material.

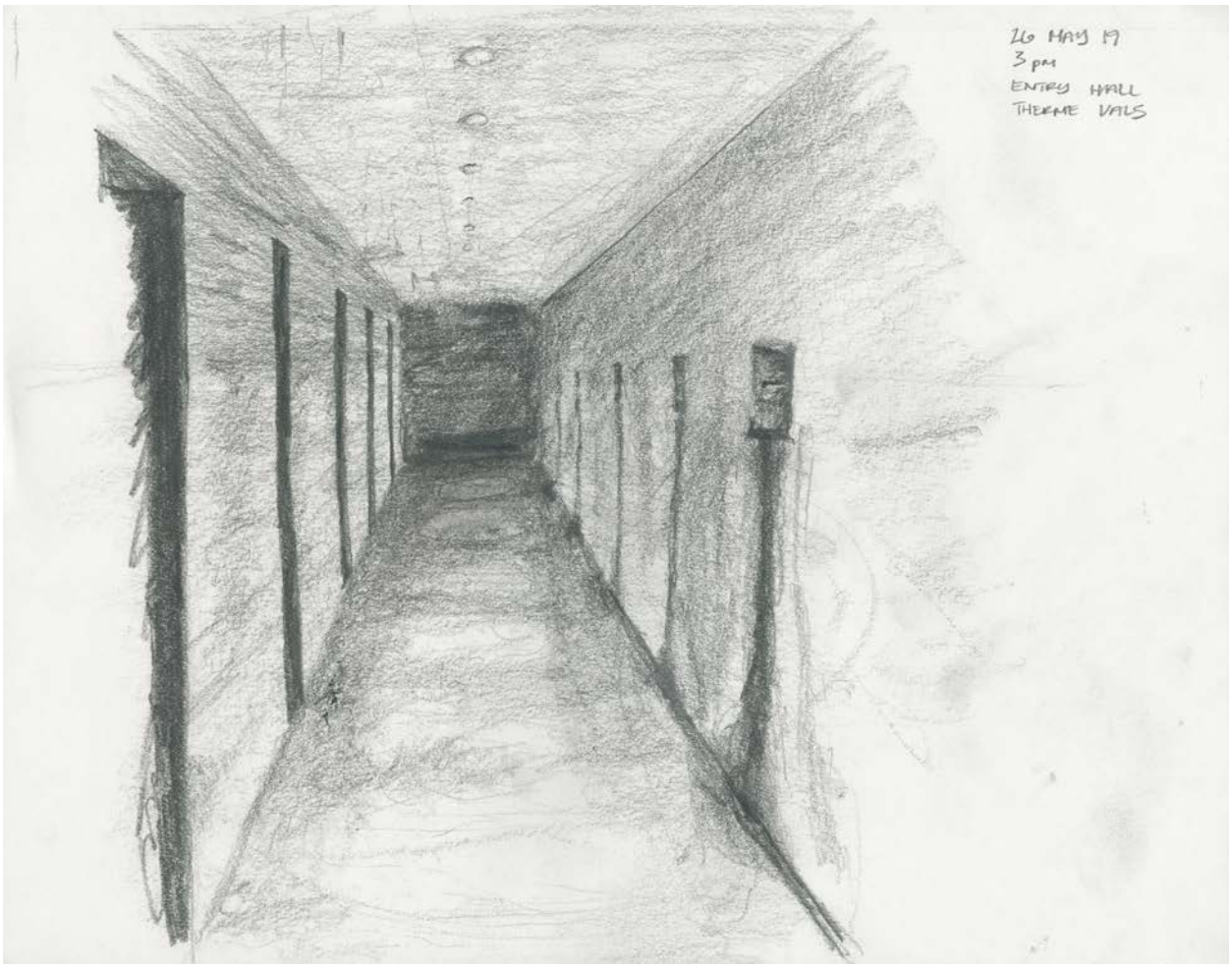


Fig. 17 - Peter Zumthor, fountain hall, Therme Vals, 1996
Source: drawn by author

< Between Seduction and Composure, the Architectural Promenade | Tension Between Interior and Exterior >

In Zumthor's 2003 *Atmospheres* lecture, he describes the idea of seduction and composure through the meandering experience of Therme Vals. A freedom is granted to the observer to move through the space in an almost endless myriad of possible experiences in the warmly lit main space. The architectural promenade guides the observer through a descent from the hotel in a long means of disconnection from the exterior world. A narrow and dark entry portal followed by the fountain hall mediate this disconnection in route to the main space of the baths. This main space, as described by Zumthor, offers a means of seduction by a choreography of

light and perspective. Observers are guided (but not directed) through the space, around the next corner, and into its discreet moments. From deep within the mountain, the path emerges to views of the Alpine valley between the monolithic masses of stone, as seen in Figure 18. A sense of composure, as defined by Zumthor, which sets the observer within the context of the greater whole, is then granted to the observer through connection to a central space that glows with blue light from a grid of square openings in the concrete ceiling. Unprescribed paths of movement between the pools and the stone masses make up the < *architectural promenade* > of Therme Vals.

Fig. 18 - Peter Zumthor, interior view to opening to valley between stone masses, Therme Vals, 1996
Source: drawn by author

< Tactility of the Air and Climate | The Sound and Silence | The Light, Shadow, and Darkness on things >

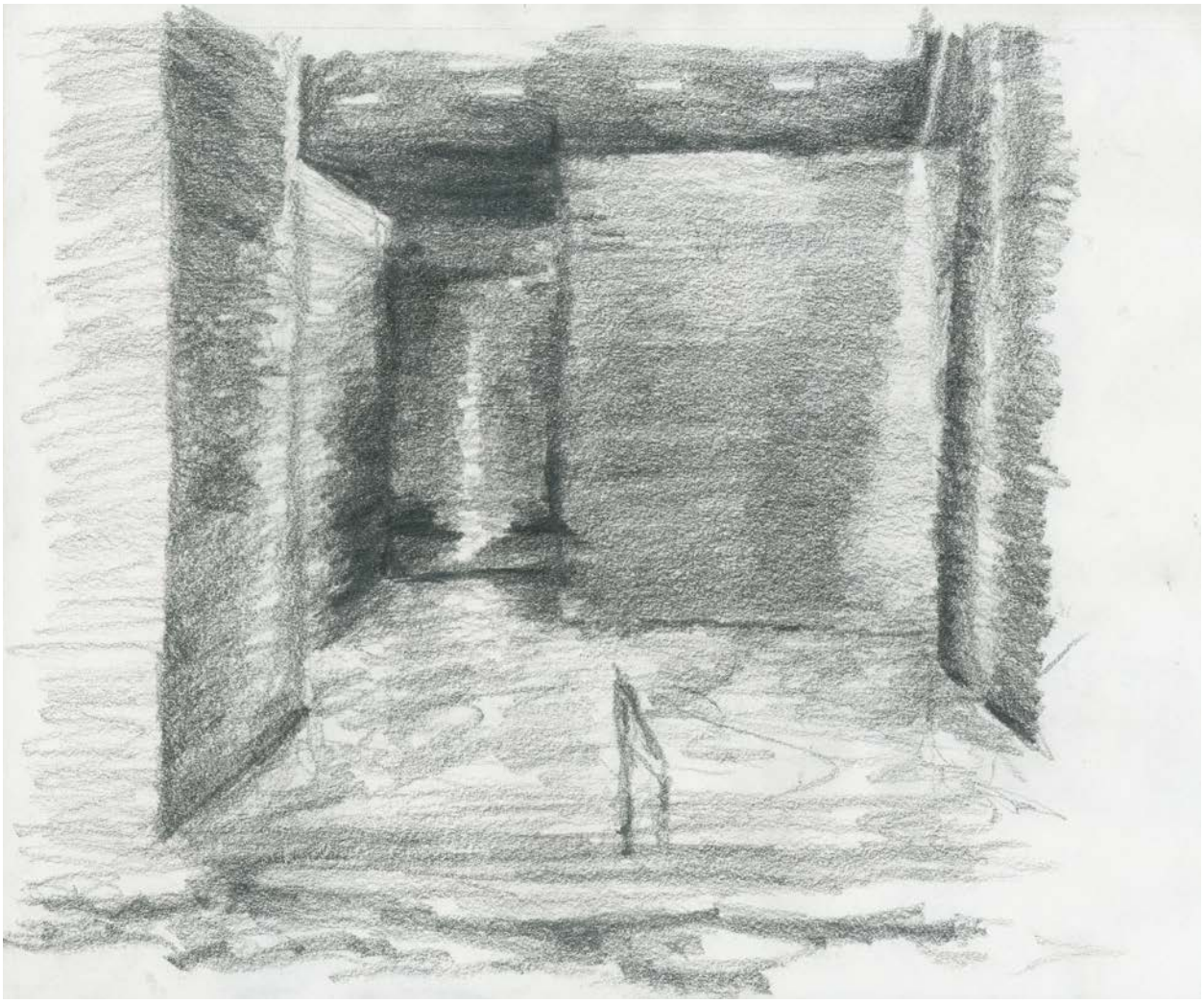


Fig. 19 - Peter Zumthor, main interior pool, Therme Vals, 1996
Source: drawn by author

The experiential qualities of touch, light, and sound of the several intimate spaces of Therme Vals emerge from the subtly composed architectural details, spaces, and promenade. The interior experience of Therme Vals deeply engages the tactile and phenomenological senses in its echoing sound, contrasting luminance, various temperatures of the spa pools, and enveloping textures of natural local stone. Large masses contain unique bathing experiences, including pools, massage rooms, steam rooms, dressing rooms, showers, and restrooms, and Zumthor

orchestrated each space to be sensually distinct. Overall, Therme Vals is an experience guided by temperature, in which the observer meanders from one space to another in an ambiance of luxury and relaxation. In an effort to represent the total multi-sensual experience of Therme Vals, following are descriptive passages of three of the spaces in Therme Vals: entry portal, steam room, and petal room.

Fig. 20 - Peter Zumthor, main meandering space, Therme Vals, 1996
Fig. 21 - Peter Zumthor, main meandering space, Therme Vals, 1996
Source: drawn by author

Entry Portal

As previously described, the entrance into Therme Vals offers a means of disconnection through a long and narrow subterranean passage from the hotel. Engulfed in black, the hall is lit by inset circular lights in the ceiling, which shine through a translucent metal mesh, like bright snow that shines through the low clouds that have settled into the surrounding mountains. The texture of the concrete ceiling is revealed at the lights, otherwise hidden in darkness. There is a dim warm light at the end of the passage, the destination - the baths. Warmth and humidity from the pools take over upon entry to the baths.

Steam Room

A single square light enters the otherwise completely black rooms in the successive steam rooms. The black concrete walls, black stone and

concrete floors reflect none of the light from above, casting dark shadows on the faces of those who sit in the excessive heat and humidity. Each room, divided by a black curtain, gets warmer as the bronze steam machine gets closer at the deepest point. An ultimate intensity of heat and steam create a circular aura in the periphery of the eye under the spotlight in the center of each space. Blackness, steam, heat, and spotlight make up the intense steam room experience.

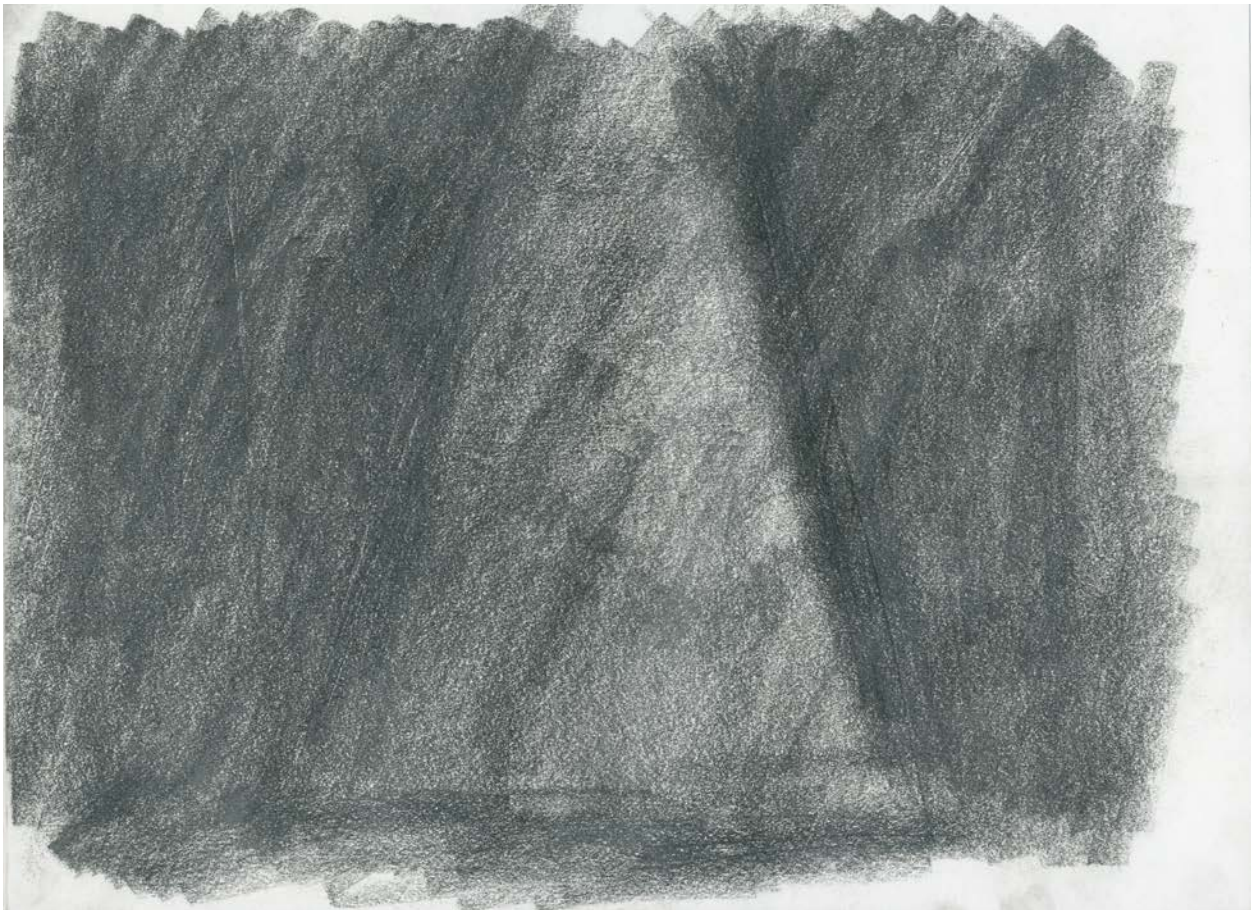


Fig. 22 - Steam Room Experiential Sketch
Source: drawn by author

Petal Room

Upon entering the compressive portal of the petal room and making the guided right turn into the black concrete, a strong and sensuous aroma of flowers comes to the forefront of attention. White petals fill the pool in a constant slow-motion movement of the warm water. The room

is a surreal experience, in which it seems time has slowed around the observer. The echoing of the smallest sound off the surrounding black concrete and the languid gliding of the bright petals places the observer in a separate awareness and state of consciousness. Through the breaking down of visual ability in the dark room, the senses of sound, touch, and smell become hyper-sensitized.

< Architecture as Surroundings, A Place for Life and Memories | Surrounding Objects, Traces of Use >

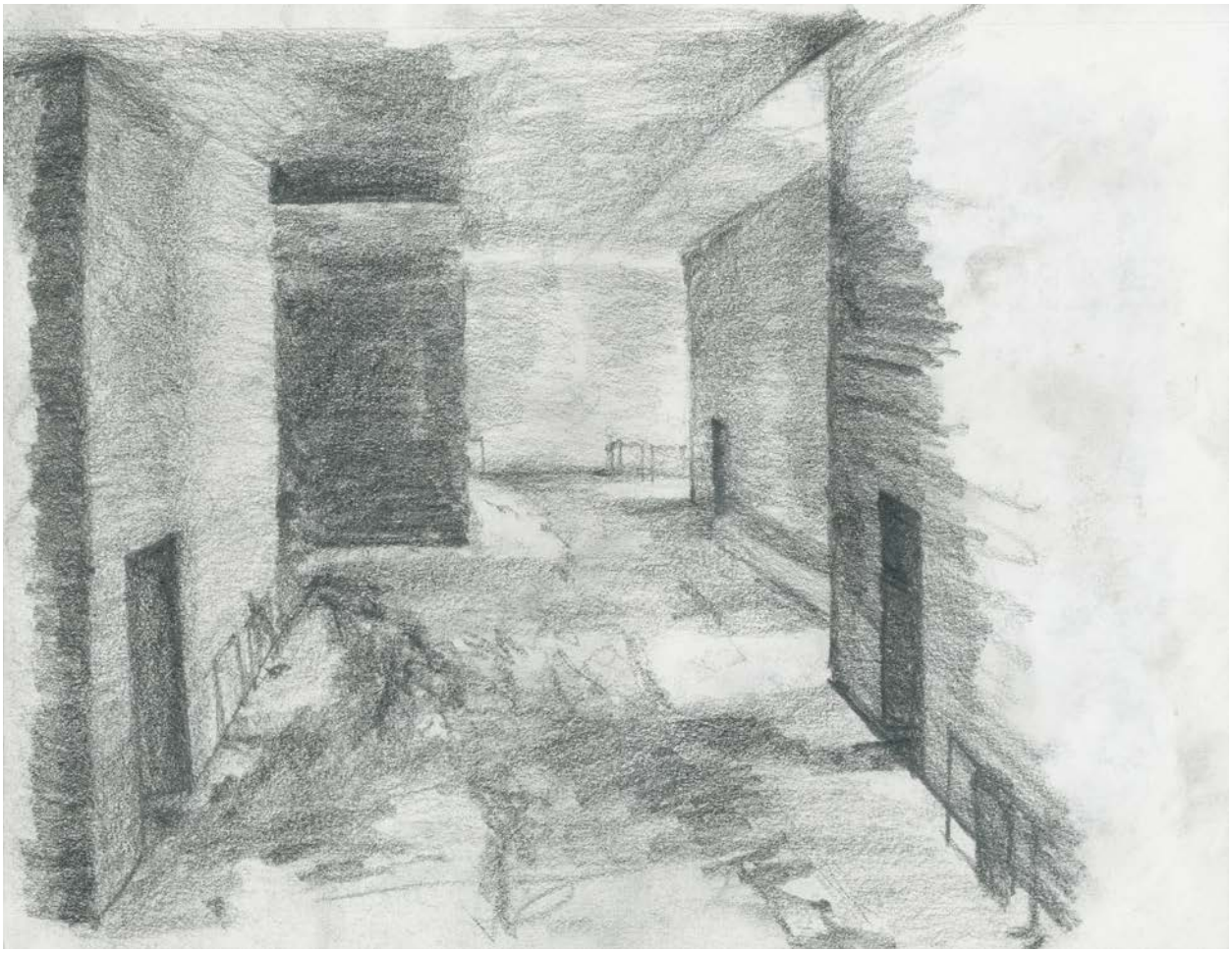


Fig. 23 – Peter Zumthor, main interior space with footprints and robes left behind, Therme Vals, 1996
Source: drawn by author

Therme Vals has left an indelible mark on the village of Vals, placing it on the list of architectural pilgrimages for architects across

the globe. In the interior experience of this regarded masterpiece, wet footprints and white robes left behind demonstrate < *life and traces of use* >. Photos are not allowed in the interior of the baths, and thus architects can often be found sketching the space. An architect or interior designer can always be pointed out at Therme Vals because of their obvious fascination with the details and materials of the building, and a brief temporary community often emerges in this solitary experience.

< Coherence | The Resulting Beautiful Form >

> "In the end, the building retained forms reminiscent of quarries and caverns, a structure of blocks that looks as if it had grown out of the mountain into which it is interlocked. Seen from the valley, the building takes the shape of geometrically structured architecture, of a large cube set into the slope. Seen from above, the slabs of the stone tables present the picture of a precisely assembled mosaic, covered with the soft carpet of the rough, wildflower meadows of the valley slope."[6] (Zumthor)

Designed with an emphasis on interior experience, in fact there is no exterior entrance, Therme Vals presents its back face to the public. A summation of the tactile qualities of place and the multi-sensual experience, a < *resulting beautiful form* > is created through a re-presentation of the quartzite stone of the surrounding mountain, like a rationalized version of the caves found in the region. As a final product of an immersion into the multi-sensual experience of bathing and contemporary adaptations of vernacular principles and building techniques, Zumthor's restrained yet monumental icon exemplifies an Emotional Reconstructive Architecture. In a luxurious yet primordial experience, the observer is connected to the geological and historical contexts of the place. Raymund Ryan of The Architectural Review beautifully describes the emotional power of Therme Vals in writing,

> "Resonant with an elemental materiality and full of myriad

> therapeutic delights, Peter Zumthor's thermal baths at Vals are conceived as a cavernous, labyrinthine haven devoted to sensual pleasure. Through the rigor of his craft, Peter Zumthor has realized an extraordinary building full of sensory richness. At Vals, he has created a building concerned not simply with style, image or beautiful materiality, but resonant with atavistic memories of weight, contiguity and enclosure, of sound and enticing illumination. To use the Baths is an intense, almost primal pleasure."[7]

Fig. 24 - Peter Zumthor, view from up the mountainside, Therme Vals, 1996
Source: drawn by author

Footnotes

1 - Peter Zumthor. *Peter Zumthor: Therme Vals* (Zürich: Scheidegger und Spiess, 2007))23.
2 - Johann Jörger, quoted. *Peter Zumthor: Therme Vals*. 28.
3 – Peter Zumthor. *Peter Zumthor: Therme Vals*. 27.
4 - Zumthor, Peter. *Peter Zumthor* (Tokyo: A U, 1998) 138.
5 - Peter Zumthor. *Peter Zumthor: Therme Vals*. 26.
6 - Peter Zumthor. *Peter Zumthor: Therme Vals*. 43.
7 - Raymund Ryan. "Thermal Baths in Vals, Switzerland by Peter Zumthor." (The Architectural Review) 2015.

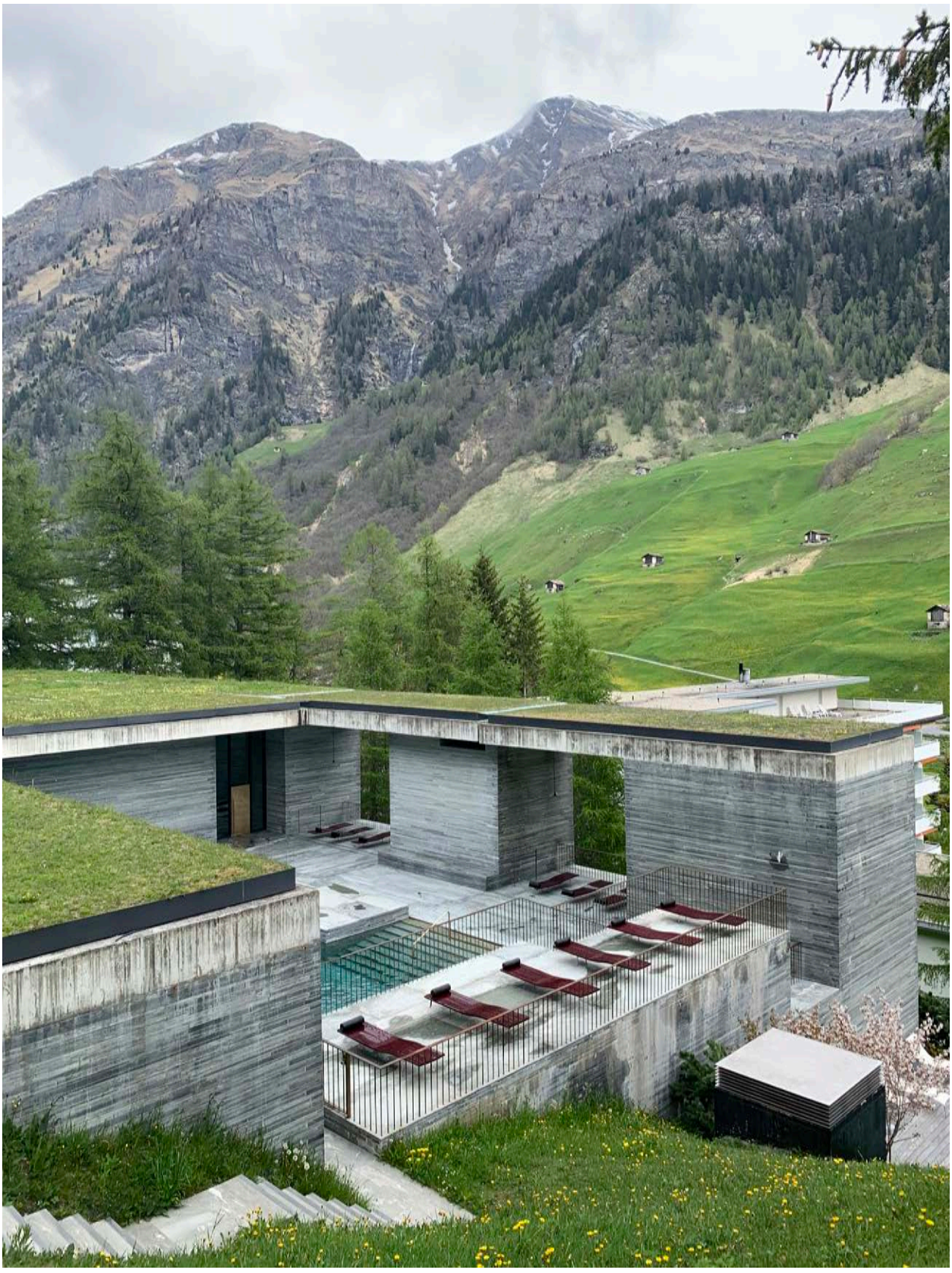


Fig. 25 - Peter Zumthor, emerging from the slope, Therme Vals, 1996
Source: author

Steilneset Minnested, Peter Zumthor

Fig. 1 - Peter Zumthor, Steilneset Minnested, 2011
Source: drawn by author

The Norwegian landscape is one of great intensity. Water, wind, and ice have cut deep into the land and worn at the mountains, whose crests have been rounded over millennia. In a conversation about the fantastical surrounding mountainous landscape, a Norwegian woman named Jane from Eidfjord, Norway instinctively compared the mountains to those of the Swiss Alps in saying, “The mountains here are old and worn. You can see how they’re rounded, not like the pointy Alps.” While this landscape is far from the treeless arctic rolling hills of northern Norway, the intensity of the climate is equally on display. Powerful winds, ice, and frigid waters have worn at the massive traces of ancient glacier shifts. On the island of Vardø, the easternmost point of Norway, 263 miles north

of the Arctic circle and within view by the naked eye of Russia, a collaboration between Swiss architect Peter Zumthor and French-American artist Louis Bourgeois situates itself along the coastline. A memorial that highlights a dark past of an arctic island stands on stilts along the rocky coastline.

Fig. 2 - View Toward Vardø from Norwegian Mainland
Source: drawn by author

< Place Tectonics | Material Culture >

Vardø is a remote island in the Finnmark region of northern Norway with a rich and complex history. Because of the island's position on the globe, there are great lengths of time of the year that the sun never breaks the horizon. The arctic climate and long nights of the winter have had an immense impact on the history and culture of Vardø and the

greater Finnmark region.

Fig. 3 – Houses and Public Art in Vardø
Fig. 4 - Pomor Museum on Vardø Harbor
Source: author

History of the Island - Witch Trials

A haunting eeriness exudes from the "Land of the Midnight Sun'; the Finnmark region of northern Norway was an epicenter of some of the most infamous witch trials that took hold in Europe during the 1600s. The rate of accusations, persecutions, and death sentences is staggering considering Finnmark's sparse population. According to Liv Helene Willumsen, Norwegian historian and expert on the Finnmark witchcraft trials, in the 17th century, the population of Finnmark was roughly 3000, which made up only 0.8% of the Norwegian population. Nevertheless, 16% of total witchcraft trials of the country took place in Finnmark, and 31% of all death sentences were passed there. In total, according to court records kept from the era, 91 men and women were executed , nearly all burnt at the stake, and subjected to torture for allegedly practicing witchcraft in Finnmark.

Several political and geographical factors could have had an impact on the intensity of the witch-hunt in Finnmark as compared to the rest of Norway and Europe. Norway was under control of the Danish king in Copenhagen during the 17th century. According to Willumsen, the Norwegian-Danish king Christian IV traveled to Vardø in 1599 in order to see

the extents of his kingdom. The king developed a great disdain for the region during his short stay, seeing the arctic port city as a horrible, disgusting place. To make matters worse, bad weather on the return journey was believed to be caused by a black cat that was brought on the ship. When the cat was thrown overboard into the ravenous frigid sea, the weather cleared. The king may have ordered the witch trials after that experience. It was the policy of the kingdom to cleanse the country of ungodly persons, and he stated that it was his aim to cleanse the Finnmark region of witches.

The attitude toward nature in Finnmark was much different than that of Mid-European countries, where stories of werewolves and other creatures created a certain fear of nature. Stories of a northern hell persisted throughout Europe, and in the landscape of only grasses, moss, and ice, a southerner would have seen ground without life in Vardø.

The trials were gruesome events in the history of Vardø. Although torture before confession was against the law in the kingdom of Denmark-Norway, methods of stretching, red-hot tongs, iron collars and chains, and sulfur exposure were common practice to solicit admissions of guilt from the accused, and there is documentation that explains some being killed by torture prior to the sentencing. The 'water ordeal' was the primary source of physical evidence against accused witches during the trails. The men and women were tied with their arms crossed to their ankles and thrown into the frigid waters of the Barents Sea. As water was believed to be an element of purity, any evil would be rejected, and a person guilty of witchcraft would float. While in every recorded use of the water ordeal, the accused person floated, it is unknown if any drownings would have been documented. If this is the case, the death toll of the Finnmark witch trials would be higher than the 91 executed.

This dark past was largely forgotten, without any real traces in the landscape left from the era, until the work of Willumsen uncovered court

documents and dragged the history into the region's present consciousness. In this historical context, Zumthor and Bourgeois developed the design for Steilneset Minnested, which memorializes those who lost their lives in the panics of the 1600s.

Fig. 5 - Predicted Execution Site of the Witch Trials by Fire at the Stake
Source: author

Vernacular Inspiration - Fishing the Barents Sea

Prior to the rampant witch scares of the 1600s, Vardø had developed as a major fishing port of the Barents Sea, one of the only ice-free ports in one of the most plentiful fishing seas in the world, and flourished as a strong economic center throughout its medieval history. Due to its close proximity and access to Russia, it became an important trading post. The fish caught by the massive fleet of boats of the Vardø harbor would be

traded for Russian timber, with which most of the town was built. The surrounding landscape of Finnmark is treeless and barren, so the trading of these materials was crucial to the people of Vardø. Additionally, the arctic climate presented an advantage in the preservation of fish; They could be hung and exposed to the freezing air to dry. This traditional natural preservation method is still used throughout the region to this day. According to Astrid Stenhaug, a local expert on the history and culture of Vardø, the island would have been covered in "fields of fishing racks in the 1600s." The construction method and structure of these drying racks (see Figure 6) created an architectural expression through which Zumthor developed the design of Steilneset Minnested.

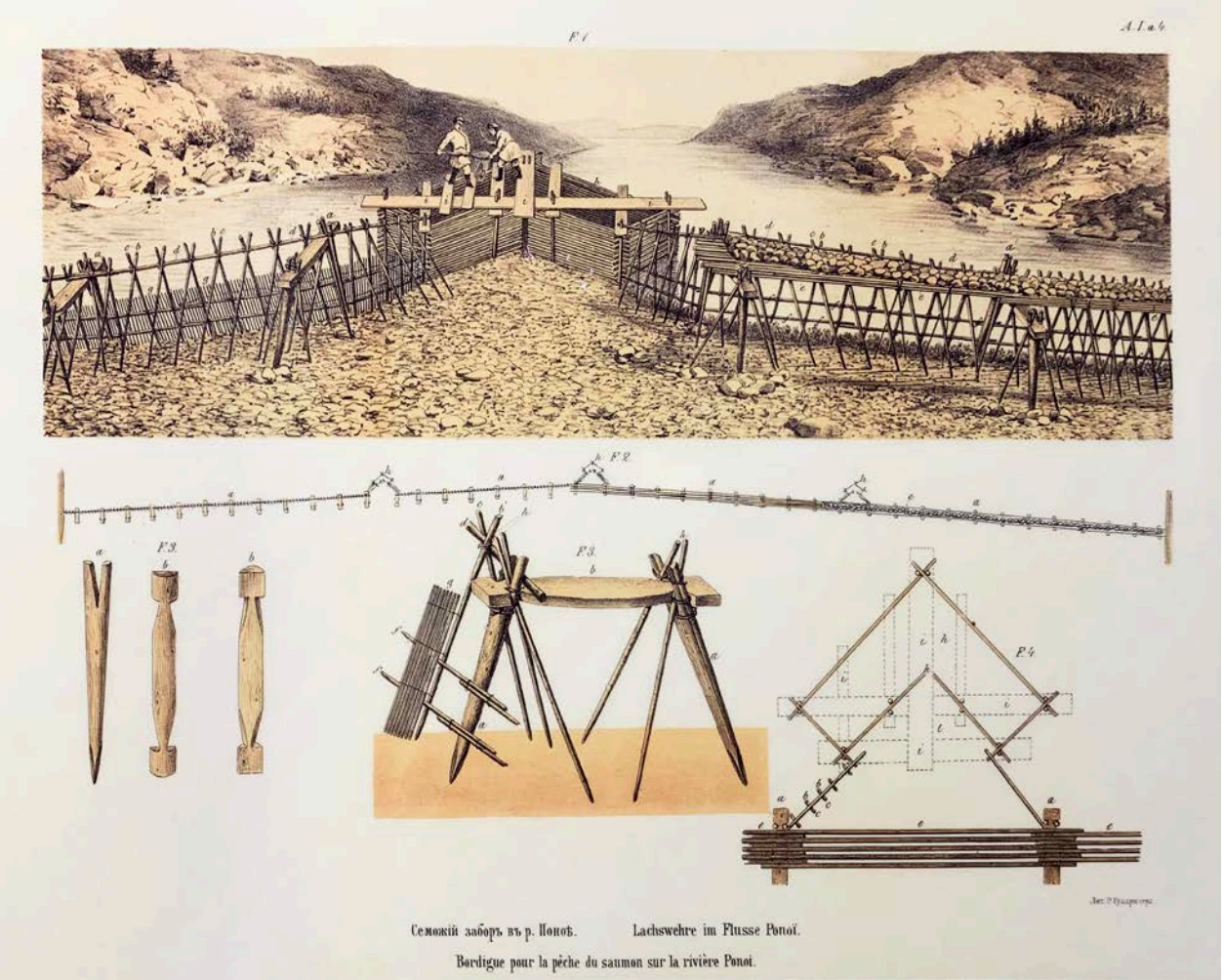


Fig. 6 - Traditional Fish-Drying Rack of Finnmark
Source: Pomor Museum, Vardø, Norway

< Levels of Intimacy | Tension Between Interior and Exterior >

The traditional drying racks inspired the design of a long timber skeletal framework. These vernacular structures, which demonstrate the importance of fishing to the culture of Finnmark, have been critically adapted by Zumthor in the design of the exterior structural scaffolding of Steilneset Minnested. Beyond a formal adaptation, the detailing of the joints of the wooden structure emulates the drying racks in the way the timber members slide past one another (see Figures 7 & 8). A tightly stretched canvas, reminiscent of the ship masts that once filled the harbor of Vardø, is strung along the long structure, creating an interior enclosure for the memorial.

Fig. 7 - Traditional Fish Drying Rack
Fig. 8 - Peter Zumthor, view from under canvas enclosure, Steilneset Minnested, 2011
Source: author

Faceted to the canvas are 91 narrow windows, each with a warm incandescent light bulb hung within its frame to represent the 91 slain individuals. Like with the structural frame, the inspiration for this detail came directly from a cultural element of Finnmark; in Vardø, lights are hung in the windows of all the wooden houses on the island

(see Figures 9, 10, & 11). For much of the dark frigid winter season, lights glowing in the windows are the only signs of life in Vardø. Stenhaug says the lights symbolize an active home to the locals there, which becomes crucial for morale during the long dark winter nights. A sign of life in a memorial for those executed in the witch trials of Finnmark over 400 year ago is an ironic symbol in Steilneset Minnested. Inspired by a distinct local tradition, the lights glow to the exterior through a reflective silver-colored frame, connecting the memorial to the cultural context of the place.

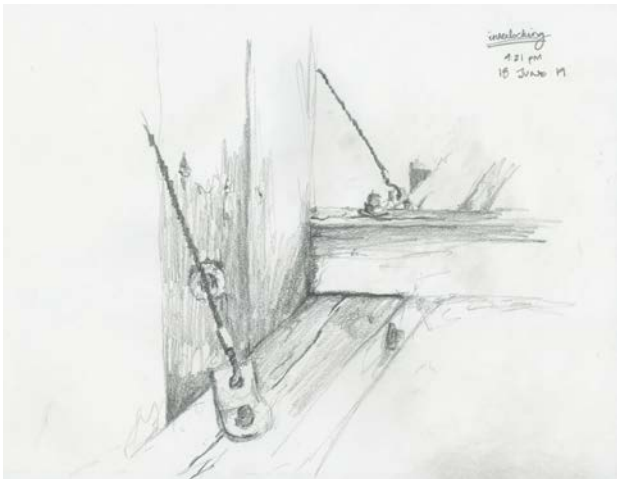


Fig. 9 - Lights in the Windows of the Homes on Vardø
Fig. 10 & 11 - Peter Zumthor, window detail, Steilneset Minnested, 2011
Source: author

> "…I saw a landscape of horizontal lines and the same lines repeated on the mainland just across the strait. On parts of Steilneset there were long wooden racks for drying fish, a traditional method of preserving fish on the coast of Northern Norway. The town of Vardø seemed, [in this cold dark November], deserted and almost empty. No people could be seen in the streets. The only thing that indicated the presence of people and life, were the lights in the windows of some houses showing me that somebody was living there."[1] (Zumthor)

Fig. 12 - Drying Rack, Hamningberg, Norway
Source: author

Fig. 13 – Drying Rack, Vardø, Norway
Fig. 14 - Vardø Home with Hanging Lights in the Windows
Source: author



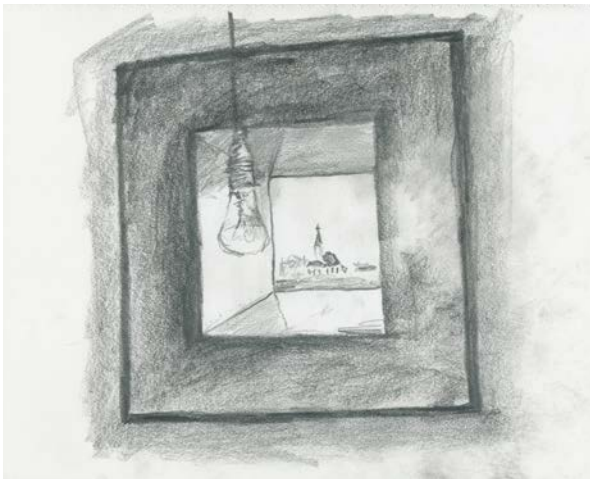


Fig. 15 - Peter Zumthor, timber structure detail, Steilneset Minnested 2011. opening and light for each of the victims
Fig. 16 - Peter Zumthor, window and light with view to cemetery chapel, Steilneset Minnested, 2011
Source: drawn by author

< Tactility of the Air and Climate | The Sound and Silence | The Light, Shadow, and Darkness | Between Seduction and Composure, The Architectural Promenade | Traces of Use >

The multi-sensual and phenomenological experience of Steilneset Minnested is mediated through the vernacular influenced details along a guided tour which places the observer in the dark historical context of the place. Zumthor and Bourgeois established two distinct marks on the

landscape, a line and a dot, through which the stories of the accused are memorialized. Zumthor's narrow passage and Bouregois's contemplative sculpture act a two distinct moments of the experience of the memorial, which, with the approach, are fully described in the following passages.

> "My first idea, drawn on a napkin while staying in Vardø, was a long building for ninety-one windows and ninety-one lights dedicated to the ninety-one murdered women and men. …I sent Louise my sketches of the long building. Some time later she sent me her sketch of the chair with the burning flames and the big mirrors around it. I offered her to cancel my idea of the long building and just come with a shelter for her installation. But he told me that we should do both, my line and her dot."[2] (Zumthor)

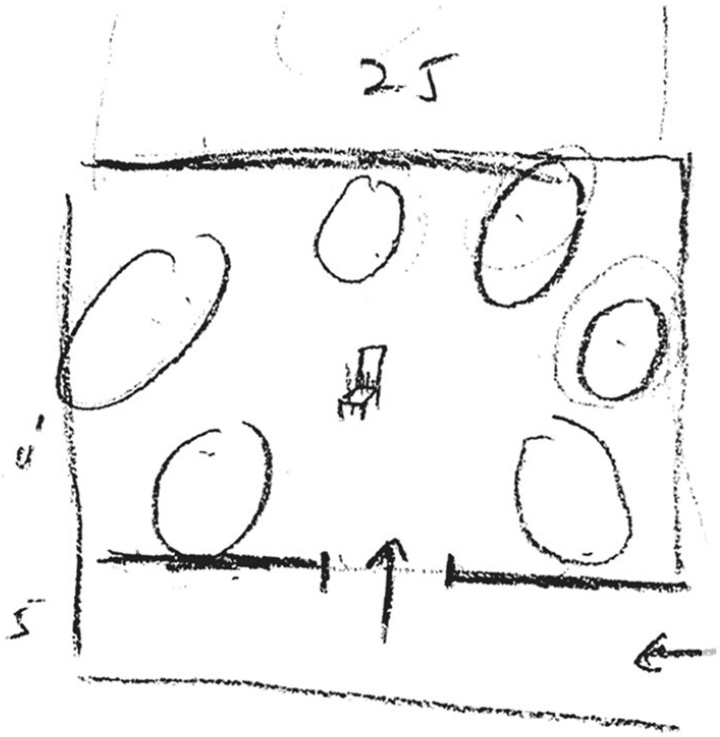


Fig. 17 - Louise Bourgeois Sketch, 'Her Dot'
Source: Bourgeois, Louise, and Peter Zumthor. *Steilneset Memorial: to the Victims of the Finnmark Witchcraft Trials*. 20.

The Approach

The path to Steilneset Minnested passes next to the town's cemetery and its chapel. Across the grasses and tombstones, the white line, and

black dot come into view. The memorial situates itself on the coastline of the strait between Vardø and the Norwegian mainland, and the sounds of small waves disseminate across the unkempt field, only accompanied by the crush of gravel footsteps. According to Stenhaug, Zumthor sought after a rough, natural path to the monument. It was his intention for the grass around the monument to remain uncut and the snow to be left in the winter. The < *architectural promenade* > would be as natural as possible, and the memorial would become part of the landscape from which it emerges. In its final construction, gravel paths were made part of the construction guide visitors to the memorial's long and narrow wooden entry ramp, which elevates from the ground to a translucently reflective silver colored door.

Fig. 18 - View of Steilneset Minnested across the Vardø Cemetery
Source: author

Fig. 19 - Peter Zumthor, entry ramp to canvas enclosure, Steilneset Minnested
Source: drawn by author

The Line

Upon entry into the long and narrow enclosure, the door swings shut with the sound of chunking metal and a smooth glide, and the pressure changes, encasing the observer fully in the dark embrace and separating from the usually harsh weather. The eye can barely adjust from the instant change in light, so the periphery becomes black. Stenhaug beautifully describes this moment of the experience in Steilneset Minnested as “entering a whole new galaxy.” To the right, a stand for translation booklets emerges from the darkness. The left seems endless. After a brief moment, the eyes adjust, and the space fully reveals itself. At a fine grain, light works its way through the black-painted canvas in

specks, like a starry night on the shifting fabric enclosure. Narrow openings cut through the fabric walls that allow direct light into the space, and light filters from below where the supports for the wooden deck cut through the canvas. The fabric gives slightly to the wind's pressure, creating a twinkling effect in the otherwise dark passage. The light bulbs hung at each opening slightly sway back and forth like orbs, giving the space a certain uneasiness. In the dark space, the light from the openings is nearly blinding, but they offer glimpses of worn stone and grass, sky, and horizon behind the light bulb. The lights appear to mediate randomly between 6 heights, visible only at a distance with the focused eye. Stenhaug refers to the composition of the interior lights as a "balanced randomness."

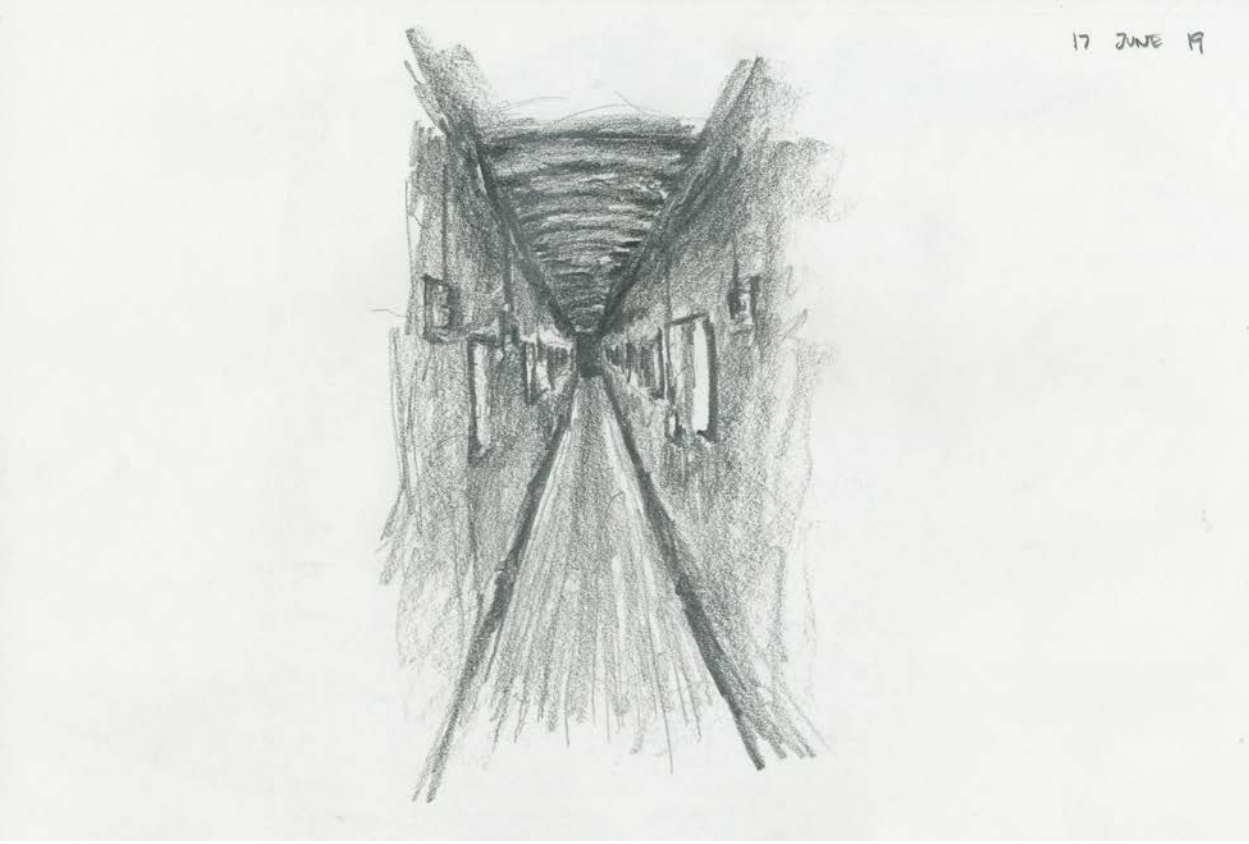


Fig. 20 - Peter Zumthor, interior passage, Steilneset Minnested
Source: drawn by author

Hollow footsteps slowly tap on the raised wooden deck in the procession to the other end. The pace is slow, reading poetic summaries

of trials for witchcraft which stain the island with a bloody history. Denial, torture, confession, fire at the stake is a pattern found in the stories printed in Norwegian on black silk and hung in the passage. With a small booklets of English translations, the observer crouches near the warm light of the incandescent to read. The number of victims becomes overwhelming in the experience of reading the old stories as the observer becomes attached to this dark history of the place, likely triggering a deeply emotional response, intensified by the artistic hand of an architect and the elegant prose of a historian. At the end of the enclosure, a pole emerges from under the wooden deck with a button at its end. Upon pressing the button, a door behind swings open at a startling pace. After reading the many horrific stories of witch trials in the long dark narrow passage, the instant reintroduction of light through a door that swings open on its own is a startling end to a spiritual experience.

Fig. 21 - Peter Zumthor, openings, hanging lights, and silk banners, Steilneset Minnested
Fig. 22 - Peter Zumthor, swinging door from the interior, Steilneset Minnested
Source: drawn by author

Upon exiting the canvas enclosure, a second wooden ramp leads the observer to the glass pavilion that houses Louise Bourgeois' sculpture. Sliding between the tall reflective glass panels of the open-air pavilion (see Figure 25). Bourgeois' work is revealed around the corner.

Fig. 23 - Peter Zumthor, steel stand for translation booklets, Steilneset Minnested
Source: drawn by author

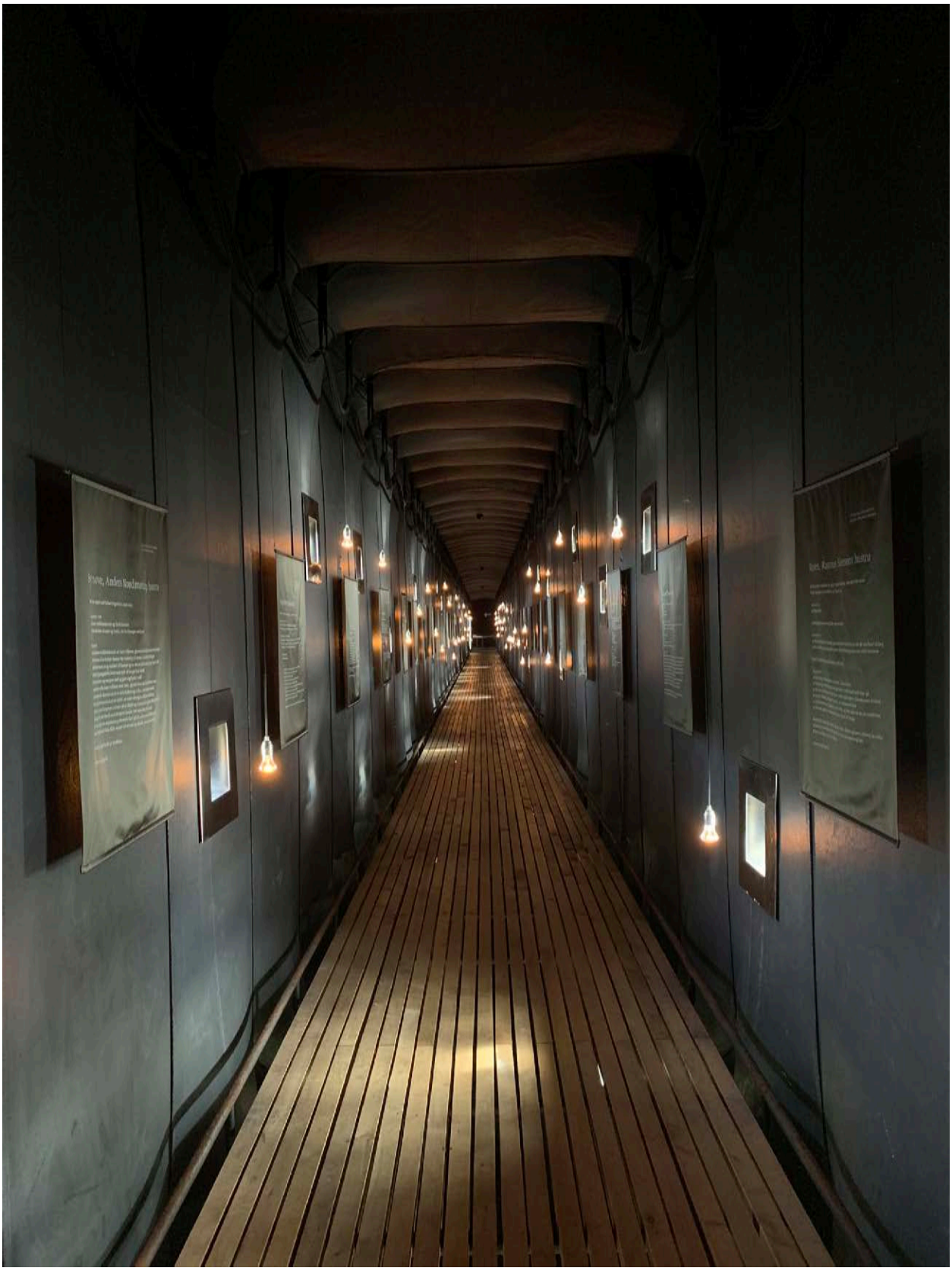


Fig. 24 - Peter Zumthor, interior passage, Steilneset Minnested
Source: author

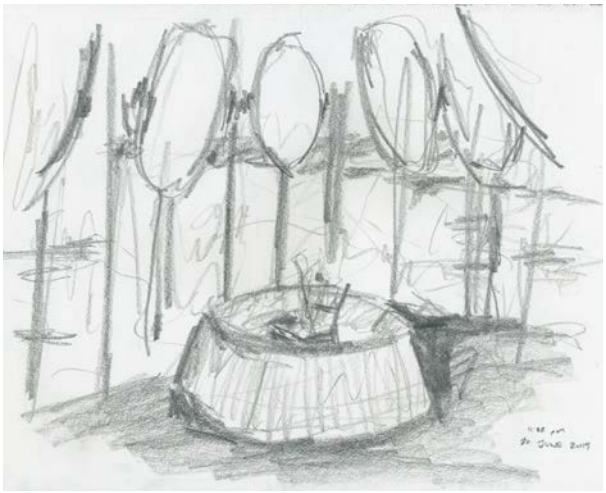
Fig. 25 - Peter Zumthor, entry into glass pavilion, Steilneset Minnested
Source: drawn by author

The Dot

> "Zumthor and I have used earth, water, fire, and air to create views of silence. Memory needs silence for it allows time to spiral back on itself. Our understanding of the events in the past at Vardø is a plea for a second chance in the present."[3] (Bourgeois)

The black glass pavilion and Bourgeois' sculpture ***The Damned, the Possessed, and the Beloved*** offer an experience of reflection, fire, and chilling winds, placing the observer within the elements of the island's witch trials. The glass panels are angled to allow the wind to pass through the sculpture but protect the sculpture and the observer from its raw force. A small scent of gas or propane fills the space from an eternal flame placed in the center of the space in the seat of a silver-colored

chair. The hollow roar of wind through a gas-burning flame dominates the audible experience of the pavilion, like the fire is shouting to the observer. Seven oppressive mirrors encircle the chair with an ominous glare, reflecting the flame in their warped faces. The steel supports of the encasing glass have patinaed in a rusted coating, and the eternal flame has scored the metal chair in a dark stain. Reflections from the warped mirrors and the surrounding glass multiply the fire throughout the space, placing the flame upon the observer in specific views and in the arctic landscape in others. Around the chair, is a circle of concrete that keeps the observer separated from the flame. A wood grain is imprinted on the concrete that reveals its method of construction while hinting at the wood that would burn under a witch's stake. The sculpture culminates the stories just read in the long passage in a reflective opportunity for the observer. The terminating destination of the experience, it places the observer in a phenomenological position of imagining the witch trials from the point of view of the victim, the executioner, or a witness.



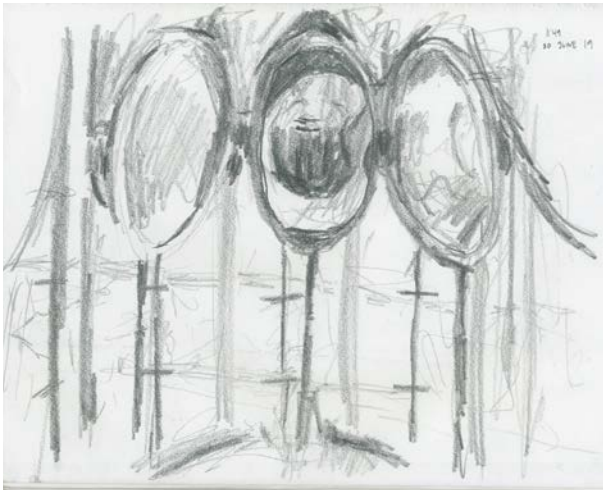


Fig. 26 - Louise Bourgeois & Peter Zumthor, *The Ddamned, the Possessed and the Beloved*, Steilneset Minnested
Fig. 27 - Louise Bourgeois & Peter Zumthor, *The Ddamned, the Possessed and the Beloved*, Steilneset Minnested
Source: drawn by author

Fig. 28 - Reflections in the Landscape
Source: author

Unlike the meandering experience of Therme Vals, Steilneset Minnested appears to be a directly guided experience along a single path, but the site is used in a multitude of various ways by locals and tourists who often diverge from the gravel path to the rocky coast and through the tall grasses that surround the memorial. Despite the uni-directional appearance of Steilneset Minnested, there is a mental liberation in the time and pace of the experience of the memorial. The reading of the victim's stories is a nearly overwhelming emotional experience, and freedom exists in the pace through which the observer navigates the passage. In response to this suggestion of mental liberation in Steilneset Minnested, Juhani Pallasmaa described the memorial as "a poetic image and suggestion [that] opens up whereas an intellectual or political argument closes down."

< Coherence | Architecture as Surroundings, A Place for Life and Memories | The Resulting Beautiful Form >

Fig. 29 - Natural Grasses Surrounding Steilneset Minnested
Source: author

The poetic image of Steilneset Minnested emerged from a genuine immersion into the historical and cultural contexts of place. Through a contemporary expression of vernacular forms, cultural peculiarities, and collective memory of Vardø, the infamous witch trials have been permanently memorialized. Bourgeois and Zumthor have created an emotionally moving experience tied to the place in this way, engaging the observer in a multi-sensual embrace emblematic of an Emotional Reconstructive Architecture.

The memorializing of a painful history deals with the collective memory of a place and how they can be haunting. According to Norwegian historian Tor Einar Fagerland, Steilneset Minnested will have an everlasting impact on the national identity of Norway in the recognizing of its own past evils. He writes,

> "At Steilneset, Zumthor, Bourgeois, and Willumsen have created a monument that challenges the concept of a monument by virtue of the materials and our expectations of a monument's durability. The structures also reflect local building practices. The glass pavilion echoes the cubic houses typical of Northern Norway, the wood scaffold mimics local fish-drying racks and the sailcloth recalls traditional forms of sea-fairing. The gas flame that flickers from Bourgeious' work and the light bulbs in the windows are meant to burn constantly, so resembling the lights from the scattered houses in the area. Once created memorials take on a life of their own. It will be interesting to see the impact Steilneset Memorial has upon the local and national culture of memory in time to come."[4]

Despite its memorializing of a dark history of the region, the locals of Vardø are proud of the memorial's beauty and that so many people around the world know of it. A past trauma has been brought into the present consciousness of the island through architecture, enabling the community to understand its long-forgotten past. Zumthor describes his approach to the dealing with collective memory through architectural connection to place:

> "From the very beginning, my main notions have been connected to the landscape of Steilneset and the cultural expressions

> of a small community in the far north, a cold place with warm lights in the windows. Then, in a historical perspective, I have asked myself: What kind of society was this that once burned its own women and men? Steilneset Memorial has been an attempt to answer this question and to become a place for memory and shelter. Walking through the long building and standing in the glass pavilion one shall get engaged with the victims' fates."[5]

Fig. 30 - Peter Zumthor, Steilneset Minnested
Source: drawn by author

Footnotes

1 - Peter Zumthor, *Steilneset Memorial: Art Architecture History*. 12.
2 - Peter Zumthor, *Steilneset Memorial: Art Architecture History*. 12.
3 – Louise Bourgeois, *Steilneset Memorial: Art Architecture History*. 18.
4 - Tor Fagerland, *Steilneset Memorial: Art Architecture History*. 82.
5 - Peter Zumthor, *Steilneset Memorial: Art Architecture History*. 19.

Fig. 31 - Peter Zumthor, Steilneset Minnested
Source: author

Fig. 31 - Louise Bourgeois & Peter Zumthor, Steilneset Minnested
Source: author

Can Lis, Jørn Utzon

Fig. 1 - Jørn Utzon, Can Lis, Mallorca, Spain, 1971
Source: author

The Spanish island of Mallorca, set in the Mediterranean Sea, has long been a place of refuge with a material culture derived directly from the earth. Driving from Palma de Mallorca, the island's largest city and capitol, to Porto Petro, a cliff and cove harbor town on the southeast coast, allows for a fast glimpse of the landscape and vernacular architecture of an arid island. The ground, tan color of the desert covered in grasses, no longer green and overgrown. Olive trees, bending in a slow growth set to the will of each season's yield, grid much of the inner landscape of the island. Every building, the farmhouses and sheds of the rural interior, bare the same materials, colors, and textures of the landscape. The pale-colored stone of the earth has been extracted and constructed into the architecture of Mallorca, all roofed in the

same darker terra cotta tiles. The blazing Spanish sun beats down on the island with great intensity from the cloudless blue sky. The warm summer breeze lifts dust and sand into the air, settling into the crevasses of the old stone structures that sit in the dry agricultural landscape. Perched upon a cliff along the coast, Jørn Utzon designed and built his personal residence with a magnificent view of the Mediterranean Sea. Named in honor of his wife Lis, his design responds directly to the architectural vernacular of the place, prominently emerging as a series of monumental buildings of the local stone from the cliff-face. According to English architect John Pardey, "Utzon defined the essence of a modern Mediterranean architecture [in Can Lis]. His ability to assimilate and express a culture through architecture is evident [throughout his body of work]."[1]

Fig. 2 - Jørn Utzon, view of Can Lis perched on its cliff from a boat in the Mediterranean, Mallorca, Spain
Source: drawn by author

< Place Tectonics | Material Culture >

History of the Island

The island of Mallorca is a paradise in the center of the Mediterranean Sea between Spain and North Africa with a varying landscape of mountains, long beaches, coastal cliffs and coves, and a dry rural interior. The Roman Empire established settlements on the island, including contemporary Palma, because of its strategic location in the Mediterranean. The economy of the island was largely supported by the cultivation of olive groves. Like the Spanish mainland, the island was conquered by Islamic caliphates and Christian kingdoms throughout its history, leaving an eclectic and diverse culture and architectural oeuvre. The largest of the Balearic islands, Mallorca started to become a tourist attraction in the 1960s for its fantastical natural coastal landscape, temperate Mediterranean climate, as well as its historical built fabric.

Fig. 3 - Vernacular Farm Building, Mallorca, Spain
Source: author

Material - Marés Stone

The architecture of the island is predominantly constructed of the sandstone that is quarried throughout Mallorca. This porous rock called marés has been used in the full array of building types, ranging from the low rural stone walls that line the narrow farm roads to the farmhouses the dot the landscape and even the detailed carvings of the Palma Cathedral, (see Figures 3-6). These constructions reflect the colors, textures, and soul of the Mallorcan landscape in their use of the stone, which is synonymous with the island's < ***material culture*** >. Utzon described Mallorca as 'a sand-colored island, unlike Ibiza, which is white' due to the prevalent use of the marés stone throughout the island.



Fig. 4 - Marés exterior wall of Palma Cathedral
Fig. 5 - Nave of Palma Cathedral
Fig. 6 - Palma Cathedral
Source: author

Stone quarries from where the sandstone was extracted mark the coastal landscape of Mallorca. In an effort to develop an understanding of the < ***material culture*** > of the island, I visited a quarry along the same cliff-faced coastline as Can Lis. Like the other abandoned quarries of the island, the excavation at Estret des Temps offers a glimpse of the industrial past that is slowly being retaken by natural forces. Deep cuts have been left in the cliff-face, now worn by the wind and water. The extraction ended at sea level, allowing the tide to wash in and out of the man made ravine. The stone shows wear in its exposure to the elements, and is soft enough for some visitors to have left carvings of

their names. The cuts of the old quarry have been stained dark by the course of rain runoff down the cliff-side. Geometric marks have been left in the stone, but the porous stone shows signs of natural wear (see Figure 8) much like the marés stone Utzon used at Can Lis.

Fig. 7 - Estret des Temps abandoned stone quarry, Mallorca, Spain
Source: author

Fig. 8 - Estret des Temps abandoned marés quarry
Fig. 9 - Weathered markings left from extraction
Source: author

The stone blocks that Utzon selected to use in Can Lis would have likely been drawn from a quarry like the one in Figure 10. Utzon worked on-site with local craftsmen during construction with few architectural drawings in a fairly informal design process. In conversation with author and educator Robert McCarter, he described the house as primitive in its construction and building techniques, pulling directly from local materials and vernacular strategies. He said that Utzon simply built with the standard dimensions of the stone that were readily available, almost like building from materials collected at a local hardware store.

Fig. 10 - Quarry in Mallorca
Fig. 11 - Jørn Utzon on-site during construction in Mallorca
Source: Pardey, John. Two Houses on Majorca. Vol. 3. Hellerup: Edition Blondal, 2004. 58-59.

Structure

The exposed marés stone carries the structural load of the residence, like the vernacular constructions throughout the island. Basic units of 40 x 40 x 20cm stone block are stacked to form columns that are revealed in the joints of the walls. Resting upon the stone walls and columns are white-painted concrete beams that support the roof structure. Despite appearing as solid, as in traditional Mallorcan buildings, the exterior walls have been constructed with a cavity in order to keep in the

interior dry, per Utzon's typical Nordic convention. Utzon expertly adapted contemporary building techniques with the primordial materials of the place in details such as these.

Fig. 12 - Jørn Utzon, structural system of load-bearing stone, concrete columns, and bovedilla vaults, Can Lis, 1971
Source: author

The intermediate structure between the concrete beams was originally envisioned as flat terra cotta tiles, but Utzon noticed clay vaulted tiles in a local baker's shop and sought after their vernacular production method. Called 'bovedillas,' these tiles can be found throughout much of the traditional architecture on the island. (see Figure 13) Once common in the region, production of bovedillas had ceased years before the construction of Can Lis. Utzon's master builder found the original wooden molds to produce the arched tiles and began making them for the house. The process involves placing wet flat clay tiles on the mold and allowing them to slump and dry in the sun. In the construction of Can Lis, Utzon thus restored an element of Mallorcan vernacular building tradition.

Fig. 13 - Bovedilla detail in Can Lis
Source: Pardey, John. Two Houses on Majorca. Vol. 3. Hellerup: Edition Blondal, 2004. 60.

Fig. 14 - Bovedilla ceiling in traditional Mallorcan house
Fig. 15 - Jørn Utzon, bovedilla ceiling in the entry porch, Can Lis
Source: author

> "The simplicity of the trabeated construction – stone, beam and vault – adds power to the architecture and makes the house consistent with Utzon's work."[2] (Pardey)

Texture

In Can Lis, the marés stone demonstrates time and wear; the original extraction cuts from the rotary blade are visible, and the stone has

withered into rougher porous surfaces after decades of contact with rain and salty Mediterranean air. The pale color of the stone accepts and reflects the bright sunlight of the island, producing a glowing effect throughout the interior. Each block has a distinct natural character that gives tactility and life to the walls of Can Lis. The imperfections and irregularities of the natural stone give the interior a sense of carved thickness, not unlike a cave. According to Pardey, prior to the construction of Can Lis, Utzon would come to the site and climb down the cliff to a cave that is nearly directly below the residence. "The absolute unity of place and view, of shelter and exposure [in the cave], provided the essence of the feeling he wanted to recreate his new home."[3]

Fig. 16 - Jørn Utzon, texture of the stone walls, Can Lis
Source: author

Upon completion of Can Lis, a colleague of Utzon's from Mallorca gifted him books about the island's building traditions. In the dedication of the texts, the colleague wrote, "To Jørn Utzon who showed us our own stone. Thank you." Utzon elevated the vernacular building traditions of Mallorca and marés stone to a Mediterranean Modern architecture.

< tension between interior and exterior | levels of intimacy >

Utzon developed architectural details throughout Can Lis which were directly derived from Mallorcan building traditions and adapted through his international influences. As previously mentioned, Utzon revolutionized the use of the marés stone. In rediscovering the clay bovedillas ceiling techniques, he restored a lost Mallorcan building tradition. Utzon's ability take transcultural influences from across the globe and filter the ideas through the lens of place is prominent throughout his life's work, but, in Can Lis, the direct and critical adaptation of contemporary Nordic details through Mallorcan material and traditions is particularly evident.

The Windowless Window

Utzon regarded Sigurd Lewerentz with the greatest respect as a master architect. In 1962, while visiting the Swedish tile factory in Höganäs for the production of tiles for the Sydney Opera House, Utzon unexpected met Lewerentz while walking around the harbor. Lewerentz's masterpiece St. Peter's Church in Klippan was under construction at the time less than 50km away. Several details in Can Lis point directly to influences from Klippan, perhaps most readily identifiable and recognized of which is the "windowless window." Both buildings seem to have been fully constructed out of brick or stone, only to have windows and doors attached to the apertures after-the-fact. The effect is to have an opening which appears to be uninterrupted by glass. In Can Lis, this means that the telescopic views of the Mediterranean Sea are completely unobstructed. The glass completely disappears without the visible frame,

creating an < *'tensionless' ocular relationship between exterior and interior* >. In fact, while I was sketching from the dining room table at Can Lis, an older German gentleman turned the corner from the kitchen and walked right into the glass.

Fig. 17 - Jørn Utzon, windowless window frame detail, Can Lis, 1971
Source: author

Fig. 18 - Sigurd Lewerentz, window detail, St. Peter's Church in Klippan, 1963-66
Fig. 19 - Jørn Utzon, window detail, Can Lis, 1971
Source: author

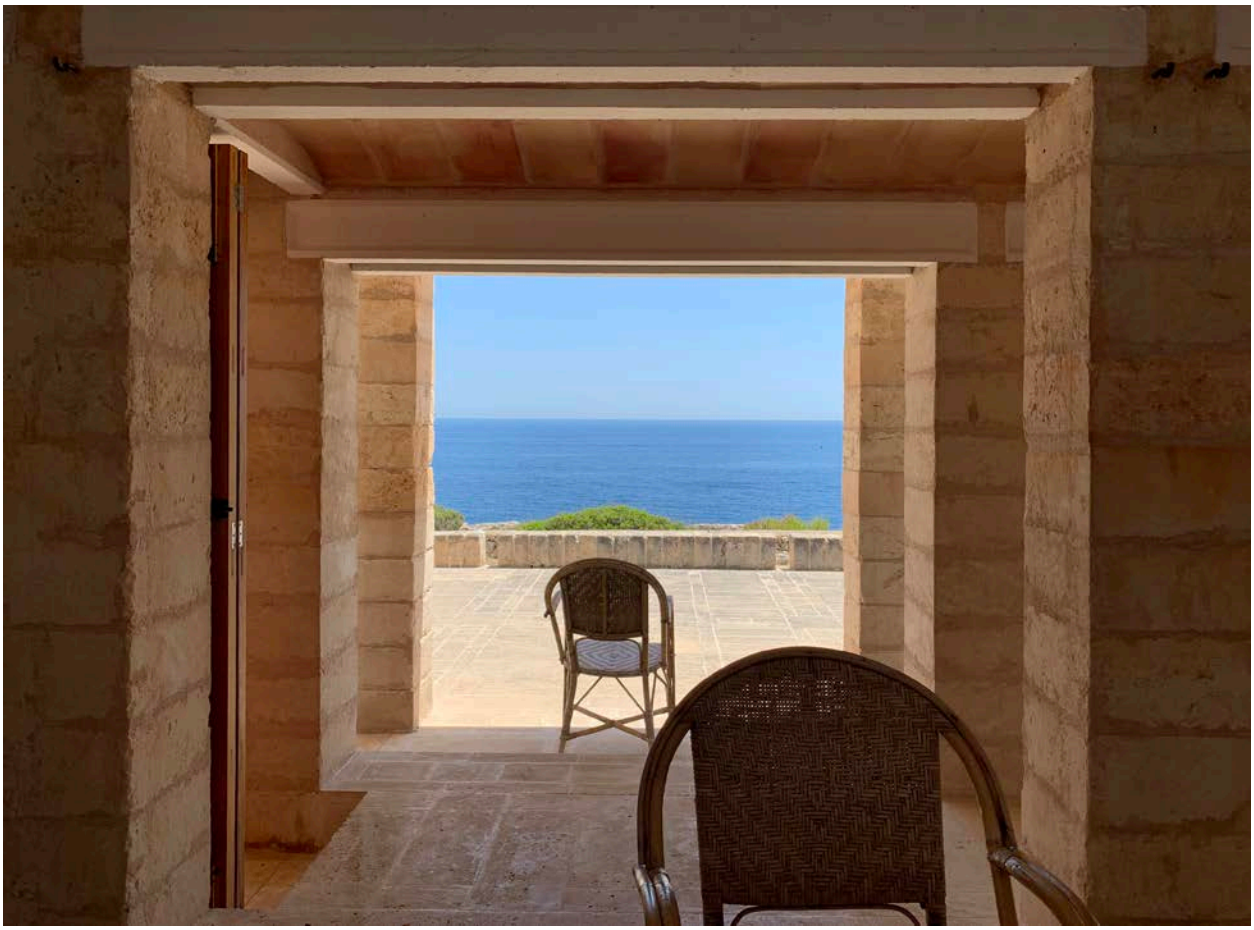


Fig. 20 - Jørn Utzon, interior view from dining room through frameless window, Can Lis, 1971
Source: author

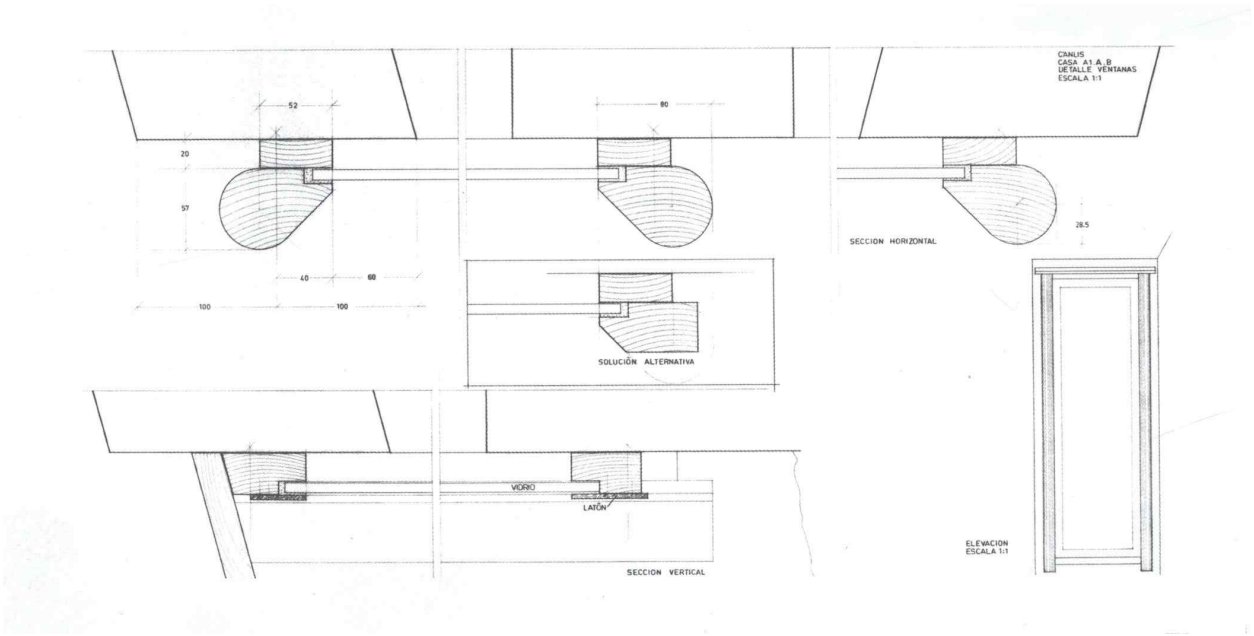


Fig. 21 - Jørn Utzon, drawing of window detail, Can Lis, 1971
Source: John Pardey, *Two Houses on Majorca*. 62.

The Stone Bench

The stone and ceramic benches of Can Lis could have also been directly influenced by St. Peter's Church in Klippan. The benches, constructed of the same material as their respective buildings, are modeled to perfectly fit the human body and engage the lower back. The rough materials of brick and stone are made comfortable in their form, as though they were molded to the body. The ceramic surface of Utzon's furniture softens the rough marés stone and has a cool touch to it on the warmest days of the Spanish summer. Ceramic tile is traditionally used in the kitchen surfaces of the houses throughout the island. The Nordic influence is expressed through the distinct material culture of Mallorca.

Fig. 22 - Sigurd Lewerentz, brick bench, St. Peter's Church in Klippan, 1963-66
Fig. 23 - Jørn Utzon, stone and ceramic bench, Can Lis, 1971
Source: author

Doubling of Structural Members

Another similar detail between Can Lis and St. Peter's Church at Klippan is the doubling of structural members. As seen in Figures 24 & 25, columns rise to support two identical beams separated by a small gap. In Can Lis, this logic allows for exterior structural expression with a thermal break between interior and exterior when the structural system is built into an exterior wall. In both buildings, the beams support series of vaults, each distinct to their place.

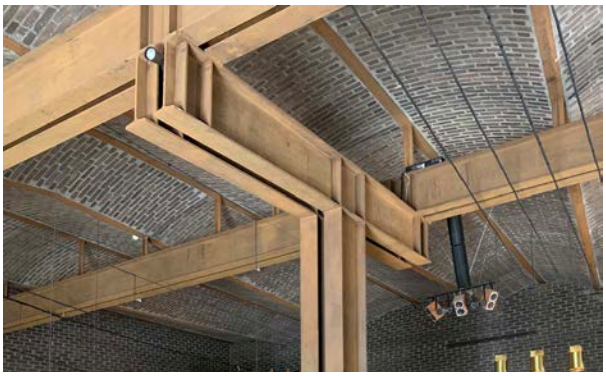


Fig. 24 - Sigurd Lewerentz, double beams and vaulted ceiling, St. Peter's Church in Klippan, 1963-66
Fig. 25 - Jørn Utzon, double beams and vaulted ceiling, Can Lis, 1971
Source: author

Fig. 26 - Jørn Utzon, exterior structural expression, Can Lis, 1971
Source: author

Cosmic Motif

The cosmic motif of the crescent moon has been used throughout the design of Can Lis. Entering through a wooden front door, under the shade of the twisting Spanish pines, then the marés front porch, a glimpse of the view to come is given in the ceramic surrounded cut of a crescent moon. Through this cut, a narrow view of the Mediterranean Sea is shown in between the stone masses. The moon is a loaded figure in history, literally otherworldly; it plays a particularly powerful role in the life on an island in its cyclical guiding of the tide. Nearly imperceptible at the cliff hanging Can Lis, the tide plays a critical role in the more low-lying coasts of the island, where the tide shifts the waterline several meters through the course of the moon's dance around the earth. Below the crescent-shaped opening is a ceramic tile series which, like the moon, fades from dark blue to white in its course over time (see Figure 28). These two elements instantly bring time into the forefront of attention, heightening the senses and our awareness of the spiritual experience. The cosmic motif reoccurs in the shape of the rounded bench in the main living room, the dining table of the side courtyard, and the apertures of that courtyard (see Figures 29 & 30).

Fig. 27 - Jørn Utzon, entry porch, Can Lis
Fig. 28 - Jørn Utzon, crescent moon opening and lunar ceramic tile series, Can Lis
Source: author

Fig. 29 - Jørn Utzon, crescent-shaped seating in main living room, Can Lis
Fig. 30 - Jørn Utzon, crescent motif in openings and table of side courtyard, Can Lis
Source: author

The details of lunar influence in Can Lis also display a basic resemblance to elements of the Mallorcan landscape. For example, the ceramic tile design of the stone benches bares the same pattern as property line signs found along the roads of the island (see Figures 31 & 32). Also, the U-shaped openings in the side courtyard resemble the low stone walls left in despair as stones have fallen over time (see Figures 33 & 34).

Fig. 31 - Jørn Utzon, tile detail of the benches, Can Lis
Fig. 32 - Property marker along rural roads of Mallorca
Source: author

Fig. 33 - Jørn Utzon, semi-circular openings, Can Lis
Fig. 34 - Stone wall along Jørn Utzon Avenue in disrepair
Source: author

Utzon took great care in the design of all scales and < *levels of intimacy* > in his personal residence of Can Lis, filtering his trans-cultural influences through the details of Mallorcan building tradition, connecting the tactile and spiritual experience to place and the cosmos.

< Between Seduction and Composure, The Architectural Promenade >

Can Lis acts as a series of four buildings strung along the cliffside, connected by exterior courtyards. There is an ebb and flow between interior and exterior courtyard in the procession through the house. This movement in and out is possible in the temperate climate of Mallorca. Apart from the main open courtyard, the exterior spaces are shaded by the twisting Spanish pines that naturally cluster along the cliffside. Each interior space has an associated courtyard for thermal comfort and circulation between the buildings. The separation of buildings and forms in a household is common in the traditional farmhouses of the island (see Figure 35).

Fig. 35 - Multiple buildings of traditional rural Mallorcan house
Source: author

< Tactility of the Air and Climate | The Sound and Silence | The Light, Shadow, and Darkness on Things >

Main Living Room

A portico from a small exterior courtyard leads into the tall main living space that offers enclosure but great expanse. The room glows with a light reflection off the pale-colored stone, which is smoother near the joints of darker mortar. Immediately, the spectacular view of the Mediterranean Sea is thrust upon the observer through thick tapering frames of the local sandstone.

> "The tension between deep enclosure and projected view combines in the sensation of being sucked out of the five large, deep apertures into the ocean; yet at the same time, the horizon seems to be pulled right into the room – an enthralling ebb and flow, like that of the ocean."[4] (Pardey)

Fig. 35 - View from the circular bench of the main living room
Source: drawn by author

A disconnecting quietness dominates the space after hearing the sounds of ocean waves crashing, wind blowing, and sea birds chirping in the associated courtyard. Everything enters the space but the sound, offering a relief and a focus of the ocular sense and the Mediterranean view. The detailing of the openings deceives the eye into believing there is no glass between the observer and the exterior view, so the relative silence of the space is the identifying sign of enclosure. The disconnection of the ocular and audible experience is powerful and gives the space a certain solitude and stillness. Upon sitting in the crescent-shaped stone bench, the soft sounds of the exterior begin to reappear, quieter but still offering solitude. A boat chugs by and a bird chirps from the courtyard behind. After experiencing a compressive entry and small courtyard, the vertical expanse of the ceiling and the horizon view gives the space a magnificent grandeur. The white painted arches of the ceiling seemingly further lightens and opens up the space vertically. The space is warm on the summer day, but cooler than the sun-soaked courtyard. Sweat lightly-coats enough to be comfortable in the enclosed space. The ceramic tile of the bench offers a cool relief from the heat in the encircling bench that cradles the observer in its rounded embrace.

Dining room

Fig. 36 - View of courtyard from kitchen/dining room threshold
Fig. 37 - View of Mediterranean Sea from dining room table
Source: drawn by author

Entering the dining area from the kitchen, the glass disappears in the array of marés columns that make up the U-shaped courtyard and portico. A cooling draft works its way through the open doors, allowing the sounds of cicadas to enter the room from the surrounding brush of the cliff-side. The space echoes, but comfortably, sound dissipating in the irregularities of the porous stone floor and walls. The view through the windless window and the colonnaded main courtyard frames the ocean, a miniature echo of Kahn's addressing of the Pacific in the Salk Institute. Like Kahn, Utzon celebrates the sun's daily path across the sky above the sea.

< Architecture as Surroundings, A Place for Life and Memories | Surrounding Objects, Traces of Use >

Jørn Utzon occupied the house for nearly a quarter century, and later moved into a more reclusive, mountainside house in another area on the island. He designed Can Lis around spaces for gathering in his personal home. In referring to the design method of architects whom he revered, he stated,

> "If Aalto had wanted light on a table where people sit, he would have first arranged the people around the table and then built walls; then, the whole building arose from the functions, from the seated people who worked around the table or seated in an amphitheater. Antoni Gaudí, Alvar Aalto and Erik Gunnar worked like this."

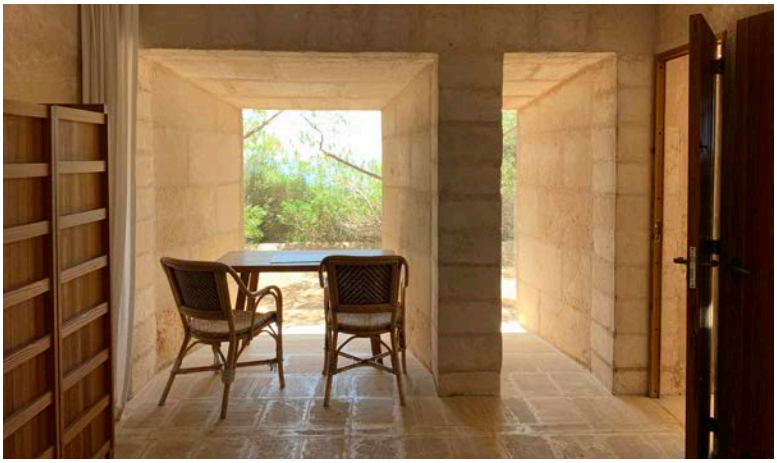


Fig. 38 - Jørn Utzon, bedroom tapered openings, Can Lis
Fig. 39 - Jørn Utzon, main courtyard portico, Can Lis
Source: author

Can Lis has been renovated since Utzon's death in 2008, but the house still shows traces of use. The stone above the fireplace is slightly blackened with use, which turns the space into a winter paradise. The house is now rented out to architects, artists, and others working with architectural expression for residences through the Utzon Foundation.

< Coherence | The Resulting Beautiful Form >

Fig. 40 - Jørn Utzon sketch of Can Lis
Source: collection of drawings at Can Lis

Designed with an absolute connection to the natural landscape and critical use of vernacular building traditions, Utzon created a house with a spiritual experience. Elements of Mallorcan culture are filtered through the lens of transcultural influences. Through an engagement of the tactile qualities of place and the multi-sensual experience, a < *resulting beautiful form* > is created in which forms of local stone monumentally emerge from the cliff-sided coast of Mallorca with a thick, cave-like interior.

> "Can Lis emerges as a majestic and archaic complex remotely located overlooking the Mediterranean Sea. A dismissive cliff rises straight up from the sea forming a plateau. The five buildings of the complex are placed on this plateau. The interplay between cliff and the complex gives the place a monumental character."[5] (Andersen)

Fig. 41 - Jørn Utzon, sketch of sea facing exterior, Can Lis
Source: drawn by author

> "It would seem theatrical, if I said that I have a household altar. But this is what I have. This place is my altar. This is where, with the deepest respect, I face nature, and with the greatest passion, contemplate the sun and the land in front of me." -Jørn Utzon

Footnotes

1 - John Pardey, *Two Houses on Majorca*, vol. 3 (Hellerup: Edition Blondal, 2004) Cover.
2 - John Pardey, *Two Houses on Majorca*. 60.
3 – John Pardey. *Can Lis: Jørn Utzon's House on Majorca*. (Tokyo, Japan: A U Publishing Co., Ltd., 2013) 62.
4 - John Pardey, *Two Houses on Majorca*. 7.
5 - Michael Andersen, Proceedings - *Utzon Symposium: Nature, Vision and Place: the First International Utzon Symposium, Aalborg, August 28th-30th 2003*. (Aalborg: Institute of Architecture and Design, University of Aalborg) 2003. 11.

Fig. 44 - Jørn Utzon, street facing exterior, Can Lis, 1971
Source: author

Fig. 45 - Jørn Utzon, cliff-facing main exterior courtyard, Can Lis, 1971
Source: author

Fig. 46 - the ‘household alter’ of Jorn Utzon, main living room
Source: author

Bait Ur Rouf Mosque, Marina Tabassum

Fig. 1 - Marina Tabassum, exterior looking north in urban context, Bait Ur Rouf Mosque, 2012
Source: drawn by author

Constant car horns sound off in a competition to move along the crowded highway, five lanes of traffic fitting into the width of three. The dense city of towers, marked with air conditioning units and crossing cables, passes by at a bumper-to-bumber pace. It's a city of chaotic movement. Concrete structural frames, infilled with a beautifully textured brick, rise above their shorter and older neighbors in their process of construction. Dhaka is rapidly changing and growing, as made evident by the construction throughout the city. In absolute irony, my friendly driver begins to play John Denver's "Country Roads" on the car radio. In a scene of rickshaws weaving through traffic, buses filled to the brim with

riders, and people crossing paths in a busy scene of dense buildings, my ears are deceived, hearing a slow guitar and Denver's voice sing about the mountains of West Virginia, the Shenandoah River, and the wide open spaces of home. Carts of street food under umbrellas line the busy streets, and people stand on truck beds overlooking the traffic as an array of vehicles creep down the highway. Hot and humid under the Bengal summer sun, sweat coats the brows of the people of the city. In this anarchic urban setting, Marina Tabassum's Bait Ur Rouf Mosque emerges from the dirt roads among the tall buildings of north Dhaka on a brick podium as a place of refuge and community.

Fig. 2 - Street of Old Dhaka
Source: author

< Architecture as Surroundings, A Place for Life and Memories >

Dhaka, home to more than 19.5 million people, is one of the most densely populated cities in the world and continues to grow at a staggeringly rapid pace. It's reported that more than 2,000 people move to Dhaka every day, leaving their villages and smaller cities to escape natural disasters, primarily the massive flooding that rocks the country every year, and pursue economic opportunities. Housing the urbanizing population has led to an enormous upsurge in new construction throughout the city. Despite its growth and evolution as a contemporary city, the Bengal capitol was rated as the world's third least livable city according to the 2019 Global Livability Index.[1] Graded in factors of stability, healthcare, culture and environment, education, and infrastructure, Dhaka improved from its second-worst placing last year. According to reporter Myrelle Lansat of Business insider, of the 164.7 million people of Bangladesh, one in four live below the poverty line. This figure includes an estimated 3.5 million people that live in the slums of Dhaka alone.

Fig. 3 - highway in Dhaka, Bangladesh
Source: author

1 - Global Liveability Index 2019.

As density reaches nearly incomprehensible levels in Dhaka, traffic has emerged as a major issue. Tricycle rickshaws outnumber vehicles in the streets of the city and offer an important source of income and transportation for the poor. According to Jafar Tuhin, a local tour guide, the government limits the number of rickshaws in the city, but rickshaw organizations have purchased all the legal licenses, forcing poor rickshaw drivers to rent the rickshaws for a daily fee. These colorfully decorated carriages spot every street, road, and alley of Dhaka, driven in the intense Bengal heat and humidity by some of the most hardworking people I've ever met. Hand-painted buses offer an overcrowded system of mass transit. These buses are usually heavily dented as the drivers often use them as playful leverage against one another. The constant sound of car horns fills the city, as drivers tend to use their audible sense as much as their visual sense in navigating the traffic-ridden streets.

Fig. 4 - river port in Dhaka, Bangladesh
Source: author

In north Dhaka, an area which has developed from farmland to a burgeoning urban fabric over the last decade, Tabassum's grandmother donated the land for Bait Ur Rouf Masque in order to establish a formal space for community gathering and prayer. In conversation with Tabassum at her Dhaka-based office, she described the site as a village-like atmosphere in 2005, when the commission was granted. All that's preserved from before the development of the area is an old jackfruit tree that stands solitary just north of the mosque. The wide-reaching canopy of the tree has a presence on the site that creates a space for children to gather and play cricket, and so it was the subject of the first drawing of my visit (see Figure 5). To my surprise, when prompted by the drawing, Tabassum told the origin story of the mosque, in which the jackfruit tree and a tin shed played an integral part:

Fig. 5 - jackfruit tree and tin-shed north of Bait Ur Rouf Mosque
Source: author

> “There was no real sign of any permanent settlement at the time, and there was no mosque anywhere nearby. When we went there to have a groundbreaking ceremony and a declaration that this land would be given to the community to develop a mosque, there was no place that you could sit or have a ceremony. The jack fruit tree was essential because we did the event of this groundbreaking and had a prayer right under the jackfruit tree. Once you declare a mosque, immediately the next step is to establish a structure or place where people can hold the prayers. That’s why the little tin-shed structure came to be.”

Tabassum said that the jackfruit tree and the tin-shed acted as the community’s first mosque after the groundbreaking of Bait Ur Rouf.

> “We invited one of the Imams from the mosque which was closest and asked him to come and give us a sermon or a speech on the mosque and to have a prayer. The Imam came in, and he said (with my family members there: my grandmother, my aunts and many of the women from the area) that if the women are there that he wouldn’t make any sermon. I’ll just do a prayer than then I’ll leave. So the men, some of course from my family, and the others from the village said that the women will be here. I felt bad, you know, because this was the beginning of the mosque and something very promising. It was quite a sled-down and a setback, but the Imam who is now the Imam was just passing by, out of nowhere. He comes and tells us that he can do the prayer for us. He gave a small sermon on mosque and about Islam. From that time on, he’s been there as the Imam of this mosque. I find that a very compelling story, because everything came together. It was a nice event where the Imam, the mosque, everything just came together. Well, then we need a mosque, and so we created this tin-shed structure and that where they started the prayer.
>
> There’s something special about that tree I think,” she followed with a laugh.

The context around Bait Ur Rouf Mosque is a busy, vibrant urban scene still in the making. Like in much of the rest of Dhaka, residential towers under construction surround the area. In describing the site, Tabassum said, “At one point, I anticipate it will all be filled with buildings and people. There will be many more people and much more noise. So how do you create a place of refuge within this very busy city?” It was Tabassum’s intention for the mosque to operate as a place of worship,

but also a center for community gathering, or “a place where you could go and sit for ten minutes before you move on. It could be anything. It’s almost like park in the middle of a jungle. That’s how I’ve envisioned it.” In a city full of chaos, the mosque offers a place of refuge.

Fig. 6 - Marina Tabassum, mosque emerging from context, Bait Ur Rouf Mosque, Dhaka, Bangladesh, 2012
Source: author

Refuge becomes very important in a city as densely populated as Dhaka, a “city which is all about people,” as Tabassum observes and yet hardly has any public spaces where people can gather. For example, the grand staircase of the Louis Kahn’s National Assembly Building (see Figure 7) was intended to be full of people and serve the public realm in this regard but has been fenced off due to threats of terrorism. According to Tabassum, “It was a beautiful and absolutely vibrant plaza when it was

full of people. Any place that is offered for people will be occupied in a minute. People are hungry for these kinds of spaces in Dhaka." It is Tabassum's belief that every project in the city should offer something for public use. In looking beyond the typology of the mosque, much like Kahn's approach of taking the typology "back to the beginning," Tabassum created a space for community congregation and refuge. She said that during the Prophet Mohammed's time, mosques served the public realm as a communal, administrative, and judicial space. There is no reference to the contemporary symbolism of dome and minaret at Bait Ur Rouf in an effort to give the mosque a sense of refuge for community, beyond the religious purposes of the building.

Fig. 7 - Louis Kahn, exterior view and empty plaza, National Assembly Building, Dhaka, Bangladesh, 1971-1982
Source: drawn by author

< Place Tectonics | Material Culture >

Despite the relatively young country being regularly flooded, extremely vulnerable to the effects of climate change, and poverty-stricken, Bangladesh has managed to develop a vibrant contemporary architecture scene and a distinct architectural language. According to Andreas Ruby, Swiss architectural critic and director of the Swiss Architecture Museum, although rarely published in Western architectural books and magazines, a stunning body of work by Bengal architects has emerged that can easily stand its ground “in comparison to the architectural production of the West in terms of quality, versatility, and originality.”[2] Young architects have recently found great interest in the timelessness of Bengal architecture. Compared to much of Western architecture, which has developed an array of fashion-based trends associated with technological advances over time, modern Bengal architecture tends to emanate certain enduring qualities by using many of the same construction processes and materials of older architects. From this rich culture of Bengal architecture, Tabassum has emerged as a leader among her generation of contemporary architects.

Fig. 8 - Bharat Buddhist Temple, 7th-9th century
Fig. 9 - Bharat Buddhist Temple, 7th-9th century
Source: author

2 - Andreas Ruby, *Bengal Stream: The Vibrant Architecture Scene of Bangladesh*. 13.

Through limited means, an architecture has developed in Bangladesh with an adherence to the essential. In response to climactic, geographical, and geological peculiarities, a natural material palette of brick, bamboo, and mud has developed over centuries of building traditions. No stone naturally occurs in the river delta nation, so brick developed as the primary durable building material. A mastery of traditional brick production and use is evident throughout Bangladesh in numerous historical monuments, some of which emerge from the jungle in ruin, such as the Bharat Bhayna Buddhist Temple near Khulna (see Figures 8 & 9), while others are still in use, such as the 60 Dome Mosque in Bagerhat (see Figures 10 & 11). Bengal brick, which slightly varies in its natural variance of tone, reflects the color of the earth of the riverbeds from which it is extracted.

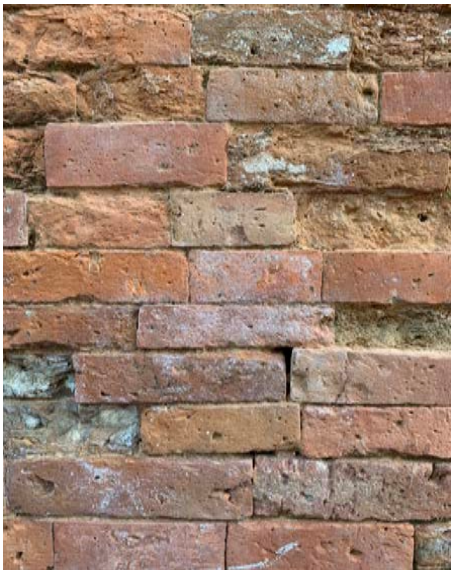


Fig. 10 - brick detail, 60 Dome Mosque, 1442-1459
Fig. 11 - exterior view from east, 60 Dome Mosque, 1442-1459
Source: author

Brick is the most readily used building material in the contemporary building culture of Bangladesh. Most of the standard urban development in Dhaka is constructed of a concrete structural frame, like an extended Maison Dom-Ino, which has been infilled with double-wythe brick walls (see Figure 12). According to Swiss architect and educator, Niklaus Graber,

who has established a strong relationship with the Bengal Institute for Architecture, Landscapes, and Settlement, "It is not uncommon for a visible concrete support structure to be combined with masonry infill, which can sometimes be seen as an allusion to the tradition of weaving."[3] Unfortunately, the natural texture and colors of brick against concrete frame is usually covered and perpetually hidden in plaster. Tabassum described the buildings that have not been plastered over as "perfect and beautiful. I really wonder if everything was left as brick, how beautiful that would be." Dhaka would developed as a dense urban fabric of tactile brick towers, like those still under construction.

Fig. 12 - standard construction in Dhaka
Source: author

3 - Niklaus Graber, *Bengal Stream: The Vibrant Architecture Scene of Bangladesh*. 20.

Brick factories are set along the many rivers which make up Bangladesh. Saturated red brick, deep green jungle, and blue sky creates a play of horizontal bands of color in the 'industrial' landscape. Brick is generally only produced during half of the year, when the weather is cooler and the monsoon season has passed, leaving lower water levels along the riverbeds. As part of this analysis, I visited a brick factory near Khula (see Figures 13 & 14). The bricks are baked in open-air factories, which consist of thick brick walls that are charred with signs of use and a tall chimney stack. Arched openings in the walls provide heat to the brick during the baking process, and each of the bricks are stamped with the same letters. This process of brick-making along the riverbeds plays out across the Bengal landscape.

Fig. 13 - brick factory, Khulna, Bangladesh
Fig. 14 - brick factory smoke stack, Khulna, Bangladesh
Source: author

In Bait Ur Rouf Mosque, Tabassum celebrates and exposes local brick in a genuine load-bearing structure. Each handcrafted brick is an individual piece of art, casting a unique shadow on the one below. Tabassum selected two types of brick in the design of the mosque; 'Bangla brick,' as it is known in the region, is used to form the walls, preferred for its tactile qualities and graceful aging that give the walls a sense of

"natural being," while a smoother brick makes up the podium (see Figures 15 & 16). Imperfections and variations in each brick give life to the walls of the mosque. These characteristics of local organic materials give observers the opportunity to connect to the making and history of the material in a deeply psychological relationship.

> "Everything is made with hand; Every inch of it was touched by human hand. Natural material has a character and life to it that you can interact with like a being. Humans like to interact with a personality rather than a machine. You find [natural materials] more humane when there is imperfection and when the way it's made is absolutely revealed to you. It gives it a character. It's a being of its own, and you immediately feel that there is a life at play, because it's aging, and you can interact with it. When a building is perfectly finished with machine precision, it's so impersonal. That's the difference between a machine-like building and a building which is made by the hand and of materials of the earth."

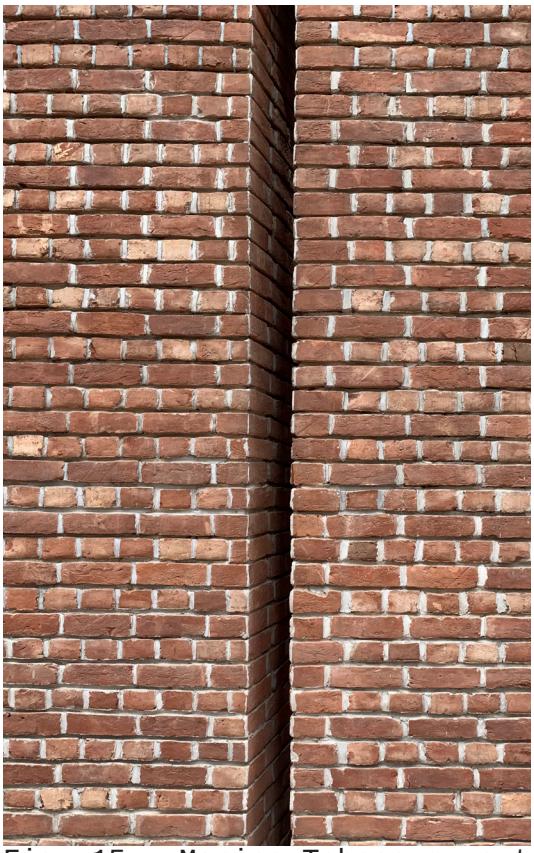


Fig. 15 - Marina Tabassum, exterior wall brick texture, Bait Ur Rouf Mosque, 2012
Fig. 16 - Marina Tabassum, podium brick texture, Bait Ur Rouf Mosque, 2012
Source: author

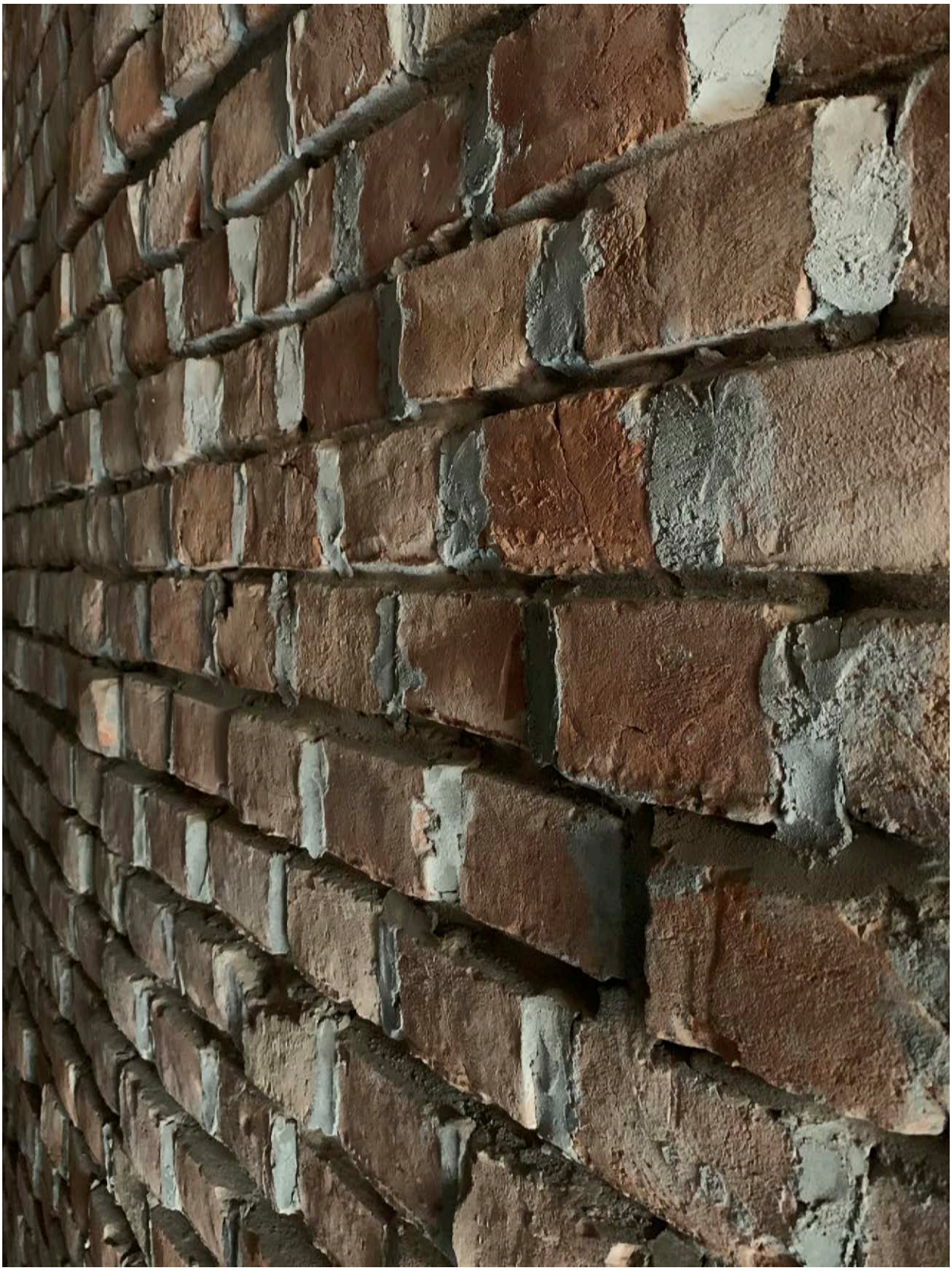


Fig. 16 - Marina Tabassum, interior wall brick texture on the second level, Bait Ur Rouf Mosque, 2012
Source: author

Tabassum hired a contractor from northern Bangladesh, where the brick culture is particularly strong. With limited means raised by the local community, there were times during the construction process that shortages of funds caused work to stop. When funds again became available, construction would continue, and a tract of brick and cement would be purchased. This meant that construction took longer than a typical building of its size. In an arrangement with Tabassum, the contractor was able to live on the site and work on other projects in the area during stoppages. This method of "piece-meal" construction is not uncommon in Bangladesh.

Concrete is the other material at play in Bait Ur Rouf Mosque. Working within the brick walls that make up the exterior perimeter, a reinforced concrete frame of eight peripheral pillars, only visible from the interior, spans the column-free prayer hall in the interior. Tabassum refers to concrete as a "man-made stone" that inherently reflects the character of its formwork material, like a petrified remain of construction methods.

> "Brick is a very organic material of the earth and even concrete in a way is a stone, a manmade stone. These materials that have a graceful way of aging. Brick is something new that is baked and slowly turns to a stone over time. [In my work], I try to stick to materials which are inherent of the earth."

The opportunity for two structural systems in Bait Ur Rouf arises from the negotiation of an irregular site and the typology's adherence to the cardinal directions in facing toward Mecca. Mosques connect themselves to the cosmos through this relentless adherence yet must respond to the local site peculiarities in which they are situated. This negotiation can create dynamic spaces as is evident in Bait Ur Rouf Mosque; the cylindrical prayer hall sits within the servant spaces, which nestle between the main space and the exterior walls, acting as a buffer against noise of the city.

Fig. 17 - Marina Tabassum, interior view of second level hall of concrete and brick, Bait Ur Rouf Mosque, 2012
Source: author

< Tension Between Interior and Exterior | Levels of Intimacy >

As previously mentioned, Tabassum intended for Bait Ur Rouf to act as a place of refuge from the bustling city. Despite the mosque being open-air, she achieved this sense through experiential disconnection between interior and exterior. While the space is entirely inwardly focused with no outward view, light penetrates through perforated brick screens (see Figure 18), small openings in the concrete ceiling, and light monitors in the four corners of the prayer hall, establishing a cosmic relationship between observer and the sun. Tabassum believes that a spirituality arises in spaces where the source of light is hidden from view.

> "The source of light should never be revealed, because the moment you see the source of light, the magic is lost in some ways. So, if you don't see the source of light but you see certain parts [of the building] being lit, like the brick wall, or the floor, or the diffused light that's thrown back at you, then it creates a sense of spirituality."

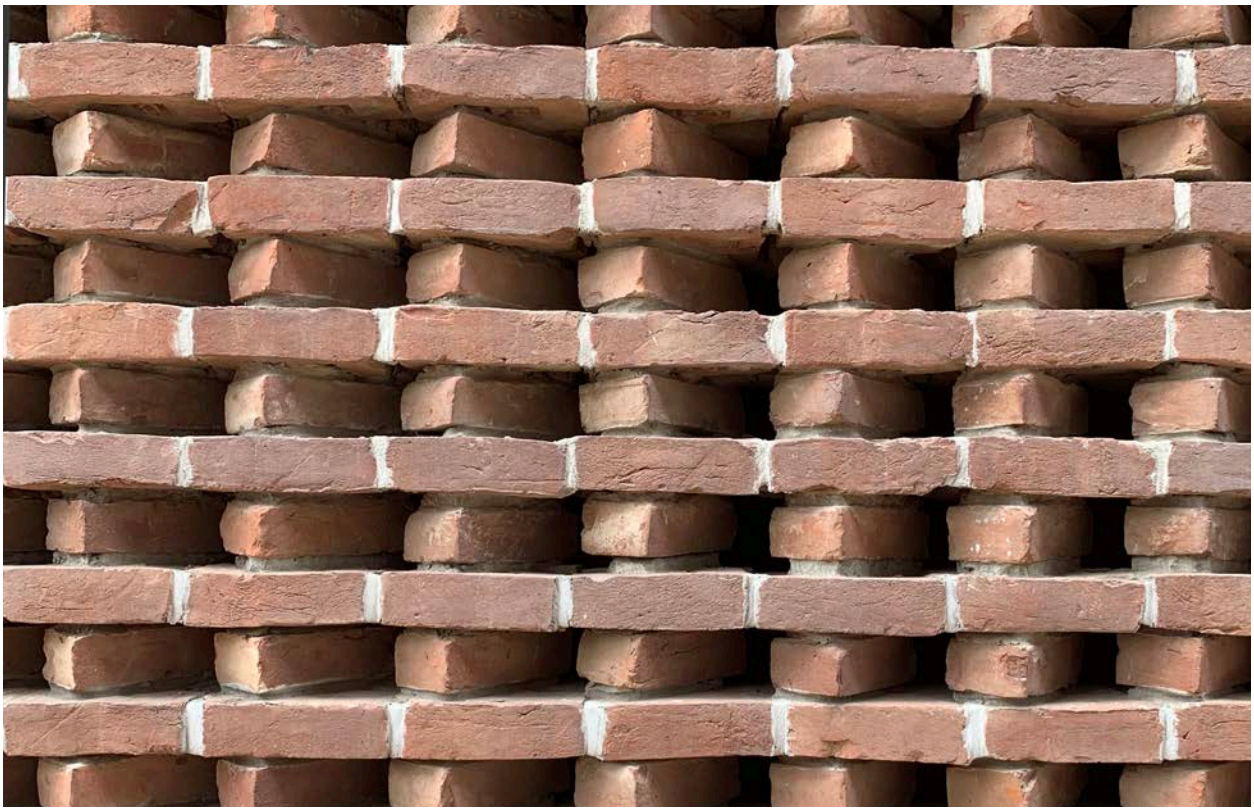


Fig. 18 - Marina Tabassum, interior view of second level hall of concrete and brick, Bait Ur Rouf Mosque, 2012
Source: author

The brick screen, known as *jali*, gives the exterior walls a level of porosity that allows cooling breezes and indirectly light to enter the interior. Jali construction has been used in South Asia for centuries in historical mosques (seen Figures 19 & 20), as a means of using the earth like a traditional bamboo screen (see Figures 21, 22, & 23). The jali of Bait Ur Rouf Mosque is an evolution of the lightening of heavy materials present throughout the history of Bengal architecture and vernacular. According to Graber,

> "It is not uncommon for climatically, tectonically and creatively effective material experiments to be conducted with mineral construction materials, sometimes leading to discreet ornamentation with a semi-transparent effect. Interestingly, this give heavy materials, such as brick or concrete, a lightness like that of organic construction materials, such as bamboo, wood, or jute fabric. …There are numerous designs that can be viewed as a kind of hybrid of these diverging references to the history of construction and are anchored in both the vernacular and the monumental. In the structural design of masonry shells. Walled-up with varying densities using handmade brick and bound to the tradition of the subcontinent's omnipresent ornamental lattices or jalis, many designers have performed a balancing act between the textile-like porosity of the bungalow model and the earth-related crustiness of the temple building." (20 Bengal Stream

Fig. 19 - Kusumba Mosque, exterior view, Naogaon, Bangladesh, 1558-1559
Source: "Bangladesh Uncovered 2020." Out of Bounds. https://www.outofboundstours.com/tourinfo/bangladesh-uncovered-2019-2.
Fig. 20 - Kusumba Mosque, jali screen, Naogaon, Bangladesh, 1558-1559
Source: "Discover Rajshahi: Archaeology & Culture of Northern Bengaladesh." Nijhoom Tours. https://nijhoom.com/bangladesh-tour/rajshahi-tour/.

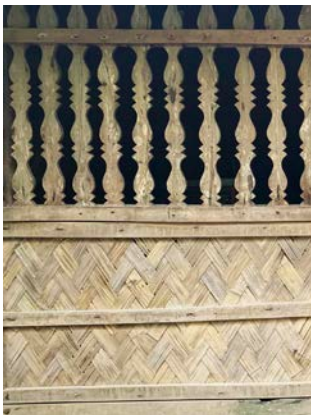




Fig. 21 - Vernacular Bungalow, Sharmila Eco Cottage, exterior view under front porch, Koilashgonj, Khulna, Bangladesh
Fig. 22 - Vernacular Bungalow, Wood Jali
Fig. 23 – Vernacular Bungalow, Bamboo Screen
Source: author

< Between Seduction and Composure, the Architectural Promenade >

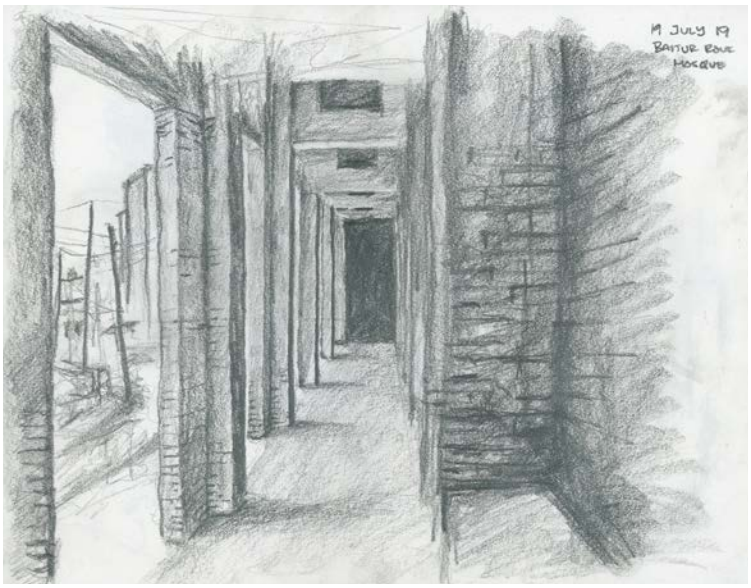



Fig. 24 - Marina Tabassum, view of portico from south, Bait Ur Rouf Mosque, 2012
Fig. 25 - Marina Tabassum, entry portico from built-in bench, Bait Ur Rouf Mosque, 2012
Source: author

The sense of refuge in Bait Ur Rouf Mosque is also set up through the architectural promenade from the entry portico to the main prayer hall by a series of bends in the path. The bends, according to Tabassum, were intended to allow the mind to condition to the mentality of sacred

prayer from the regular actions of everyday life. Because Islamic prayer happens five times a day, it often takes place in the middle of daily tasks, so this period of mental adjustment is crucial in establishing proper conditions for prayer. The change in light from an bright direct sun to a much softer interior light and then a release into the main prayer hall furthers this mental preparation and disconnection from the tasks of daily life. Tabassum said that "it's not a direct entrance. That was intended because every time you bend, your brain slowly gets conditioned on the act that you are actually focusing on."

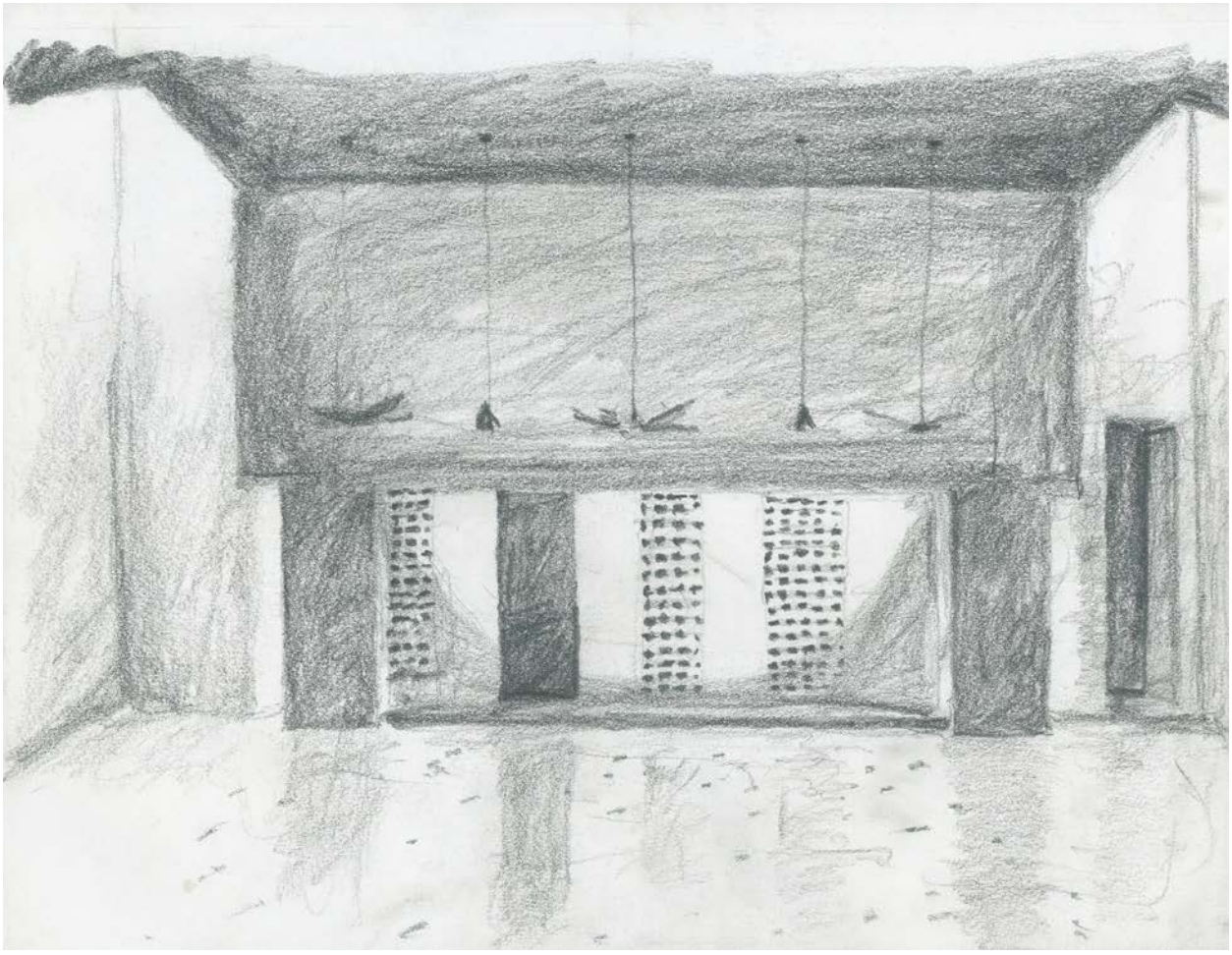


Fig. 26 - Marina Tabassum, main prayer hall, Bait Ur Rouf Mosque, 2012
Source: drawn by author

Fig. 27 - Marina Tabassum, view of entry into main prayer hall, Bait Ur Rouf Mosque, 2012
Source: author

< Tactility of the Air and Climate | the Sound and Silence | the Light, Shadow, and Darkness on Things >

Main Prayer Hall

The resulting sensual experience of Bait Ur Rouf Mosque is tactile and spiritual in nature. Because of the practice of removing shoes in the sacred space of a mosque, all textures of the ground are intimately felt. The floor texture changes from rough in the corner courts to smooth in the prayer hall. It is a holy place; a sense of great power resonates in the expansive space between the tactile brick walls. Light circles congregate on the floor and move east tracing the movement of the sun each day. The sounds of the busy city are turned to a slight murmur as the voices of prayer and the spin of fans disseminate through the space, absorbing to the brick through the jali openings. The primordial space is naturally cooled by the breezes that make their way through the jali walls and the cool touch of the smooth floor.

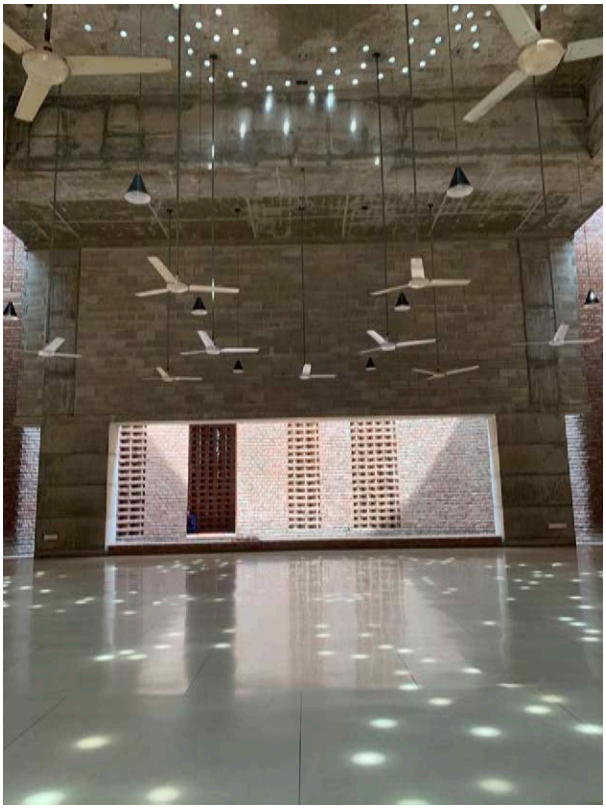


Fig. 28 - Marina Tabassum, concrete ceiling with constellation openings, Bait Ur Rouf Mosque, 2012
Fig. 29 - Marina Tabassum, main prayer hall, Bait Ur Rouf Mosque, 2012
Source: author

< Coherence | The Resulting Beautiful Form >

Fig. 30 - Marina Tabassum, approaching exterior view, Bait Ur Rouf Mosque, 2012
Source: author

With a limited budget of funds raised by the local community, Tabassum used local materials and building traditions to create a timeless spiritual space for communal gathering and prayer. In an increasingly dense neighborhood in one of least-livable urban environments in the world, Bait Ur Rouf Mosque offers a promising future to the area. Emerging from a rich, but inadequately recognized architectural culture in Bangladesh, the mosque demonstrates adherence to the essential through its genuine engagement of vernacular and monumental building techniques, adapted through a contemporary lens. Like Zumthor's Therme Vals and Steilneset Minnested and Utzon's Can Lis, Tabassum's mosque thoroughly

demonstrates the points of an Emotional Reconstructive Architecture through an immersion into the particulars of place, history, and the multi-sensual spiritual experience. It is built with the power to move individuals emotionally in its tactile and phenomenological embrace.

> "Quality of construction frequently raises the quality of life. Nowhere is this more apparent than in the Bait Ur Rouf Mosque, which contains an intricate geometric layering of space – a square prayer chamber contained within cylindrical walls, which are in turn enclosed by a square terracotta brick structure that serves as an austere public face of the building. Within the prayer chamber, the architect has created a delicate interplay of bare walls textured in red brick and pierced by shafts of light that create an abstract, almost primeval symbolism when viewed in conjunction with the spots of light that punctuate the surface of the bare floors at different moments of the day. The abstract symbolism is undiluted by conventional forms of mosque architecture. Gone are the dome and the ever-prevalent minarets, the decorative panels of designed relief and calligraphy. In their place stand intricately structured brick walls that imbue the structure with a unique aura of spirituality" (102 Mostafavi 2016).

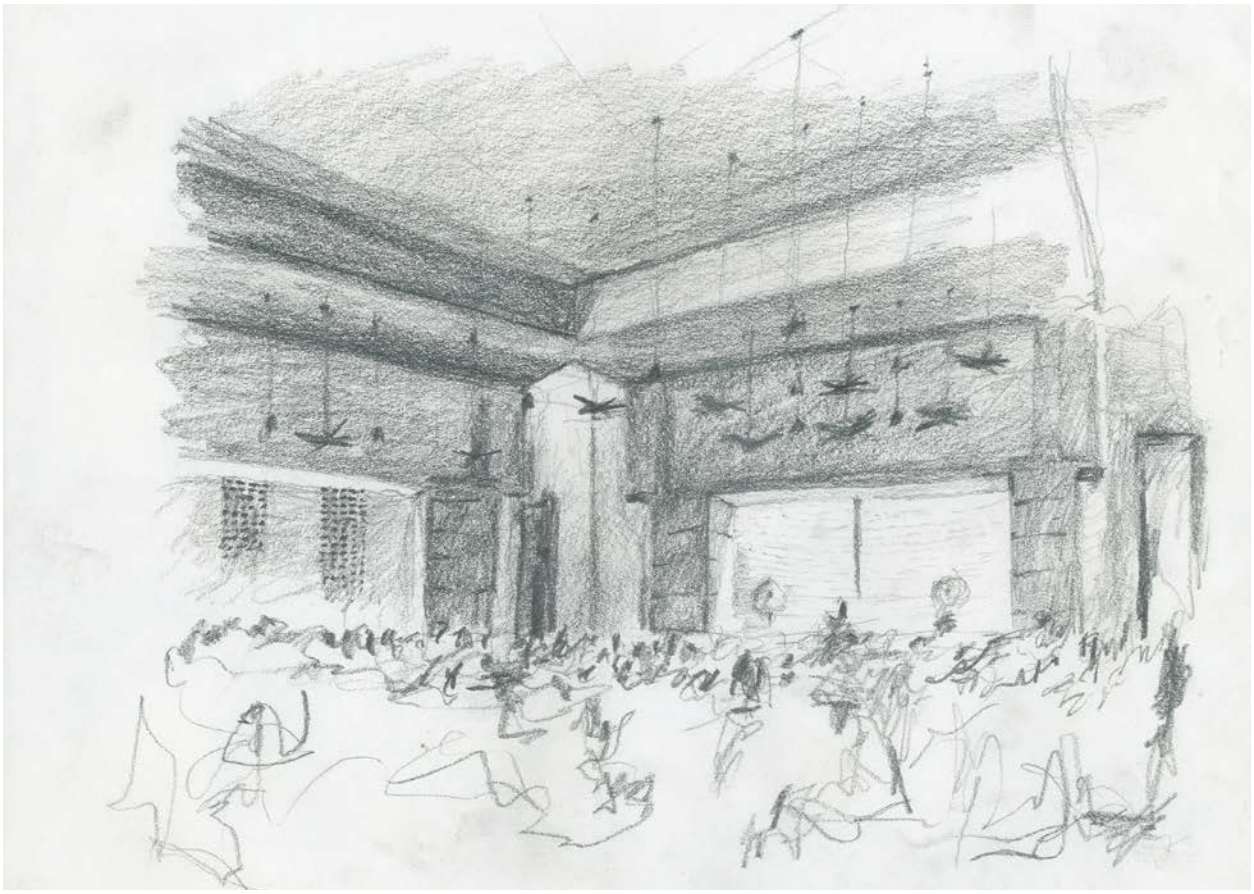


Fig. 31 - Marina Tabassum, main prayer hall during Friday prayer, Bait Ur Rouf Mosque, 2012
Source: author

Fig. 32 - Marina Tabassum, exterior view from the north with jackfruit tree and tin-shed, Bait Ur Rouf Mosque, 2012
Source: author

Bibliography

Bourgeois, Louise, and Peter Zumthor. *Steilneset Memorial: to the Victims of the Finnmark Witchcraft Trials*. Edited by Line Ulekleiv. Oslo: Press, 2016.

Burri, Klaus. "Typical Weather Situations in the Alps." swisseduc.ch, June 19, 2017. www.swisseduc.ch/immersion/geo/meteo/weather/.

Frampton, Kenneth. "Towards A Critical Regionalism: Six Points for an Architecture of Resistance." In *The Anti-Aesthetic: Essays on Postmodern Culture*, 16–31. Ed. Hal Foster. Port Townsend, Wash: Bay Press, 1983.

"Global Liveability Index 2019: Dhaka Named 3rd Worst City to Live." Dhaka Tribune, September 4, 2019.

Graber, Niklaus, Andreas Ruby, Viviane Ehrensberger, and Iwan Baan. *Bengal Stream: The Vibrant Architecture Scene of Bangladesh*. Basel: Christoph Merian Verlag, 2017.

Hauser, Sigrid, Peter Zumthor, and Binet Hélène. *Peter Zumthor Therme Vals*. Zurich: Verlag Scheidegger & Spiess AG, 2007.

Lansat, Myelle. "Staggering Photos Show What Daily Life Is Really like in Dhaka, the Most Crowded City in the World." Business Insider. Business Insider, November 5, 2018. www.businessinsider.com.

Maggi, C. André Schenker-Nay: Die Surselva und Ilanz - Eine Zeitreise durch vier Jahrhunderte Somedi Buchverlag 2015.

"Majorca, Spain " City Info " History." Majorca History - Culture, Religion and Lifestyle in Majorca. Accessed December 3, 2019. www.majorca.com/v/history.

McCarter, Robert. *The Space Within*. London: Reaktion Books, 2016.

Mostafavi, Mohsen, ed. *Architecture and Plurality: Aga Khan Award for Architecture*. Zurich: Lars Muller, 2016.

Mullins, Michael, and Adrian Carter, eds. *Proceedings - Utzon Symposium: Nature, Vision and Place: the First International Utzon Symposium, Aalborg, August 28th-30th 2003*. Aalborg: Institute of Architecture and Design, University of Aalborg, 2003.

Pallasmaa, Juhani. *The Eyes of the Skin: Architecture and the Senses*. 3rd ed. Chichester: Wiley, 2012.

Pardey, John. *Two Houses on Majorca*. Vol. 3. Hellerup: Edition Blondal, 2004.

Ryan, Raymund. “Thermal Baths in Vals, Switzerland by Peter Zumthor.” Architectural Review, August 1, 2015.

Summers, Chelsea G. “Welcome to the Witch Capital of Norway.” The Outline. The Outline, November 19, 2018. www.theoutline.com.

The Editors of Encyclopaedia Britannica. “Barents Sea.” Encyclopædia Britannica. Encyclopædia Britannica, inc., March 5, 2019. www.britannica.com.

Willumsen, Liv Helene. *The Witchcraft Trials in Finnmark Northern Norway*. Translated by Katjana Edwardsen. Bergen, Norway: Skald, 2010.

Yoshida, Nobuyuki, ed. *Can Lis: Jørn Utzons House on Majorca*. Tokyo, Japan: A U Publishing Co., Ltd., 2013.

Zagaria, Elisa. “The Architect and His Sandcastle by the Sea.” ELLE Decor. ELLE Decor, September 16, 2019. www.elledecor.com.

Zumthor, Peter, Mari Lending, and Hélène Binet. *A Feeling of History*. Zurich: Scheidegger & Spiess, 2018.

Zumthor, Peter. “Steilneset. Memorial to the Victims of the Witch Trials in Finnmark, Vardo.” In *Steilneset Memorial: Art Architecture History*, 11. Orkana, 2014.

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