Bridging Worlds: Visible and Invisible Continuities in Architecture

by

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Contents

Abstract

Is architecture a bridge? The position taken in this thesis operates on the premise that architecture is not only a bridge but a construct of infinite bridges, real and imagined, the degree to which determines architecture's ability to "move us." This position is presented through an expanding notion of the bridge not only as mere object on the landscape but as an immense subjective mode of thought tracing continuities through various fields of human knowledge. Informed by research and supplementing this argument are preliminary interpretation and translation studies of various subjects and objects followed by precedent studies in architecture. All of these studies lead up to a design response for a site in Montijo, Portugal. The place and culture of Montijo provide the subjective and objective foundations for this thesis.

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Chapter 1: Introduction
The Bridge

> The aim of art is to represent not the outward appearance of things, but their inward significance.
>
> - Aristotle, *Poetics,* c. 350 BC

Is architecture a bridge? The position taken in this thesis operates on the premise that architecture is not only a bridge, but a construct of infinite bridges, real and imagined: the degree to which determines architecture's ability to "move us."

The primary aim of this thesis is to develop an argument that presents an expanding notion of the bridge not only as a mere object on the landscape but an immense subjective mode of thought tracing continuities through various fields of human knoweldge in relation to architecture. The provisional aim of this thesis is to demonstrate how this expanding notion of the bridge is utilized in the design process through different stages of development. Supplementing this argument are interpretation and translation studies of various subjects and objects followed by precedent studies in architecture. All of these studies lead to a design response for a site in Montijo, Portugal. The place and culture of Montijo provide the objective and subjective foundations for this thesis.

In the words of architect Louis Kahn, "I look at my work with a sense of what is forthcoming. The yet not said, the yet not made is what puts the spark of life into you."[1] Does it begin with a thought?

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1 Louis Kahn, "Kimbell Museum Dedication," Fort Worth, Texas, Qtd in What Will Be, (1972): 177.

The Ideal

If it can be accepted that to conceive architecture - the architectural conception - is born of an idea then it seems the first logical step in the design process in architecture is to manifest the ideal. Visionary architect Raymond Abraham elaborates this notion:

> ...if the primary ideal is the thought, then the next is the ideal of each discipline you utilize to manifest that thought, which is the architectural drawing, no? The next step is the model. And then the use of the computer as a survey device to help overcome geometric complexities that would be harder for the hand to draw. The computer cannot substitute for this process.[2]

To extend Abraham's notion into the context of an architectural situation architectural historian and theorist David Leatherbarrow posits: "Imagine yourself given a project, and a project, like any to be built, is built somewhere. What do you do?"[3] Leatherbarrow delivered this question during a lecture on the origins of architectural work: the interests which bring an architect to a site and a sense of the conditions under which a project is possible.[4]

This is a critical question today because the ideas that shape architectural work seem to becoming increasingly foreign to the nature of a site. The "interests" and "conditions" appear to have little relation between what is built and where it is built. This could be viewed as a lack of

2 “Raimund Abraham by Carlos Brillembourg,” *BOMB Magazine*, (2001), https://bombmagazine.org/articles/raimund-abraham/.

3 ericparryarchitects, "EPA Seminar, 'The Hidden World of Contemporary Architecture' - 04 David Leatherbarrow," YouTube Video, 18:23, October 30, 2013, https://www.youtube.com/watch?v=7INicONr3hA.

4 ericparryarchitects, "EPA Seminar, 'The Hidden World of Contemporary Architecture' - 04."

response to the nature of a site which inevitalby leads to *imposing* ideas which are, by definition, foreign to a site. Like grafting human tissue, if the biological makeup is not compatible between the donor and the recipient the tissue is rejected and dies. Although extreme, in architecture is it possible that when the ideas behind the project are not compatible with the ideas behind a culture and a place this effect occurs in some measure?

If it can be accepted that place and culture are attributes of a site "somewhere" then how can aspects of place and culture be drawn from in ways which cultivate the "ideal" in the design process? How can this developmental process elaborate the work in ways which make it more receptive and compatible with site attributes associated with aspects of place and culture thus leading to a vital, more *open work*?

This literary notion introduced to the world by Italian philosopher and writer Umberto Eco could be viewed as significant in relation to architecture given it explores the generative capacities of a work of art to transmit meaning.[5] *Multiplicity* and *plurality* are some of the major contemporary societal issues which became associated with the *open work* which speak to a work of art's capacity to evoke manifold interpretations; a universal quality which could be viewed as critical in architectural work if it aims to imbue various perspectives and references oppose to a narrow, limited line of thinking which is closed off from its contexts and surroundings. In other words, the *open work* is a way of designing an enhanced *architectural experience*.

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5 Umberto Eco, *The Open Work*, trans. Anna Cancogni, (Cambridge: Harvard University Press), 1989.

Such enhanced experiences could be viewed in works of art from the e*xpressionists* and *cubists* painters given these movements addressed fragmentation in society while exploring multiple perspectives through the breakdown of forms (see Figure 1). Further, Eco's literary notion finds resonance in the philosophy of architecture; specifically, philosopher Saul Fisher remarks on *architectural experience*:

> The content and corresponding faculties of architectural experience likely include some mix of the cognitive, emotive, and sensual. Whereas an abstractist may claim that experience of architectural objects is solely a matter of intellectual grasp, even an anti-abstractist formalist needs the sensory as well to account for experience of concrete shapes. Abstractist intellectualism notwithstanding, accounts of architectural experience typically focus on multiple content modalities.[6]

This likely mix of the "cognitive, emotive, and sensual" in the "content and corresponding faculties of architectural experience" is of particular note here. This opens the work of architecture to many and varied sources when considering its generative capacities in the design process. That if these potential sources are to be drawn from the designer should be aware of them and understand their corresponding implications and how to access them. If architectural experience is aimed at providing "multiple content modalities" then would this not require the designer to engage on multiple levels - cognitive, emotive, sensual - when conceiving and elaborating architectural work in the design process? If so, this would require an understanding about what is happening during the design process, that is, the different

6 Saul Fisher, “Philosophy of Architecture,” Stanford Encyclopedia of Philosophy, Stanford University, September 9, 2015, https://plato.stanford.edu/entries/architecture/#For.

modes of thinking and modes of operation which occur. The two primary modes being *interpretation* and *translation* which both facilitate the development of a thought (cognitive) as well as emotions (emotive) and feelings (sensual).

Although the latter two may seem less tangible, given rationalist tendencies to strictly understand the problem from the "congnitive," when an architectural representation evokes feelings or emotions when experiencing it, it could be accepted that such faculties are presencing from the work. In other words, the designer has imbued the work with feelings and emotions that become palpable. It would seem that if architectural work is to achieve multiple content modalities then all faculties need to operate in a way which makes this possible. Ultimately this leads to the realm of the imagination, a place where imaginings can become so vivid that a person can experience the cognitive, emotive and sensual simultaneously given the imaginations power to visually construct the seemingly real: the *image*. To actualize the image of mind in reality, that is, to represent inward significance outwardly, could be viewed as the primary task of the desiger. This bridge between the content modalities of the real architectural experience and the designer's imagined architectural experience seem to be suggestive of Le Corbusier's interests in architecture's ability to "move us."

What does Le Corbusier mean when he said architecture should move us? To physically move us through space? Perhaps he is referring to the content modalities of architectural experience. That an *open work* of archi-

tecture stimulates the cognitive, emotive and sensual in ways which allow people to access the inward significance of the work beyond their mere physical presence in and around it. Perhaps he is referring to architecture as a bridge which allows people to access the hidden world of the work imagined by the designer.

If it can be accepted that a work of architecture is analagous to a work of art in the context of the *open work* then it seems plausible to extend this notion further into architecture. This notion seems to be reflected by the Finnish architect and architectural theorist Juhanni Pallasma when he discusses contemporary issues in architecture. Specifically, Pallasma reflects on Jørn Utzon's work as a “historical echo,” the “layeredness,” his “ingenuity,” as well as a “convincing historical narrative with personal invention...Invention has to have an echo, and that is what Utzon did beautifully.”[7] During Utzon's Pritzker Prize reception the British architectural historian and critic Kenneth Frampton wrote an essay which drew attention to the architects rare ability to disclose "referential complexity" in structure and "cross-cultural ramifications" of form.[8] Pallasma's and Frampton's observations on Utzon's work could be viewed as analogous to the *open work* as well as *architectural experience* identified thus far given the depth and range of interpretable references in his work. Not only in structure and from, but as a singular architectural work.

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7 Louisiana Channel, "Juhani Pallasmaa Interview: On Jørn Utzon," YouTube Video, 10:30, March 22, 2018. https://www.youtube.com/watch?v=wzNTAqNdzH8.

8 Kenneth Frampton, "The Architecture of Jørn Utzon," The Pritzker Architecture Prize, (2003): 3, https://www.pritzkerprize.com/sites/default/files/inline-files/2003_essay.pdf.

Figure 1: Dyptich exercise between Eco's notion of the *open work* and a work of art in relation to the bridge (re drawn by author, pencil on paper, Lionel Feininger's *Bridge III* painting)

This way of thinking about architecture in the context of the design process is important today due to implications of modern technology changing the way an architecture office functions. British architectural historian and critic Joseph Rykwert identifies this rather problematic phenomenon of the "paper-less office" as an effect caused by an increasing reliance on computers which in turn threatens the very nature of conceiving architecture.[9] A problem attributed to Abraham's notion of how the "primary ideal" manifests.[10]

This problem could now be seen as an effect caused by inadequacies in the design process. Specifically, the computer is being used in ways which attempt to "substitute this process" that manifests the "primary ideal" in architectural work. Even more technical based positions on the design process identify the importance of the non-technical process as the first step in developing the thought. For example, in his book *The Reflective Practitioner* Donald Schön defines *Technical Rationality*:

> Technical Rationality depends on agreement about ends. When ends are fixed and clear, then the decision to act can present itself as an instrumental problem. But when ends are confused and conflicting, there is as yet no “problem” to solve. A conflict of ends cannot be resolved by the use of techniques derived from applied research. It is rather through the non-technical process of framing the problematic situation that we may organize and clarify both the ends to be achieved and the possible means of achieving them.[11]

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9 Joseph Rykwert, "Architecture and Drawing," (Mellon Lectures, Canadian Centre for Architecture, April 19, 2005):1, https://www.cca.qc.ca/cca.media/files/1488/1389/Mellon08-JR.pdf.

10 Joseph Rykwert, "Architecture and Drawing," 1.

11 Donald Schön, *The Reflective Practitioner*, (MIT Press, 1983).

The "non-technical of framing the problematic situation" is of note here because Schön is identifying the importance of developing the thought before the process becomes technical. That is, the designer should become open to the context(s) of the "problematic situation" before it can be "resolved by the use of techniques derived from applied research." In this case, "framing" could be viewed as apprehending a clear understanding of the interests which, as Leatherbarrow previously remarked, "bring the architect to the project and a sense of the conditions under which a project is possilbe." Subsequently, the appropriate "discipline" can be applied as a "possible means of achieving them." However, to "organize and clarify both the ends" seems to be something which could benefit from other fields of human knowledge for development.

This raises an important aspect of the bridge as a mode of thought: an imaginary device to frame the problematic situation which architecture will eventually form around and give shape to. This leads to the next stage of developing the ideal in the design process which aims at deeper levels of human understanding among subjects and objects of study: *interpretation*.

Interpretation

Surveying has now been acknowledged by Abraham as a "device" used to aid the design process, however, it can be taken in a different context. Leatherbarrow talks about, "surveying something distant from one's normal experience, distant in time or in some other place."[12] In

12 David Leatherbarrow, "EPA Seminar: The Hidden World of Contemporary Architecture."

this context surveying is a tool used to peer history and "place" in relation to the intentions and conditions of a project. In doing so, Leatherbarrow establishes a connection between the origins of architectural work and philosophy; specifically, he draws from the French Philosopher Paul Ricoeur who:

> explored the practice of methods of interpretation as an arc leading from an initial situation and understanding to broadened understanding, both of the interpreter and the world as a world we can imagine ourselves as inhabiting.[13]

Ricoeur's position could be viewed as the starting point, the "initial situation," which Leatherbarrow sees the architect surveying something "distant" from. A useful perspective which can help locate the designer. From this location the designer could then expand their mental horizons into the historical and cultural world of the project. That is, as Schön remarks, the "non-technical process of framing the problematic situation" which could be viewed as the bridge extending in one direction requiring location while the other end of the bridge extends in the opposite direction toward the design solution; two directions which the designer will travel back and forth between until they find "agreement about ends." Location clarity in either direction from the bridge seems to be subjective given a designer's intentions may vary as well as the conditions under which the project is possible may be interpreted differently. Nonetheless, the designer's openess to "the world as a world we can imagine ourselves as inhabiting" seems available to anyone. This spills over into a large notion that Ricoeur developed throughout his work: *The World of the Works*.

13 David Pellauer and Bernard Dauenhauer, “Paul Ricoeur.” (Stanford Encyclopedia of Philosophy, Stanford University, June 3, 2016).

The world of the works has been utilized in architectural discourse to provide insights into representation[14] as well as contribute to the philosophical underpinnings of Kenneth Frampton's Critical Regionalism theory.[15] Within this establishment, Ricoeur's notion contains a method of interpretation which he refers to as the *Contrasting Reflection*. A method of interpretation used to "cut through to that layer of images and symbols which make up the basic ideals of a nation."[16] In other words, a way to understand what "ideals" are important to a particular "culture" as reflected in the "world" and, as the interpreter, "a world we can imagine ourselves as inhabiting." Could this notion help lead to an understanding of what is built in the world - artefacts - as being a reflection of the ideals and the values of a particular culture (see figure 2, 3)? Could these ideals and values be the inward signficance which is represented outwardly in the architecture of a particular place?

In addition to Ricoeur, other Continental philosophers have explored different methods of interpretation which can help manifest the ideal in an architectural context. Hans-Georg Gadamer's mode of thought identified as the hermeneutic *Circle of Understanding* is particularly useful to attain successive layers of "content-oriented meaning."[17] Further, in a modern context, Gadamer's

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14 Alberto Perez-Gomez and Louise Pelletier, “Architectural Representation beyond Perspectivism,” *Perspecta,* Vol. 27, (1992): 23.

15 Kenneth Frampton, "Prospects for a Critical Regionalism," *Perspecta* 20, (1983): 147.

16 Paul Ricoeur, *History and Truth*, (Evanston, IL: Northwestern University Press, 2007), 279.

17 Hans-Georg Gadamer, “On the Circle of Understanding," University of Washington, (Accessed March 3, 2020): 70, http://faculty.washington.edu/ewebb/R528/Gadamer.pdf

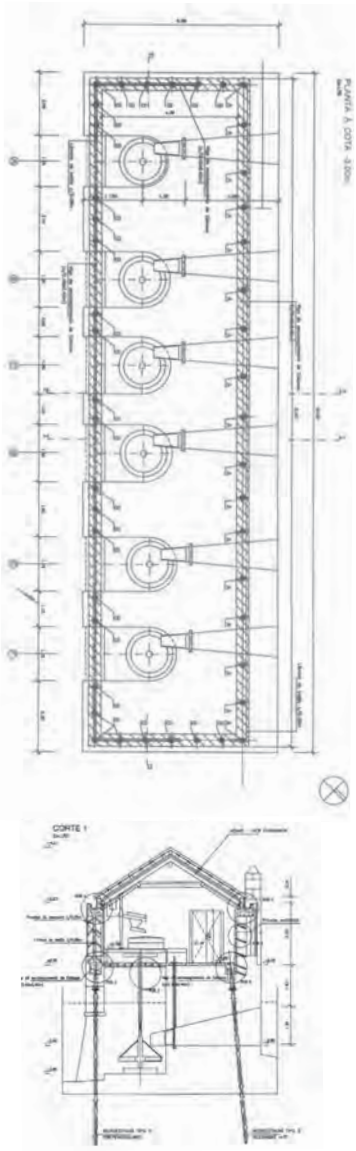

Figure 2 (top): Joel David Simoes Ribeiro, plan of tidal mill from restoration process, Montijo, 2004; from Ribeiro, *Pedra & Cal* no. 21
Figure 3 (bottom): Section of tidal mill, Ribeiro

Fusion of Horizons notion has been describe as:

> ...understanding as a matter of negotiation between oneself and one's partner in the hermeneutical dialogue such that the process of understanding can be seen as a matter of coming to an 'agreement' about the matter at issue. Coming to such an agreement means establishing a common framework or 'horizon' and Gadamer thus takes understanding to be a process of the 'fusion of horizons'. In phenomenology, the 'horizon' is, in general terms, that larger context of meaning in which any particular meaningful presentation is situated. Inasmuch as understanding is taken to involve a 'fusion of horizons', then so it always involves the formation of a new context of meaning that enables integration of what is otherwise unfamiliar, strange or anomalous.[18]

Gadamer's notion, or mode of thought, seems to resonate with Donald Schön's description of *Technical Rationality* as both seek "agreement" or "fusion" between "ends" or "horizons." That is, a coming together of two different points of view in a way which bridges meaning so that meaning is not lost but continues in a new context of understanding.

This relates back to the design process in architecture in two ways: if architecture is always changing with the world the designer should be able to understand where things are at and where they were so they can work the "formation of a new context of meaning that enables integration of what is unfamiliar, strange or anomalous." That is, to be able to imagine where things are going: to anticipate what is yet to be. Second, in this process, the designer must stay true to the subject of study to avoid the infiltration of popular conceptions or fanciful things that have no business in the design process when *interpreting* the meaning of real content. Heidegger states:

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18 Jeff Malpas, "Hans-Georg Gadamer," Stanford Encyclopedia of Philosophy, Stanford University, September 17, 2018.

Figure 4: Study of shoreline topography and tidal patterns in Montijo where the tidal mill is located to understand how the natural landscape informed the tidal mill's situation

> The circle must not be denigrated to a vicious, or even to a tolerated, circle. In it lies hidden the positive potentiality of the most original knowledge, which of course is only genuinely grasped if the interpretation has understood that its first, permanent, and final task remains that of not accepting flashes of inspiration and popular notions a pretence of its own fore-having, fore-sight, and fore-conception, but rather to work these out of the subject matter itself and thereby to secure the topic of study.[19]

This line of thought from Heidegger continued into his reflection on *the bridge*; that is, to understand the nature of a *built thing* and how it presents itself, or rather, *presences* in the world. In other words, how the built thing *appears*. This mode of thought continues into Frampton's book *Studies in Tectonic Culture: the Poetics of Construction in Nineteenth and Twentieth Century Architecture* as he draws from Heidegger in conceiving architecture "as having the capacity not only of expressing the different materials from which it is made but also of revealing the different instances and modes by which the world comes into being."[20] Frampton is packing a lot of information here which is worthy of much consideration to help a designer come around to a deeper level of understanding on what is *really* happening as the inward significance of architecture appears outwardly. It seems Frampton is referring to "instances" and "modes" as primal indicators of early works of architecture (see Figure 4).

For example, how the natural tectonic formation of the earth revealed perceivable, physical characteriscs which

19 Hans-Georg Gadamer, “On the Circle of Understanding," 70-71.

20 Kenneth Frampton and John Cava, *Studies in Tectonic Culture: the Poetics of Construction in Nineteenth and Twentieth Century Architecture*, (Chicago, IL: Graham Foundation for Advanced Studies in the Fine Arts, 2007), 23.

Figure 5: Tidal mill restoration process, photographs taken from museum display boards, 2018

inflected the form of Greek temples. That how the world presented itself to the Greek builders was interpreted and reflected in their particular instance and mode of building. That architectural form is impressionable and the world of the Greeks impressed upon the form of the Greek temples in a way which presenced itself. More to the point, the first works of architecture appeared not as a *representation* but as a *presentation* of the world they experienced.

Christian Norberg-Schulz reflects a similar view in his essay *Heidegger's Thinking on Architecture*, as he interprets Heidegger in viewing architecture as analogous to a work of art.[21] Specifically, "the work of art does not represent; rather it presents; it brings something into presence. Heidegger defines this something as *truth*." Norberg-Schulz goes on to state that, "As a work of art the building preserves truth."[22] It seems Norberg-Schulz is not only reflecting Aristotles notion of art, but that this idea of "truth" plays a very important role in architecture. That is, the role of architecture seems to provide a primordial connection to the earth, the landscape. That the primary role of architecture is to manifest this relationship truthfully by responding to the conditions present.

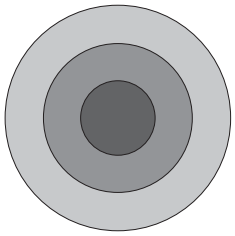
To expand this particular mode of thought, Heidegger's reflection on *the bridge*[23] can be useful given it informed the work of architect Peter Zumthor[24] as well as Christian

21 Christian Norberg-Schulz, “Heidegger's Thinking on Architecture,” *Perspecta* 20 (1983): 62.

22 Christian Norberg-Schulz, “Heidegger's Thinking on Architecture,” 62.

23 Martin Heidegger, *Poetry, Language, Thought,* trans. Albert Hofstadter, (New York: Harper & Row, 1971), 152.

24 "The Practice of Architecture: Visiting Peter Zumthor," Michael Blackwood Productions, 58:00, Dec 9, 2015.



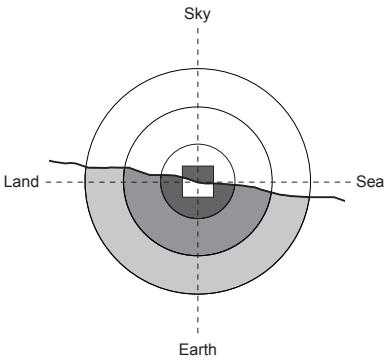


Figure 7 (top): Ricoeur's *Contrasting Reflection* translated into a tool for interpreting artefacts (tidal mill)
Figure 8 (middle): Montijo coat-of-arms representing the relationship between the land and the sea as a core cultural value
Figure 9 (bottom): Restoration of tidal mill - an act of valorization - signifies restored tidal mill as a cultural symbol; an image of the city

Figure 6: Restored tidal mill in Montijo, Portugal

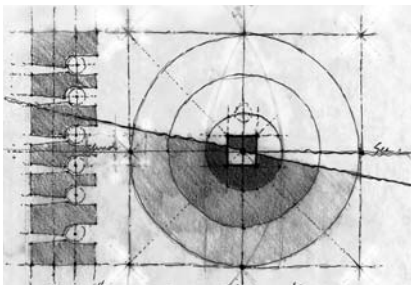
Norberg-Schulz's book *Genius Loci: Towards and Architecture of Phenomenology* which offers various insights as to how the natural and artificial environments can be interpeted in relation to one another.[25] Heidegger's philosophy was influential in the creation of Norberg-Schulz' book; specifically, Norburg-Schulz introduces a process of *visualization, complementation* and *symbolization*; he goes on to state:

> The purpose of symbolization is to free the meaning from the immediate situation, whereby it becomes a “cultural object”, which may form part of a more complex situation, or be moved to another place. All the three relationships imply that man gather the experienced meanings to create for himself an imago mundi or microcosmos which concretizes his world. Gathering evidently depends on symbolization, and implies a transportation of meanings to another place, which thereby becomes an existential “centre”.[26]

This passage by Norberg-Schulz could be viewed as an exercise in *visually* identifying what relationships exist between man made objects - artefacts - and the natural environment which it is a part of; specifically, what signi-

25 Christian Norberg-Schulz, *Genius Loci: Towards a Phenomenology of Architecture*, (New York: Rizzoli, 1996), 17.

26 Christian Norberg-Schulz, *Genius Loci...,* 17.



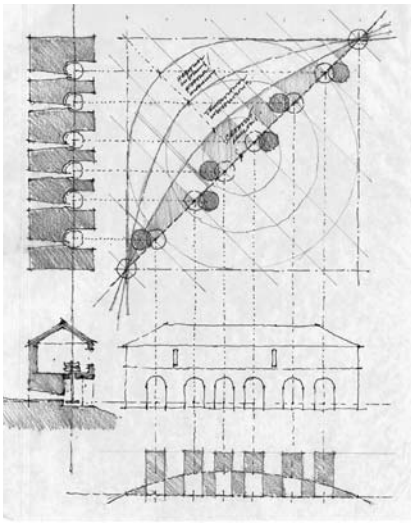


Figure 10 (top): Exploring the tidal mill using Ricoeur's *Contrasting Reflection* tool
Figure 11 (bottom): Exploring Norberg-Schulz's process of symbolization; transposing meaning from the tidal mill location to the post-industrial waterfront site

fies the "situation," or rather, as an *imago mundi* which Norberg-Schulz urges the designer to consider in the relation between an artefact and human life (see Figure 12).[27] Further, this could be viewed as visually identifying the inherent ideas or "meanings" between the natural and the artificial and determining if they are compatible and what they mean to people. If so, how can the compatible idea(s) be transported to "another place" so that human settlement continues while maintaining the "ideals" of a "culture" as they are reflected in place.

This process of symbolization could now be viewed as a way to maintain continuities given this operation is aimed at the "transportation of meanings to another place" (see Figures 10, 11, 18a, 18b). The "existential" aspect of this process draws a direct link to the vein of thinking among the Continental philosophers regarding human beings are agents of change in the world and do so through acts of intention to create meaningful environments for habitation.

This could be viewed as a critical point in this thesis given the importance of local culture in the world. If the designer is not aware of or considering how to draw from cultural references then how does a culture persist in the architecture of a particular region or location in the world? Again, this reflects back on Abrahams notion of manifesting the primary ideal, a process the computer cannot substitute. A process which takes the designer into *the world of the works* to understand the conditions under which a project is possible: does as a designer maintain or deny continuities?

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27 Christian Norberg-Schulz, *Genius Loci...*, 17.

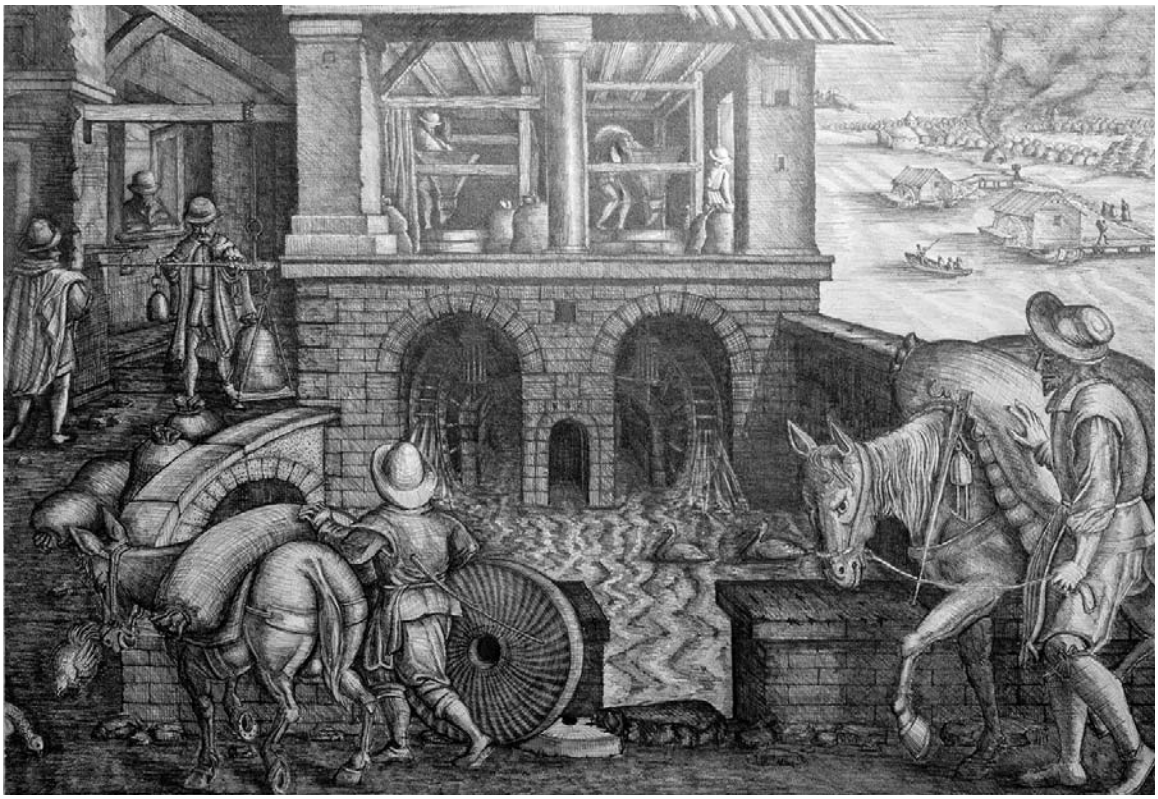

Figure 12: Exploring a work of art that represents Norberg-Schulz's notion of an *imago mundi* created by an artefact. Note the circular nature of the drawings composition which captures the associated human activities between the natural and artificial environments (re drawn by author, pencil on paper, Giovanni Stradano's *Water Mill* painting)

To continue this line of thinking a bit further, preceding Heidegger, the German philosopher Georg Simmel introduced objects of study which filtered into Heidegger's work. For example, in Simmel's essay *Bridge and Door* he states:

> The people who first built a path between two places performed one of the greatest human achievements. No matter how often they might have gone back and forth between the two and thus connected them subjectively, so to speak, it was only in visibly impressing the path into the surface of the earth that the places were objectively connected. The will to connection had become a shaping of things…This achievement reaches its zenith in the construction of the bridge. Here the human will to connection seems to be confronted not only by the passive resistance of spatial separation but also by the active resistance of a special configuration. By overcoming this obstacle, the bridge symbolizes the extension of our volitional sphere over space.[28]

It could now be viewed the type of thinking that persists in the work of these philosophers explores how deeper levels of understanding can be apprehended through the study of both subjective, human relationships and objective, material relationships in the world over time and what these relationships mean. That when locating an object - an artefact - in space there are relationships to be considered "subjectively." This willful act of gathering then "symbolizes the extension of our volitional sphere over space." It seems Simmel, like Norberg-Schulz, is referring to the continuation of human settlement, the "volitional sphere," over space and how this is done in a way which maintains cultural values. That is, the "subjective" being the "will to connection," could be viewed as social connection, human connection. Like the path,

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28 Georg Simmel, "Bridge and Door," trans. Mark Ritter (Theory, Culture and Society, vol. 11, 1994): 6.

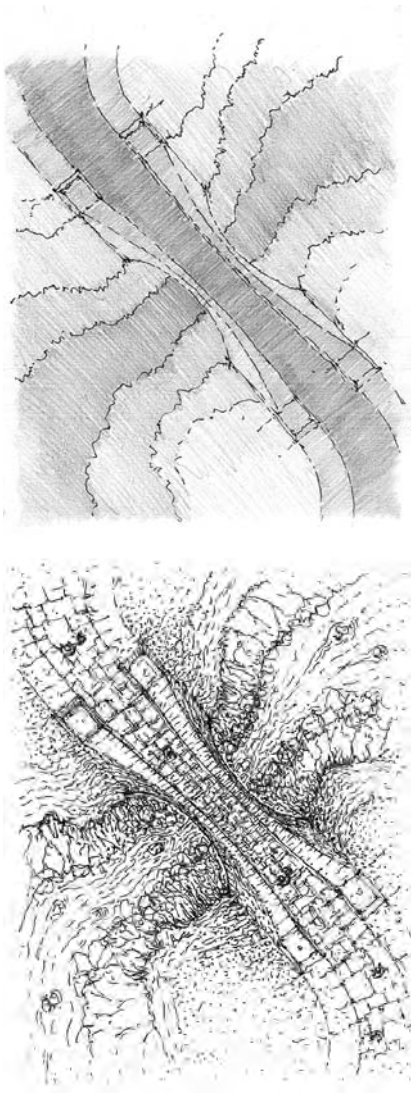

Figure 13 (top): Interpretation study of words to image from Heidegger's reflection on *the bridge*
Figure 14 (bottom): Study of the associative qualities and relationships (gathering) between the bridge and the landscape

the bridge visually represents this construct on the landscape. The bridge symbolizes the human will to connect with other humans (see Figure 15).

Within this context, architecture can be seen as a "shaping of things," a material formation which impresses or emerges from the landscape through "active resistance of a special configuration." In other words, the material formation - the work of architecture - becomes characteristicly vivid through intentional, subjective human interests overcoming the objective material conditions of a particular location in the world. That is, through design the work of architecture is being configured based on how the designer interprets these issues. Issues which are present in the world because as with any site there are problems to address which are not directly visible. It could be understood that to attain a sense of the condtions under which a project is possible requires the designer to study and interpret what already exists. Perhaps this is what Alvaro Siza refers to when he said, "what is yet to come hides within what is now."[29]

On a separate but related note, this line of thinking persists in Aldo Rossi's book *The Architecture of the City* as it finds form in a major theme: *the transmission of culture*.[30] It could be understood that Rossi perceived the city as two things: a gigantic man-made object growing over time which is constituted by artefacts, being aspects of the city.[31] In other words, he is identifying the city as a *whole* made up of *parts*. Over time the city grows

29 David Leatherbarrow, "EPA Seminar: The Hidden World of Contemporary Architecture."

30 Aldo Rossi, Eisenman, Ghirardo, and Ockman, *The Architecture of the City*, (Cambridge: The MIT press, 1982), 47.

31 Aldo Rossi, *The Architecture of the City*, 29.

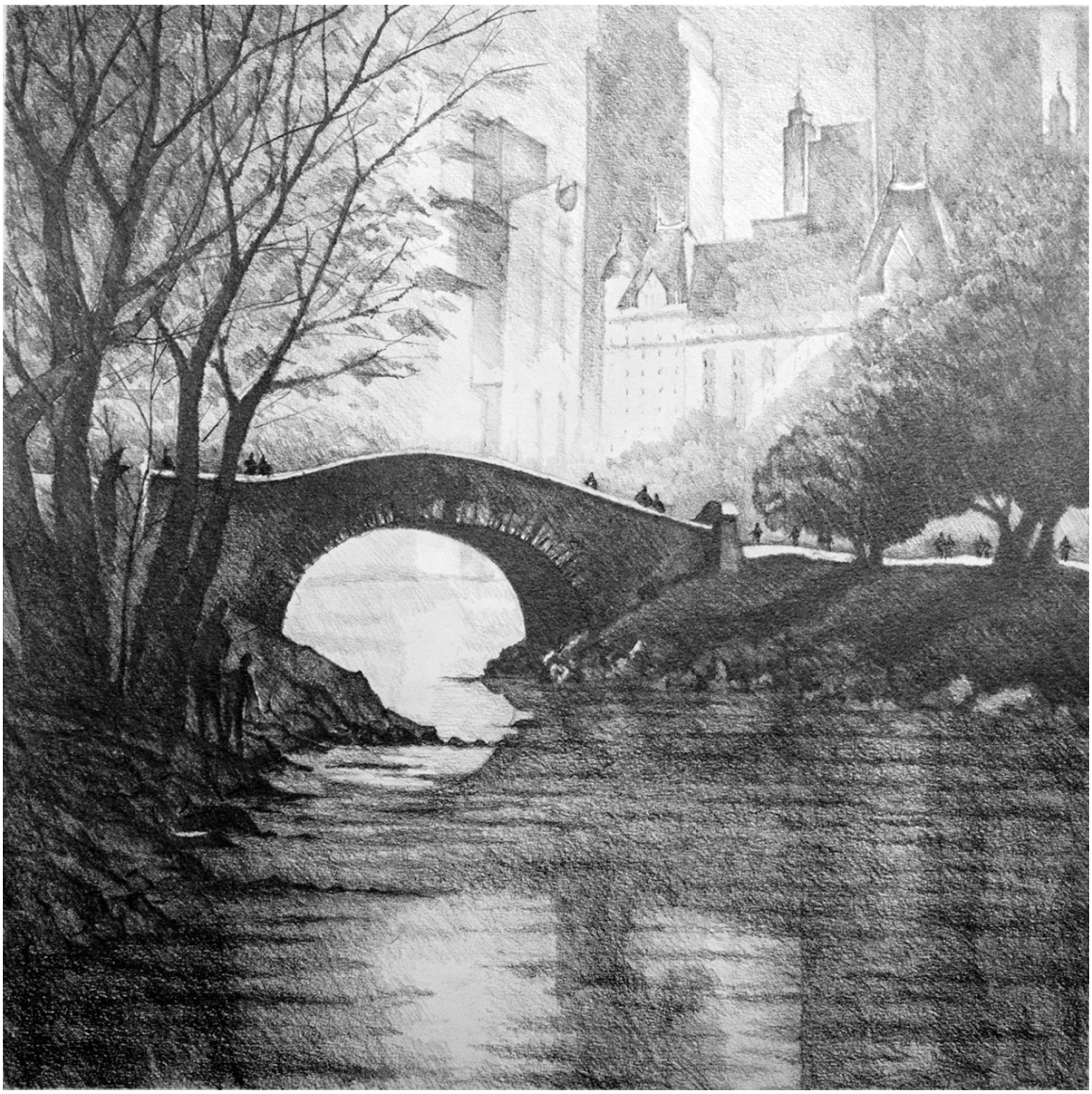

Figure 15: Dyptich study interpreting words to image between Heidegger's reflection on *the bridge* and Simmel's *Bridge and Door* and a work of art. (re drawn by author, pencil on paper, Thomas Schaller's *Bridge in Central Park* watercolor painting)

and changes but it could be viewed that Rossi is trying to educate designer's that by studying old artefacts the new arefacts can draw from them and maintain the 'collective memory' of the city (see Figures 16, 17). In other words, in relation to Ricoeur's *Contrasting Reflection,* cultural ideals can be transmitted through artefacts. Rossi's position was largely informed by the lack of historical reflection which *modernist* architects displayed. In this regard, Rossi was considered to be a *post-modernist* architect whom searched for ways to reappropriate old forms in a new way which enabled the *transmission of culture*. Much of this notion, as with architecture, deals with the visual aspect of artefacts: the *image*.

To gain a more comprehensive and practical understanding of the image and its implications between people and the urban environment Kevin Lynch's book, *The Image of the City,* is very useful as both Aldo Rossi and Christian Norberg-Schulz drew from it in their own work. In particular, Lynch's book explored how people identify with a building or a part of the city which in turn forms associations and a sense of familiarity between people and their surroundings. Specifically, Lynch remarks:

> The coherence of the image may arise in several ways. There may be little in the real object that is ordered or remarkable, and yet its mental picture has gained identity and organization through long familiarity.[32]

Lynch seems to be remarking on the image as signifier for people to become familiar with objects - artefacts - in an urban environment and what this means; that it

32 Kevin Lynch, *The Image of the City*, (Cambridge: MIT Press, 1968), 6.

helps people identify with where they are, their location. Further, Lynch's notion of *imageability* and *wayfinding*, which are perhaps two of the major ideas that course through his book, have direct implications with architecture and how it appears or is perceived over time. Lynch states: "Like a piece of architecture, the city is a construction in space, but one of vast scale, a thing perceived only in the course of long spans of time." [33] This notion of architecture as a "temporal art" gains further significance in that architecture is experienced beyond the visual. Lynch reflects this point when he says that,

> At every instant, there is more than the eye can see, more than the ear can hear, a setting or a view waiting to be explored. Nothing is experienced by itself, but always in relation to its surroundings, the sequences of events leading up to it, the memory of past experiences.[34]

This notion of "nothing being experienced by itself, but always in relations to its surroundings" reflects Rossi's notion that "architecture clearly represents only one aspect of a more complex reality, of a larger structure."[35] Further, both thinkers recognize the importance of "memory," for Lynch it is "the memory of past experiences" as for Rossi it is the "collective memory." In either case, the city is not a collection of mere objects and artefacts but also a collection of memories and experiences, the latter being subjective aspects of architecture: the *architectural experience*.

This "experience" ties back into Ricoeur's *Contrasting Reflection* in the way which people subconsciously identify with signals and images that provide a measure of

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33 Kevin Lynch, *The Image of the City*, 1.

34 Ibid., 1.

35 Aldo Rossi, *The Architecture of the City*, 29.

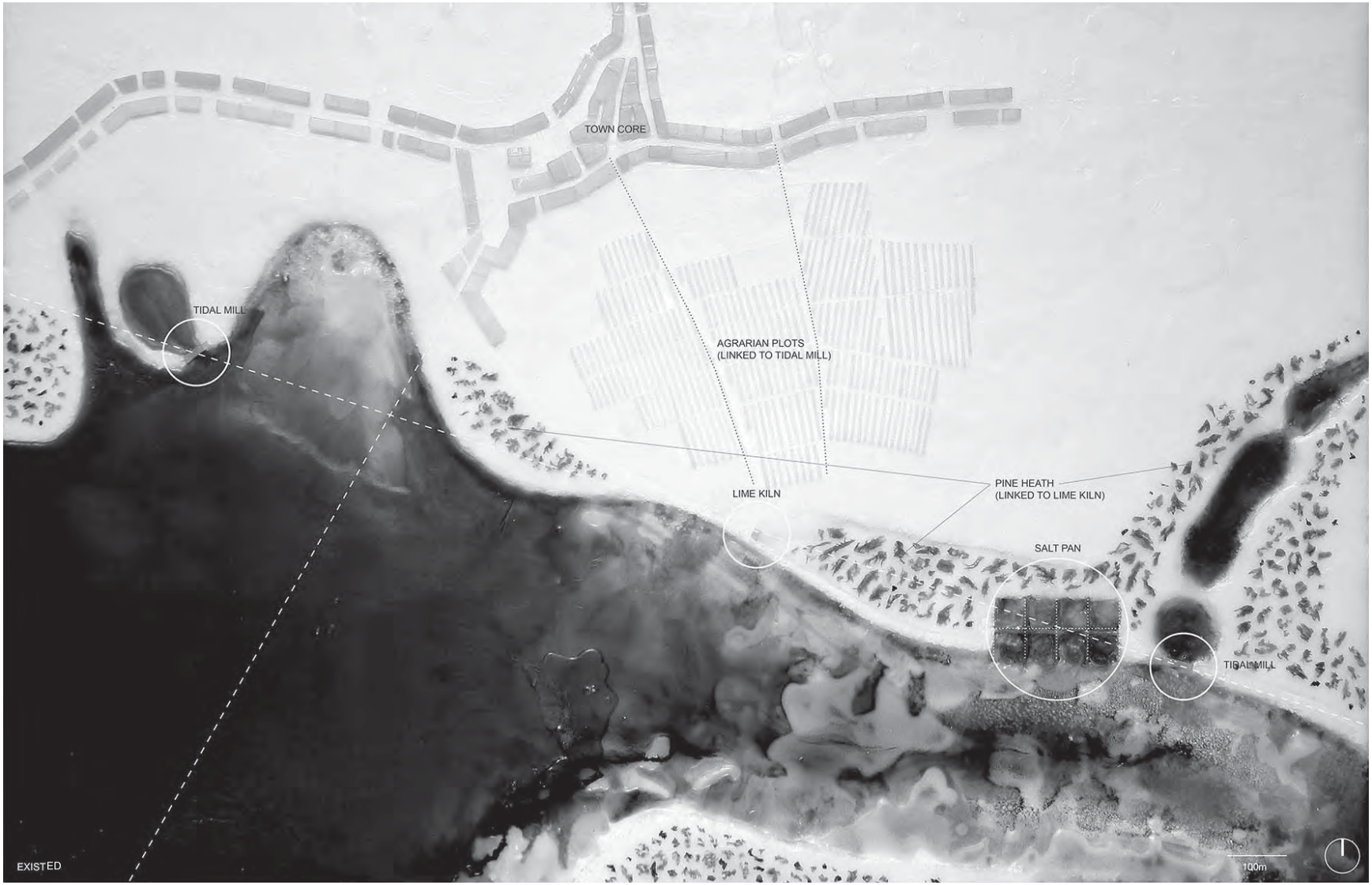

Figure 16: Photograph of wax model representing early village of Aldea Gallega (Montijo) interpreted from historic maps with design references

Figure 17: Photograph of wax model representing city of Montijo with design references

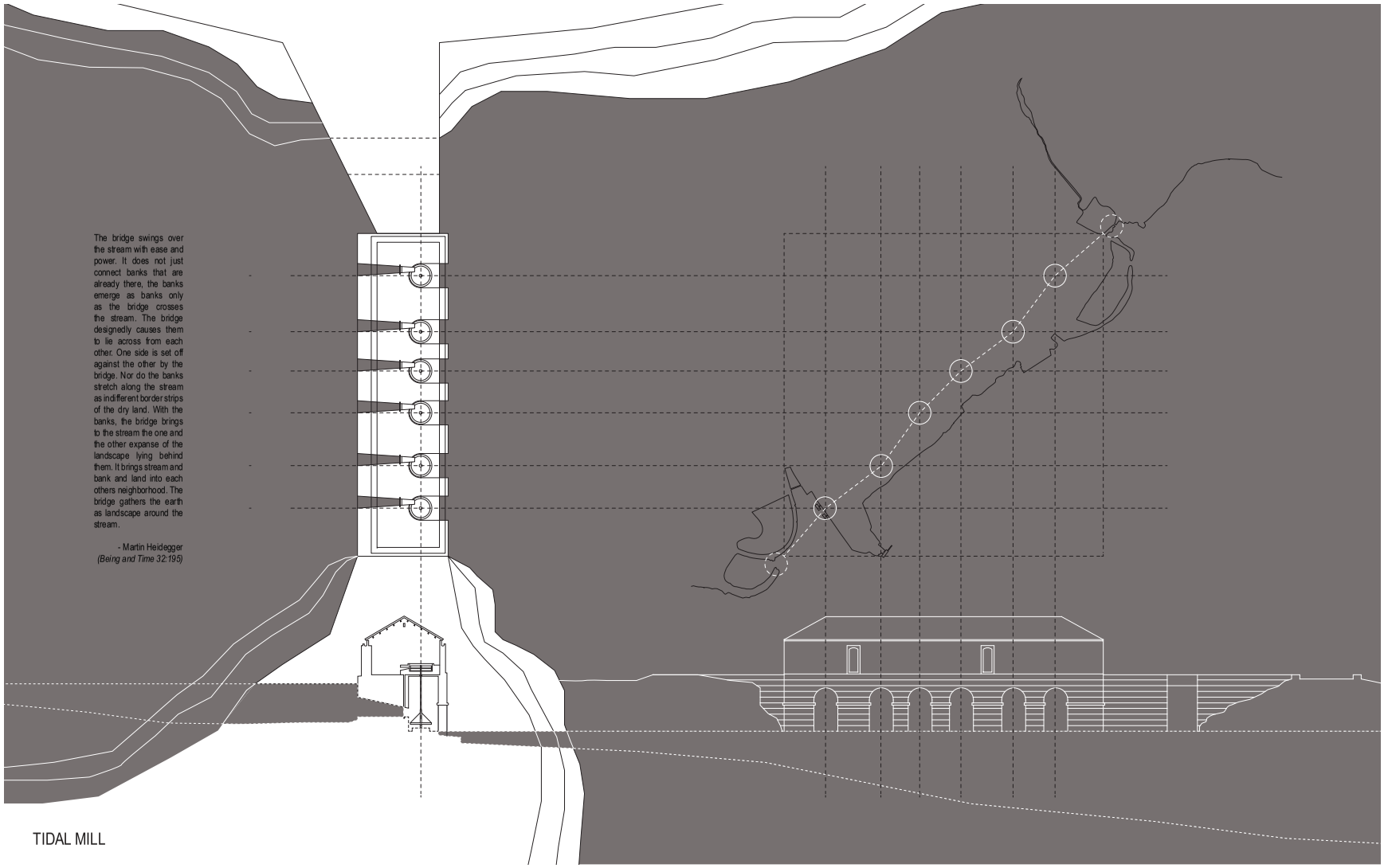

Figure 18a: Transposing meaning from tidal mill to site locations, utilizing *the bridge* mode of thought

Figure 18b: Transposing meaning from tidal mill to site locations, utilizing *the bridge* mode of thought

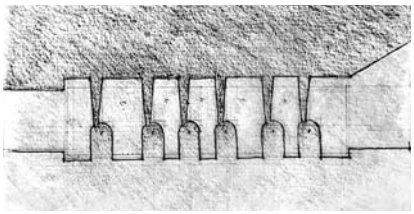

Figure 19: Exploring tidal mill plan at base as device that links the site while allowing for land and sea connections at the wheel locations

familiarity with a place. A notion which is further reflected by John Brinckerhoff Jackson regarding how people identify with objects and what their subjective meanings are, particularly *ruins*. In his book, *A Sense of Place, A Sense of Time*, Jackson describes how ruins can "bring something like a time scale to a landscape, which for all its solemn beauty failed to register the passage of time."[36] In this light, Jackson continues Norburg-Schulz' notion regarding the symbolic value of a ruin. That is, a ruin can provide a visual record of a place, of a culture. That the ruin is an aspect of an "image" of how the city once was and a reference to inform what is yet to be "imagined." An old part of the new whole.

This notion can be further understood in the context of Norberg-Schulz's process of *symbolization* as reflected by Jackson when he said, "out of a ruin a new symbol emerges, and a landscape finds form and comes alive."[37] That to visually identify the ruin as a symbol it can become a way to complement and awaken its surroundings; a way to unify the field.

More to the point, Jackson goes on to describe the regenerative value for a culture that ruins offer as they can "provide the incentive for restoration, and for a return to origins."[38] That the material record, when identified and interpreted with the proper tools, can reveal hidden aspects of a place and a culture which can help with "the formation of a new context of meaning that enables

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36 John Brinckerhoff Jackson, *A Sense of Place, A Sense of Time*, (New Haven: Yale University Press, 1996), 25.

37 John Brinckerhoff Jackson, *A Sense of Place...*, ix.

38 John Brinckerhoff Jackson, *The Necessity for Ruins and Other Topics*, (Amherst: University of Massachussets Press, 1980), 11.

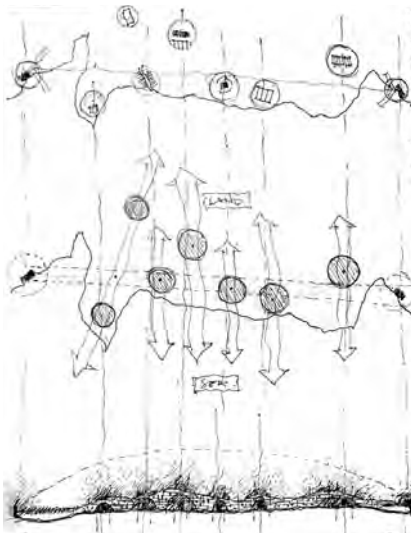

Figure 20: Exploring imagined 'wheel' locations on the site in relation to other sources of culturally significant artefacts like the tidal

intergration of what is otherwise unfamiliar, strange or anomolous," as previously described in Gadamer's *Fusion of horizons*.

This act of gathering finds further significance in the writing of Dutch architect Aldo Van Eyck. Van Eyck recognized the cultural and historical importance of expanding one's mental horizons in order to imbue an artefact with enduring substance; an artefact which is open to different perspectives. The architect states:

> It seems to me that past, present and future must be active in the mind's interior as a continuum. If they are not, the artefacts we make will be without temporal depth and associative perspective...Man after all has been accommodating himself physically in this world for thousands of years. His natural genius has neither increased nor decreased during that time. It is obvious that the full scope of this enormous environmental experience cannot be combined unless we telescope the past...[39]

Moving the thought further into the material realm, Van Eyck acknowledges the value of "temporal depth" and "associative power." The former aligns with Leatherbarrow's notion of "surveying something distant in time" while the latter could be viewed as synonomous with the vein of thinking discussed among the Continental philosophers.

There is another aspect of Heidegger's work that is worth considering here before moving on to *Material culture* where resonance occurs with use of language. How language is used was a major concern for Heidegger as he observed how people become overfamiliar with words and how their use. As a consequence, the words

39 Kenneth Frampton, "The Architecture of Jørn Utzon," 1.

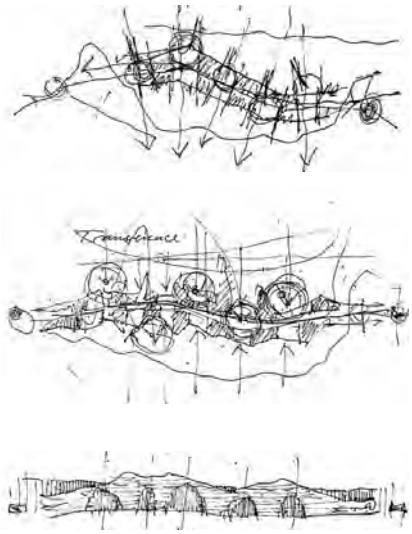

Figure 21: Continued exploration of the bridge as a site device, transference of meaning from one place to another

lose meaning.[40] It could be viewed that today's situation is even more troubling in relation to Heidegger's ominous observation during his time. As words are misused meaning becomes distorted thus distancing the subject from understanding the object. The relationship between how a thought is identified through language should be seen as a critical mental *mode* because it informs the interpretation process and the translation process both of which constitute the design process.

Further, the implications of language in the design process are critical in clarifying how thoughts manifest inwardly and appear outwardly through interpretations, translations and ultimately, realizations. That is, potentially, this process will translate into an artefact in the world. The thought will take a long journey overcoming many obstacles before finding material expression. Proper use of language could only better remove the designer from error. In the words of Ralph Waldo Emerson: "The sower may mistake and sow his peas crookedly; the peas make no mistake, but come up and show his line."[41]

This mental process, or mode, could now be viewed as becoming more apparent as necessary in addressing the cultural and historical implications of a project for a site. Van Eyck draws a direct link between this line of thinking and the "artefacts we make" which contribute to this "enormous environmental experience." To ground this thinking more substantially while equipping

40 BBC, “Heidegger: Human, All Too Human (Full BBC Documentary),” YouTube Video, BBC, 49:04, July 2014, https://www.youtube.com/watch?v=EDJ7Os-BNU8.

41 Ralph Waldo Emerson, and Bliss Perry. *The Heart of Emerson's Journals*, (Kessinger Pub., 2011), 198.

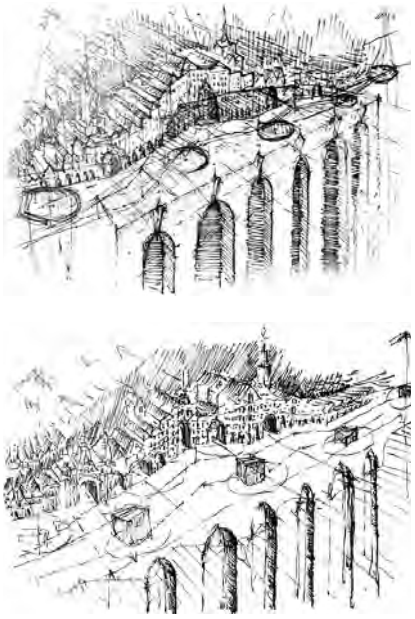

Figure 22: Continued exploration of the bridge as a site device linking the existing urban fabric to the new, imagined urban fabric

the interpreter with useful investigative tools, the field of *Material culture* is particularly useful in establishing concrete relationships between material artefacts and the ideas that shaped them.

American art historian Jules David Prown describes these two ends: "*Material* is a word we associate with base and pragmatic things; *culture* is a word we associate with lofty, intellectual, abstract things."[42] In his essay *Mind in Matter: An Introduction to Material Culture Theory and Method,* Prown brings this subject to light:

> Material culture as a study is based upon the obvious fact that the existence of a man-made object is concrete evidence of the presence of a human intelligence operating at the time of fabrication. The underlying premise is that objects made or modified by man reflect, consciously or unconsciously, directly or indirectly, the beliefs of individuals who made, commissioned, purchased, or used them, and by extension the beliefs of the larger society to which they belonged. The term material culture thus refers quite directly and efficiently, if not elegantly, both to the subject matter of the study, material, and to its purpose, the understanding of culture.[43]

It would seem this method of study which Prown is describing can allow the interpreter to "telescope the past" to interpret artefacts thus providing a way to understand aspects of this "enormous environmental experience." More to the point, as Prown notes, studies which lead to "the understanding of culture." Much of what is quoted here resonates with Ricoeur's *Contrasting Reflecting* method of interpretation while echoing among the work of the other Continental philosophers. Further, Pallasma's critical view on much of the work in contem-

42 Jules David Prown, "Mind in Matter: An Introduction to Material Culture Theory and Method," *Winterthur Portfolio* 17, no.1 (1982): 2.

43 Jules David Prown, "Mind in Matter," 1-2.

porary architecture brings further relevance to this line of thought as it relates to the visual aspects of architectural work. To bring this line of thinking from the material realm and closer to the nature of form, Prown provides further insights:

> Perhaps more special to man than language is the capacity to make implements and, more special yet, objects for aesthetic gratification. There is a language of form as there is a language of words; a naming through making as there is through saying. That man expresses his human need to structure his world through forms as well as through language is a basic premise of the structuralist approach to material culture...The methodology of material culture is also concerned with semiotics in its conviction that artifacts transmit signals which elucidate mental patterns or structures. Complementing the structuralist premise and semiotic promise of the interpretation of artifacts is the knowledge that artifacts serve as cultural releasers...A measure of the potency of the language of form is the role that matter - and man's experience of the physical world - plays in language. This is obviously true with poetic imagery and metaphor of vernacular expressions which articulate and expose fundamental perceptions of the realities of existence.[44]

Perhaps what can be viewed as significant in the way this argument is developing is how the field of *Material culture* reflects Heidegger's notion of the object, the artefact, and the subject, the human ideal, being interrelated. Seeing *built things* as a manifestion of the ideal in material form seems to clearly indicate that artefacts are respositories of cultural knowledge that can be drawn from. Regarding semiotics, being the study of signs and signals and their use or interpretation, Prown identifies "the semiotic promise of the interpretation of artifacts is the knowledge that artifacts serve as cultural releasers." As a mode of interpretation, this method can

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44 Jules David Prown, "Mind in Matter," 6.

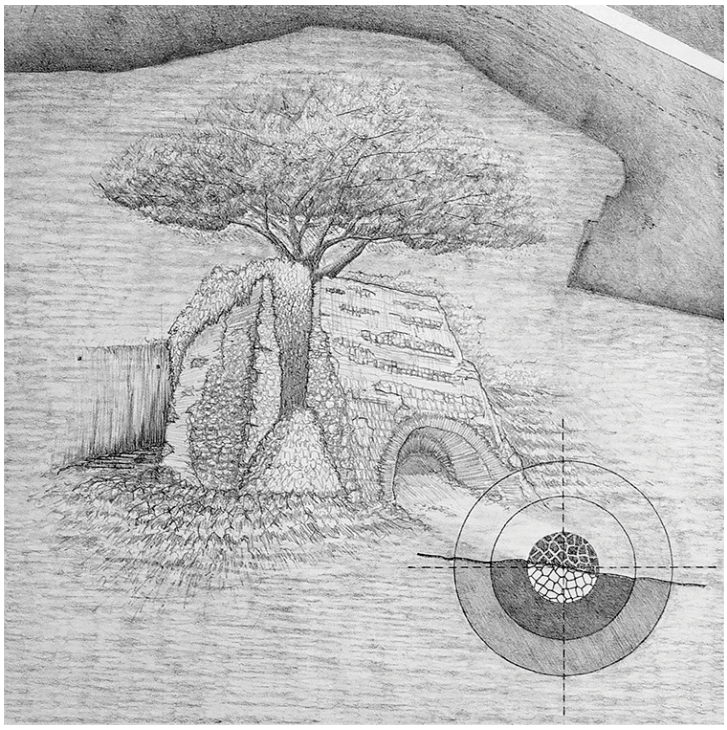


Figure 23: Identification of lime kiln ruin as a culturally significant element

prove a useful exercise in studying the visual language of an artefact to understand patterns and what signals may be transmitted from an old artefact to a new artefact through design process. A process which seeks "a measure of the potency of the language of form." This could be useful to the designer through design studies which attempt to apprehend the language of the existing artefact (see Figure 23). To become familiar with the artefact in a way which comes through in the design while developing relationships within the distant cultural world of the artefact (see Figure 24).

A last reflection on Prown's passage ties back to the existentialist notion by Norberg-Schulz, that is "poetic imagery of vernacular expression which articulate and expose fundamental perceptions of the realities of existence." This could be viewed as drawing out what

Figure 24: Material culture study of the lime kiln as a "cultural object" (re drawn by author, pencil on paper, Theodorus Stiphout's *Lime Kiln and Houses* painting)

makes the artefact characteristicly vivid, the visual qualities which associate the artefact with its place and culture (see Figures 22-34). To attain these visual qualities and imbue the design with them could be seen a way of 'grafting' so to speak. Such measures could begin to open the design to its context where resemblances and a sense of familiarity can be interpreted by the observer: an aspect of the design being accepted thus enabling *the transmission of culture* while maintaining *the image of the city*. Thinking about resemblances and metaphor can be useful when drawing from artefacts in this way.

Now that the primary ideal, the thought, has been elaborated through a developed understanding of interpretation, how can the developed thought be utilized in the design process? More to the point, how does the thought *translate* in the design process?

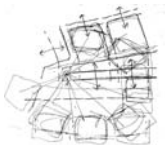
Translation

On the origins of architectural ideas Joseph Rykwert provides useful knowledge that elaborates the role of translation in the design process; a process which utilizes the discipline of drawing. Rykwert describes drawing:

> the statement of intention towards some artefact other than itself...such intention involves a transition from the capture of a thought or a sight by drawing a line or lines "around" it, as it were, so as to transpose it into the more corporeal business of other techniques - essentially speaking, in a kind of translation.[45]

Rykwert's description of drawing as a "kind of translation" to channel the "statement of intention towards some artefact other than itself" could be taken as a critic-

45 Joseph Rykwert, "Architecture and Drawing," 2.



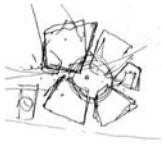


Figure 25: Translation study in series based on interpretation of the lime kiln artefact and the associated work of art

al observation here: the aim of the designer should be directed toward the artefact not the drawing; a drawing is a means not an end. The design process, as defined so far as being the development of the thought through modes of interpretation and translation, is aimed at manifesting a material artefact in the world. It could be viewed that Rykwert's elaboration on this "intention" as being "a transition from the capture of a thought or sight by drawing a line or lines around it" as analogous to Gadamer's mode of interpretation in the *circle of understanding*; both being circular, iterative processes to attain successive layers of "content-oriented meaning." Further, translation could be viewed as a way of narrowing the "problematic situation," as defined by Schön, through technical means, that is, through the technique of drawing "as a kind of translation" to produce a visual representation of the intention: clarifying the meaning of a thought; the more meaningfully clear the interpreted thought the more visually clear the translation thus a clearer drawing communicating the intentions of the project - the ideal.

On a related note, to speak to the *sensate* content modality, Rykwert reflects on Leon Battista Alberti regarding the notion of *inherent beauty* and how translation is a mode of working it so it appears outwardly. Rykwert goes on to state:

> For Alberti the whole tangible and phenomenal part of building did not belong to the realm of invention and beauty, but to that of realization, of *sensibilia*...giving the notional a perceptible body, of enfleshing or incarnating - of absorbing the tangible and visible stuff into a mental model, or of adding the quality of perceptibility to the inherent beauty of the mental construct.[46]

46 Joseph Rykwert, "Architecture and Drawing," 5-6.

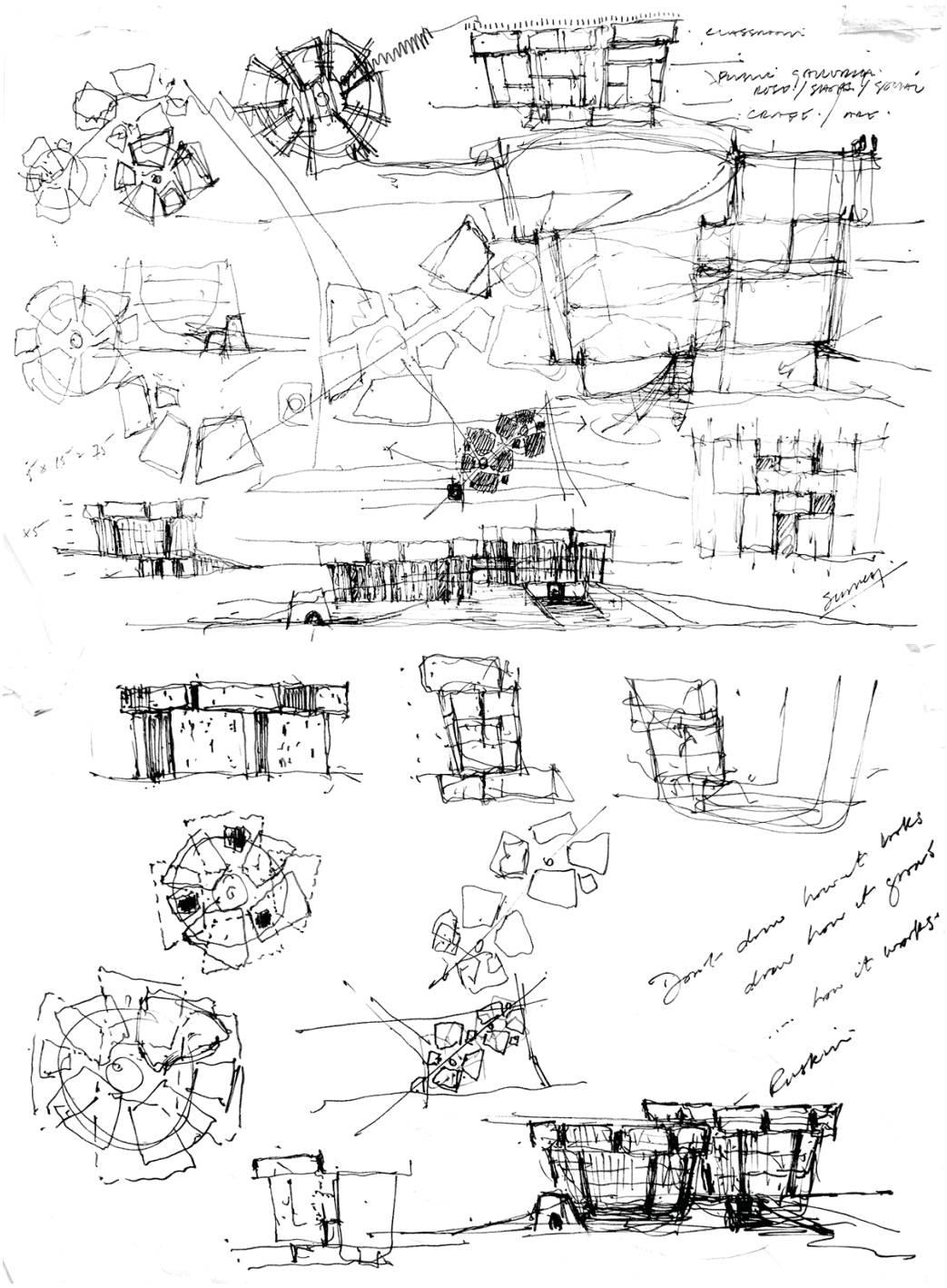


Figure 26: Utilizing Scarpa's montage technique for translation studies of lime kiln.

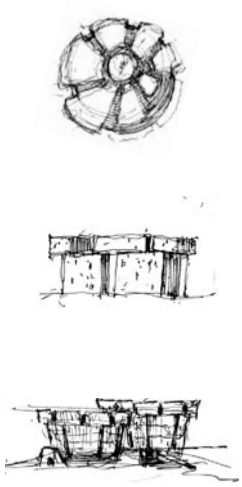


Figure 27: Drawing fragments from previous translation studies

Rykwert's interpretation of Alberti seems to confirm the realm of content modalities, as described earlier regarding architectural experience, regarding "sensibilia," the sensual or sensate, in addition to the cognitive and emotive. The way in which he identifies the "tangible whole" and the "phenomenal part" of building, in a way, reveals the very nature of the design process. Specifically, the phenomenal part: how it *appears*. How things appear could be taken as the foundation of architectural phenomenology which will be discussed later. This appearance of the part, as Rykwert observes, is not in service of creating something new or something that looks pleasing to the eye. It is something of far greater significance: the mind's image. Could the process of translation be viewed as a bridge between the mind's image and the representation? As a bridge which becomes a part of the architectural experience? Each translation being another bridge added to this enormous environmental experience which the designer is constructing?

Rykwert goes on to state, "there is no escape from the translative cycle of concept-translation-representation-realization. At each stage of the cycle, choice and judgement, as well as mechanical skill, have to be exercised."[47] More powerful than any computer, the mind, as Alberti clearly understood, is the primal generator of inherent significance and Alberti concerned himself with actualizing this notion through translations so that it may appear outwardly with sensate qualities. To make it "perceptible" to himself so that others could perceive it as well. Again, to revisit Raimund Abraham: "the computer cannot subsitute for this process." This is a human pro-

47 Joseph Rykwert, "Architecture and Drawing," 12.

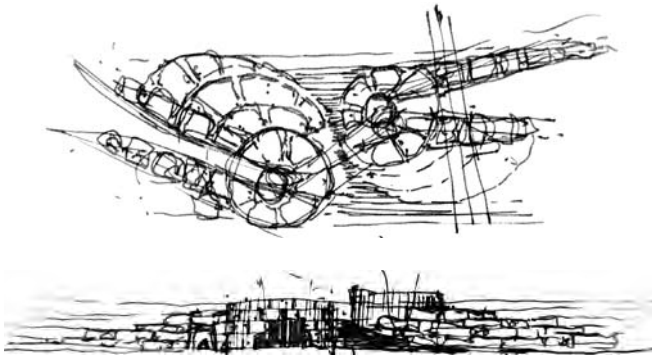


Figure 28: Translation study

cess that aims at a realization for other human beings to experience.

To place this process more substantially in the formal language of architecture, that is, to address the idea of *typology*, this circular process is reflected in the writings of Rafael Moneo. In his essay *On Typology*, Moneo goes on to state:

> In this continuous process of transformation, the architect can extrapolate from the type, changing its use; he can distort the type by means of a transformation of scale; he can overlap different types to produce new ones. He can use formal quotations of a known type in a different context, as well as create new types by a radical change in the techniques already employed. The list of different mechanisms is extensive - it is a function of the inventiveness of the architects.[48]

This notion of the *freedom of the architect*[49] in the design process draws particular attention to "the inventiveness of the architect." Moneo reflects this notion as typology being the "frame within which change operates, a necessary term to the continuing dialectic required by history"[50] Further, he goes on to explain that, "from

48 Rafael Moneo, "On Typology," *Oppositions* 13, (1978): 27.

49 Rafael Moneo, “The Freedom of the Architect,” *Assemblage*, no. 41 (2000): 55.

50 Rafael Moneo, "On Typology," 27.

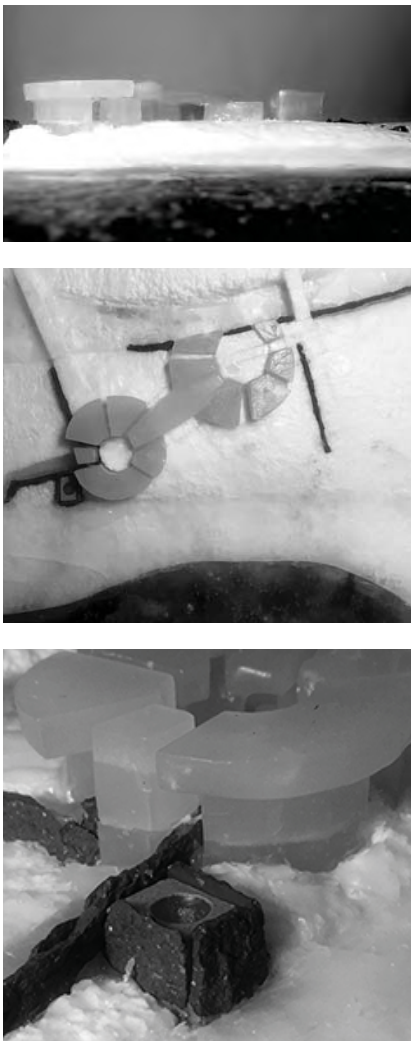


Figure 29: Translation studies of lime kiln continued utilizing models made from wax, styrofoam, and brick fragments

this point of view, the type, rather than being a frozen mechanism to produce architecture, becomes a way of denying the past, as well as a way of looking at the future."[51] Perhaps this notion of type could be viewed as all of the interchangeable elements which establish the visual language of architecture. This might best be understood in terms of looking at a drawing. That what is being represented in an *architectural drawing* is the typology of the architecture. How it is organized and constructed reveals its nature as well as its relationship to other works from the past and what is associated with its location and contexts. These relationships help us understand how things change over time and how architecture represents them. However, it would seem type is far more than a just visual language, or as Rossi notes, type "is associated with a form and a way of life."[52] This is a critical remark by Rossi because it connects the visual language of architecture to patterns of human occupation of space, how people ihabitat a particular place.

Moneo offers an encouraging remark on the potential outcome for an architect who utilize this mode effectively, that is to say, what the process of transformation can potentially achieve:

> When a new type emerges - when an architect is able to describe a new set of formal relations which generates a new group of buildings or elements - then that architect's contribution has reached the level of generality and anonymity that characterizes architecture as a discipline.[53]

Perhaps Moneo is describing the level of freedom which the designer has when inventing architecture is re-

51 Rafael Moneo, "On Typology," 27.

52 Aldo Rossi, *The Architecture of the City*, 40.

53 Ibid., 28.

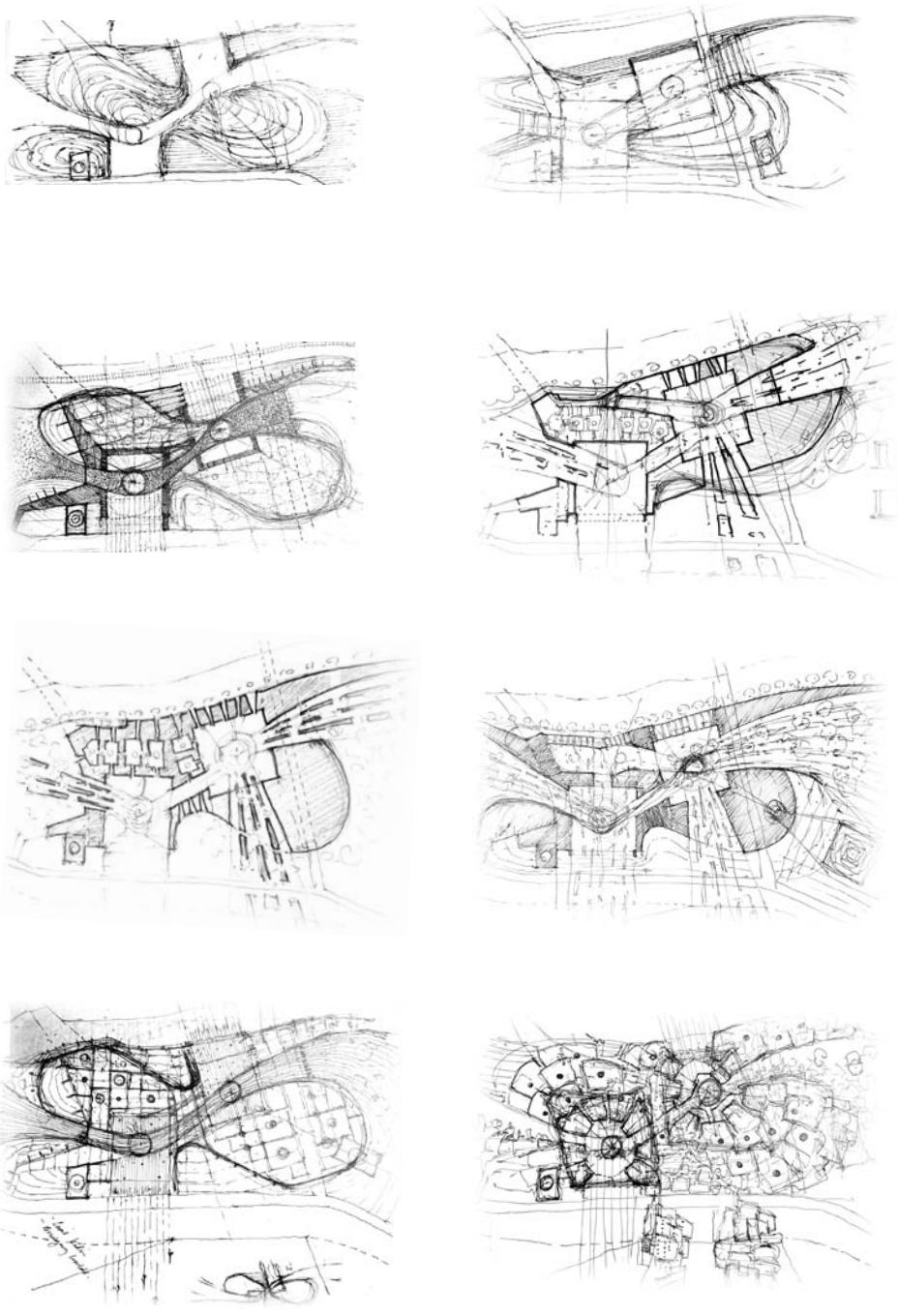


Figure 30: Study in series of type transformations based on previous lime kiln translations

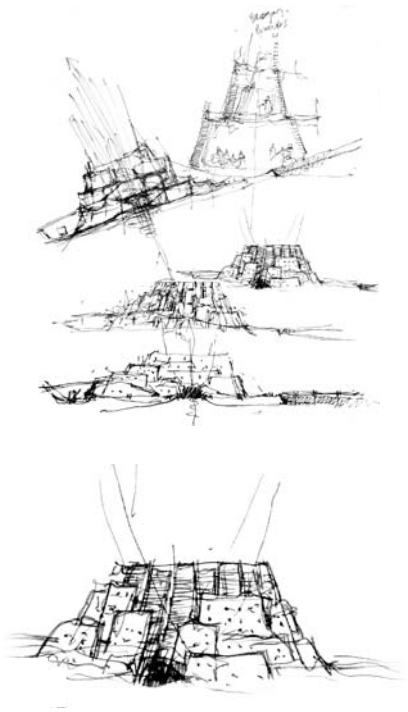


Figure 31: Translation study exploring tectonic qualities and material characteristics

flected by their level of typological knowledge. It would seem that such knowledge further removes the designer from error in misusing type while indicating how to ennoble architecture as a "discipline." That appropriately distinguishing type "characterizes architecture" and thus contributes to its identity as a discipline. However, it should be understood that there is more than meets the eye when organizing a type given subjective associations that exist in the world that reside beyond the surface of the visual representation, the diagram.

Rossi's critique of *Naive Functionalism* took issue with *modernist* architects at the time. Specifically, "through them form is divested of its most complex derivations: type is reduced to a simple scheme of organization, a diagram of circulation routes, and architecture is seen as having no autonomous value."[54] Rossi's view seems to reflect the limited, subjective line of thinking that runs counter to the *open work*. There is little regard for the larger historical and cultural sphere which architecture is a part of. Further, Rossi remarks, "Thus the aesthetic intentionality and necessity that characterizes urban artifacts and establish their complex ties cannot be further analyzed." In other words, there is little if no regard for the cultural and historical worlds which are associated with the artefact. The artefacts "complex ties" or continuities are denied and severed with the past denying the *transmission of culture* into the new artefact: a continuance and repository of cultural meaning.

What could be viewed as important here for this argument is the architects ability to draw from sources beyond the world of architecture as vital in nurturing creative work

54 Aldo Rossi, *The Architecture of the City*, 46.

Figure 32: Translation study in series exploring relationships between the lime kiln site and surroundings

that is responsive to the myriad conditions associated to a project and a site. That is, to seek out subjective, human interests and objective, material condtions which can inform and imbue the work leading to an enhanced *archtiectural experience*. For example, drawing from Art History (see Figure 23) and deciphering subjective implications about what a particular artefact represents to a place and a culture and then finding ways to translate such found potential into the design work through interpretation and translation exercises (see Figures 24-37). To allow the process to guide the designer toward an imagined environment where the ideal can manifest itself while seeking clarity of intentions (see Figure 38).

Architectural Phenomenology

The importance of achieving such clarity in drawing finds further significance in the field of architectural phenomenology, however, it is important to preface this subject with an extension of the Continental philosophers line of thinking to provide a frame of reference. Oxford professor of philosophy Stephen Mulhall describes phenomenology as, “the relationship between how things appear to us to be the reality of those things.” He goes on to state:

> Now, in modern philosophy that relationship between appearance and reality has tended to generate a certain kind of skeptical anxiety because philosophers worry about the ways in which appearances might mislead us, might represent reality as being in some way other than it is, or maybe mislead us into thinking that there is an independant real world when there isn’t, in fact, any such thing.[55]

55 BBC, “In Our Time, Phenomenology.” BBC Radio 4, BBC, 43:00, January 22, 2015. https://www.bbc.co.uk/programmes/b04ykk4m.

Figure 33: Drawing fragments from previous translation study

This particular passage is relevant to architecture since before it is built the ideal is communicated through a representation. This raises the question as to whether the purpose of representation is to re-present the ideal through a translation (drawing, image, or model) or represent something else?

This "something else" seems to be prevalent today as much design work seems to draw from the virtual realm: sources which are not real; work which draws from the virtual realm rather than sources of reality. Representational work which could now be understood as misleading given it misrepresents reality "as being in some way other than it is." Further, the subject of *reality* in architecture seems to beg definition here given its rather ambiguous nature.

Rafael Moneo acknoweldges this problem: "I see the buildings of the past conveying another reality which I would like to reach. I am pushing to think about what this reality is as the first theoretical question today?"[56] It seems this "skeptical anxiety" was sensed by Moneo

56 Rafael Moneo, "The Idea of Lasting: A Conversation with Rafael Moneo," *Perspecta* 24, (1988): 146.

Figure 34: Translation studies of lime kiln continued utilizing models made from wax, styrofoam, and brick fragments

nearly thirty years ago in architecture. Elaborating on the idea of reality, Moneo states:

> I realize there is a lot of ambiguity concerning the idea of reality. When I say that buildings of the past are conveying another kind of reality, I am referring to a consistency that those of today do not possess. Such a consistency is far from the concept of reality as a simple imitation of known models of architectural types. It relates to the existing coherence between built image and form. In the past, the act of construction itself was conveying - or implying - the form and image of the building as one. That provides a feeling of authenticity - a concept that parallels consistency - that I believe I was alluding to when I spoke of reality.[57]

It seems that Moneo is reflecting on Aristotle's notion regarding the outward appearance and the inward significance of a work of art, an artefact, a building. That "authenticity" is felt when the "form" and the "image" are one. That is, how the building appears outwardly is consistant with its inward significance; how it grew from an idea into a built form. This notion seems to resonate with the previous discussion around Heidegger's view on architecture as a work of art, that it preserves truth. That what is identified as real in the origins of the architectural design is maintained and expressed in the final construction. That what is experienced in the final construction tells us something real about the conditions of the project, the place, and the cultural *world of the work*.

To help transition this thought into architectural phenomenology, that is, when the inward significance of an artefact is transmitted so that it appears outwardly, the artefact projects a feeling of "authenticity", of "reality." An idea which could be seen in direct contrast to *Facadism.* An issue Leatherbarrow addresses in terms of "back to

57 Rafael Moneo, "The Idea of Lasting," 146.

Figure 35: Translation studies achieving clarity of form while exploring fenestration patterns in relation to lime kiln artefact to the left

back, or about face," being the subject of a chapter in his book *Uncommon Ground: Architecture, Technology, and Topography*. An issue Moneo elaborates on in terms of understanding the essence of an architectural work:

> I believe that in the crude reality of built works one can see clearly the essence of a project, the consistency of ideas...Architecture arrives when our thoughts about it acquire the real condition that only materials can provide.[58]

Moneo is clearly expressing that "ideas" come through in the "crude reality of built works." That the buildings "essence" is attributed to the idea and the idea must be carried through the process as clearly and intently as possible in order to persist in the built work. In other words, as Moneo previously remarked, to achieve "coherence between built image and form." This notion is reflected by Leatherbarrow regarding a building's facade, or "face." He goes on to state that, "The facade of the building is generally pinned onto its front side, which is to say the side through which entry occurs."[59] This could be taken as an outside-in approach to design where attention and identity of form and intention are removed from the inside and instead "pinned onto its front side." Further, he states that, "the display it accomplishes, a fully secularized architectural epiphany in full size and distinctive appearance, happens during approach and ends with arrival."[60] In this way, how the building appears from the outside misrepresents the significance of the buildings interior; that is, what is outward is incon-

58 Rafael Moneo, "The Solitude of Buildings," lecture presented at the Harvard Graduate School of Design, (March 13, 1985).

59 David Leatherbarrow, *Uncommon Ground: Architecture, Technology, and Topography*, (MIT Press, 2000), 77.

60 David Leatherbarrow, *Uncommon Ground...*, 77.

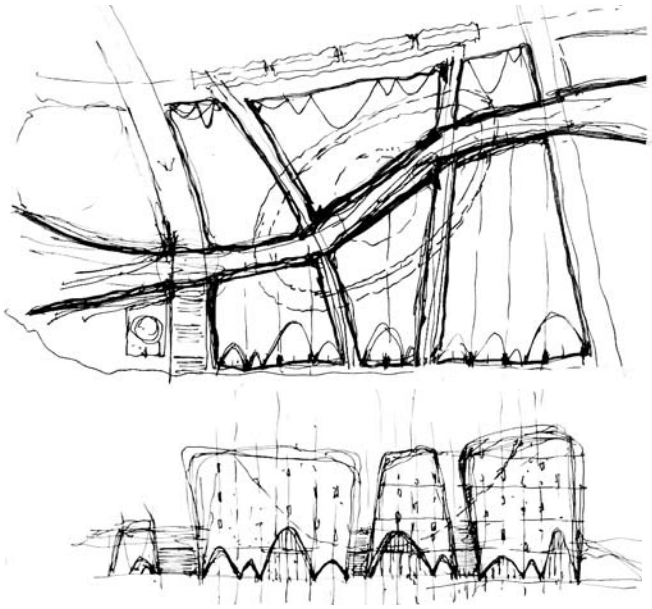


Figure 36: Drawing fragments from previous translation study

sistant with what is inward. That whatever architectural experience is intended or designed for "happens during approach and ends with arrival." Arrival being entry to the interior space rendered foreign from the "secularized" facade.

Perhaps the importance of this accumulative process of ideal-interpretation-translation-representation-realization is becoming more apparent as necessary modes of operation in the design process. Ultimately, this process leads the design work in the direction of authenticity, consistency, and reality: work that is subjectively open to human interpretation and objectively open to its physical contexts. Oppose to work which is nebulous, superficial, or fake: work that is misleading and misrepresents reality and closed-off to interpretation, objectively and subjectively isolated from contexts and human occupants.

To further understand how to navigate this path of consistancy between the origin of the architectural idea and

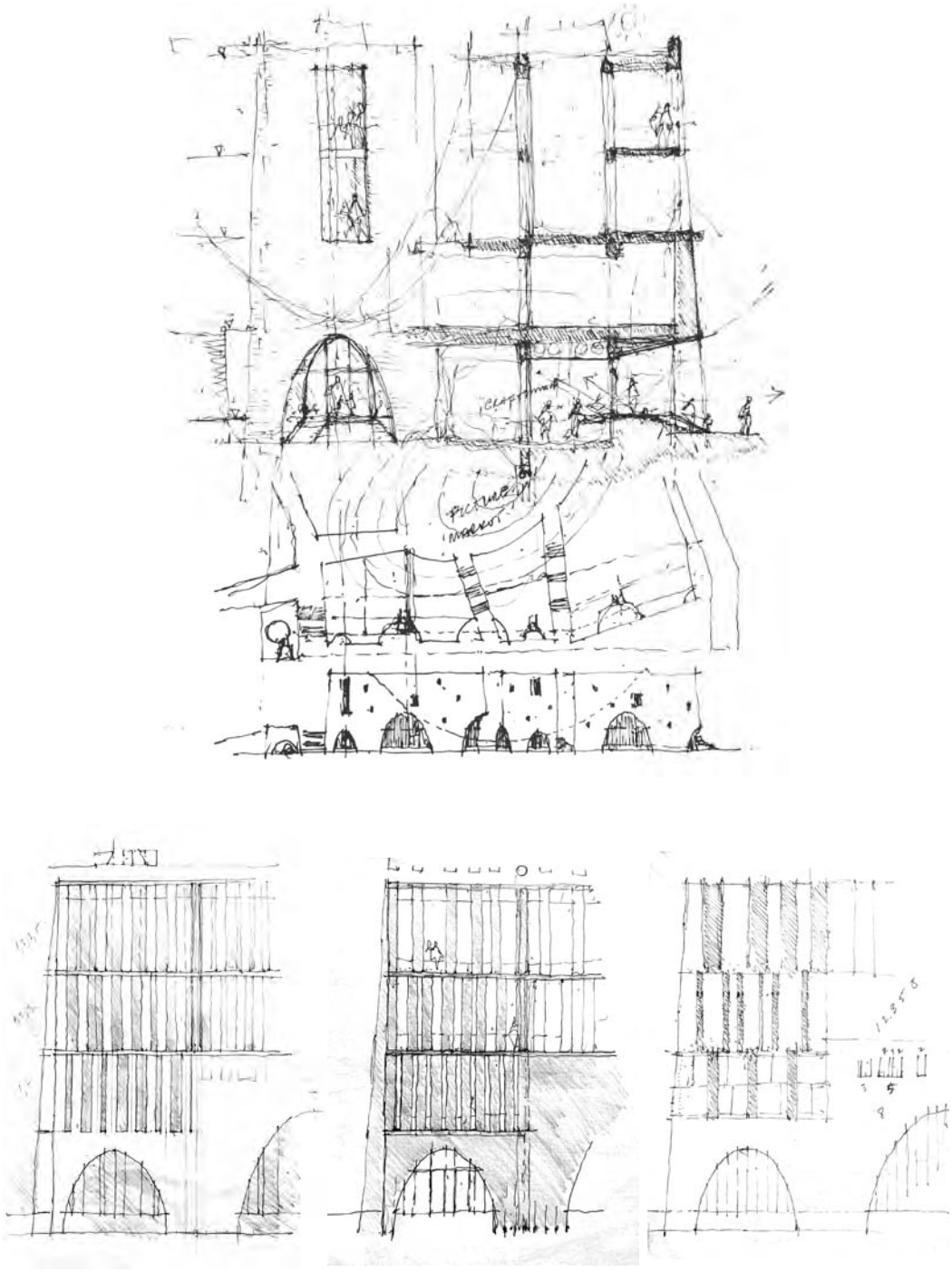


Figure 37: Exploring relationships between interior and exterior of the building; how the visual characteristics of the lime kiln artefact inform the exterior of the new building while translating inwards. Thinking about metaphor and resemblances, how the 'draw hole' of the lime kiln can be filled with new meaning in the new building

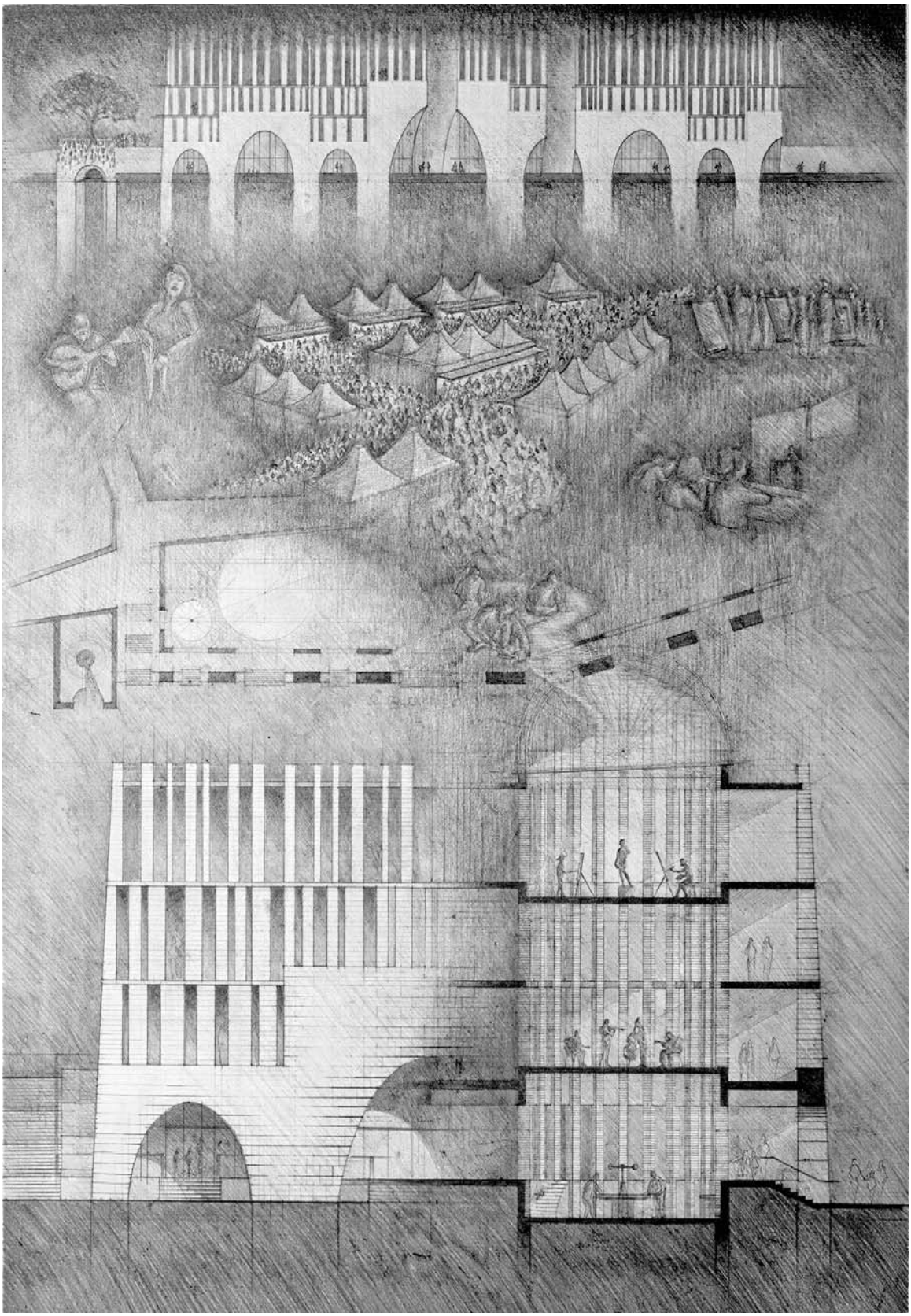


Figure 38: Imagining ancient and modern human occupation, resemblances and metaphor, how this translates into the outward appearance of the architecture, drawn by author, pencil on paper

the built work, the field of architectural phenomenology offers many useful tools. Like contemporary phenomenology in philosophy, architectural phenomenology is heterogeneous offering various ways of approaching the origins of architectural work when conceiving a project: human experience, background, intention, historical reflection, interpretation, poetic and ethical considerations.[61] Given there is no aesthetic associated with architectural phenomenology, rather than focusing on the “product” architectural identity is shifted toward the process of architectural invention, that is, "an orientation to thinking and making." This means the design process plays a critical role in apprehending architectural ideas in their origins and their subsequent conceptual elaboration. Perhaps the most significant aspect of this subject is the architect’s direct involvement with experience. In other words, how the architect creates a human experience through the architecture to enable the human occupant to better understand when, how, or why they are experiencing *the world of the work*.

This philosophical inquiry can be translated into the world of architecture given a common position held by certain architects; a particular method and preoccupation toward the reality of things and how architecture can present the ideal in built reality; to invent an imagined environment or atmosphere as alluded to by Moneo. This process of architectural invention seems to require somewhat of a framework, like the "frame" utilized by Schön's position on *Technical Rationality* and the "frame" utilized by Moneo's position *On Typology*,

61 Dan Zahavi, *Husserls Legacy: Phenomenology, Metaphysics, and Transcendental Philosophy*, (Oxford University Press, 2019).

to able to address the architectural design at different levels. Based on this, it seems approriate to draw further from the work of David Leatherbarrow regarding such a framework for architectural design.

Chapter 2: Operative
Architectural Invention

In his book, *The Roots of Architectural Invention: Site, Enclosure, Materials*, David Leatherbarrow establishes an immense intellectual environment to draw from regarding architectural phenomenology. In addressing the nature of architectural design, Leatherbarrow utilizes the commonly held architectural topics: site, enclosure, and materials because, as he states: "every architect will have attended to these at some stage in the development of a design."[62]

Specifically, Leatherbarrow establishes that topics are *topical* and he moves on to identify them with *topoi* which he attributes to Aristotle as a way to locate and build-up an argument; that "topics in dialectics formed a strategy for reasoning."[63] Further, what is particularly useful is how Leatherbarrow establishes these topics as "formally generative" as a principle, "something *empty* capable of being *filled* with ever new arguments."[64] This mode of thought ultimately informs the design process as it gives way to architectural invention. That is, "Topical thinking is inventive and productive because it creates new forms of agreement and unity."[65] This last point seems analogous to identifying and maintaining continuities in the design processs. That "new forms of agreement" are the result of the designer identifying continuities which are

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62 David Leatherbarrow, *The Roots of Architectural Invention: Site, Enclosure, Materials*, (Cambridge: Cambridge University Press, 1993), 2.

63 David Leatherbarrow, *The Roots of Architectural Invention...*, 3.

64 Ibid., 3.

65 Ibid., 3.

"agreeable" to the conditions and intentions of a project and by drawing from them allow continuities to persist. Like a bridge, when the forms of agreement are made, meaning can pass over into a new *architectural episode* enabling the *transmission of culture*. These new forms of agreement - inward significance - can then manifest outwardly as architectural form through a process of invention addressed at the level of the site, enclosure and materials.

The example for each topic that Leatherbarrow provides are very useful when thinking about how the process of architectural invention occurs and appears. For example, at the level of *site*, he discusses how Adolf Loos addresses the *genius loci* in Vienna, Austria through an historical echo. That is, the Looshaus building is located in the old town core which is surrounded by old fortifications which the famous Vienna Ringstrasse surrounds. This familiar *image of the city* to local residents has been reimagined by Loos in the Michaelerplatz where the Looshaus is situated. Loos makes the *genius loci* apprehensible by pulling back the building which projects into the imaginary ring formed by the other buildings thus creating a new, apprehensible surround. The Looshaus becomes a part of its context in this regard, at the level of the site and as an image of the city. Loos "fills" the site with new meaning drawn from aspects of place and local culture. Loos visualizes the space, complements it, and effectively makes the Michaelerplatz a *symbol* of Vienna.

At the level of *enclosure*, Leatherbarrow discusses the idea of configuration being a unity between ancient pat-

terns and new patterns of human occupation. That with any site there is a history to it and the designer should learn how it was used so that what is designed acknowledges and aligns with the ancient patterns responsively. In this union lies, once again, the continuity between past and present, a "fusion of horizons." Further, as previously discussed on Gadamer, to enable the "formation of a new context of meaning that enables integration of what is unfamiliar, strange or anomalous." The example Leatherbarrow provides is a Roman Basilica that is transformed from a law court by Leon Battista Alberti. The basilica, Leatherbarrow notes, is a place where "magistrates met to administer justice" an axis in the space where justice was administered from.[66] He goes on to describe how this axis maintained its significance through Alberti's design. That the axis was filled with new meaning: continuity between the ancient pattern and the new pattern of human occupation as imagined and configured through enclosure.

In light of *site* and *enclosure*, Leatherbarrow seems to suggest they are actualized through *materials*. That is, as he once again draws from Loos, "the characteristics of an artifact viewed in aesthetic judgement should be those that conform to both the technical procedures of its construction and habitual patterns of experience, not the reverse, which makes dwelling an aggressive confrontation with pleasing form (contemporary practice)."[67] It seems Leatherbarrow is suggesting that material expression should be appropriated and derived from the inside out, that its meaning and experiential qualities

66 David Leatherbarrow, *The Roots of Architectural Invention...*, 97

67 Ibid., 207.

grow from inward significance as identified through established continuites at the level of both site and enclosure. That the designer work the material in a way which discloses a broadened understanding of the world of the work. In doing so, consistency is achieved throughout the design, from site to enclosure to material; furthermore, in achieving consistency the architecture becomes *real* and is able to preserve truth as revealed in the origins of architectural ideas.

Leatherbarrow seems to contend that in order to evoke the imagined experiential state of a chosen material, the designer should manipulate it based on local climatic conditions outside of the building and the imagined human occupation inside. However, it would seem both of these conditions play a reflexive role as the interior environment poses climatic considerations on the materials just as human experience occurs outside of the building. Again, just as Donald Schön identified in *technical rationality*, the designer is seeking an "agreement about ends," and in doing so, must travel between them, reflect back and forth, to come around the problem in iterative cycles in order to not only evoke the desired condtions but also memories and imaginings.

Perhaps, the bridge as a mode of thought, that architecture is a construction of infinite bridges is becoming apparent given each interpretation, each translation, each representation, each iterative cycle, each agreement about ends, each fusion of horizons, each process of symbolization, each image of the city, each transmission of culture, each transformation of type, each form of agreement, each refill, are aspects of continuities in

architecture: each a moment in the architectural experience; each a bridge in its ultimate construction. This act or *layering* or *weaving* could be seen as compounding the design, to weight the work with feeling and thought, to densify the design into a irreducible state where it becomes anonymous to distraction and apprehended through emanations of its real content.

Architecture of such immensity in its construction seems to be rare in the world. Perhaps one moment which captures such is when visiting Louis Kahn's Kimbell Art Museum in Fort Worth, Texas. If one approaches the site by way of the vernacular livestock barns thus encountering this transformed local building type upon arrival to the site, it is coming up the stairs inside the museum that the moment occurs: when the hand touches the handrail, the eyes see the cycloid vault above and the recent memory of the varnacular livestock barns come forth vividly and tangibly. It is architecture in a said moment, an instance of site, enclosure, and materials; an architectural experience which draws from the congnitive, sensate, and emotive content modalities.

Building on Leatherbarrow's work, and those before him, it now seems appropriate to shift this argument into the context of precedent studies. Works of architecture that resonate with the research outcomes thus far while availing useful tools to designers who seek an architecture of the *real*. That is, to acquire a more wholistic understanding of *the bridge* and the many levels it is operating at in the work of notable architects: how these architects deploy *the bridge* to enact their own intentions through the process of architectural invention.

Precedent Studies

The following precedent studies are analyzed based on the gathered research outcomes. Specifically, site (S), enclosure (E) and materials (M) will be utilized, in addition to technique (T) which indicates other tools the architects of study seemed to implement in their work. These designations will accompany the figures to indicate how they are being *interpreted*. For example interpretation 40.S.1 represents: Figure 40 (40), site (S), 1 (interpretation 1). This nomenclature will be referenced in the design response section of this thesis to demonstrate how this work is being drawn from.

Carlo Scarpa: Castelvecchio Museum

The interests which brought Carlo Scarpa to the Castelvecchio in Verona, Italy in 1956 were to display its art collection. As an overall strategy to the museum intervention, that is, the gallery design in relation to the overall architectural intervention to the castle, Scarpa's ideal manifested from his initial reading of the site. A reading which could be viewed as the castles primary function being a fortification from outside forces. In this case, it could be understood that the natural element which characterizes this presence is water. Scarpa states:

> Thinking of water flowing around the walls of the Castelvecchio gave me the idea of clarifying the entrance. Paving is the key to defining the geometry of a space.[68]

In light of this recurring theme, site, enclosure and materials express this ideal in various ways. Like Loos,

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68 Agon Efendiu, “Carlo Scarpa - A Profile (Documentary)," YouTube Video, 49:17, February 10, 2012. https://www.youtube.com/watch?v=9KxXgkEWK1U.

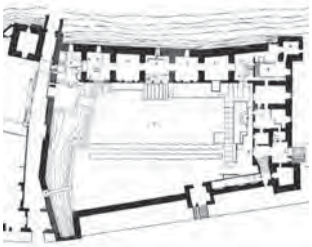
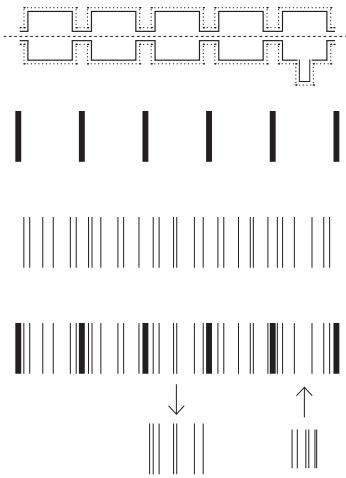


Figure 40 (top): Site plan reproduced from Frampton's *Studies in Tectonic Culture*
40.S.1 (bottom): Castle w/ water surround as imagined by Carlo Scarpa which echoes in the gallery spaces

Figure 39: View of Castelvecchio Museum courtyard, 2019, (photograph by Sailko, from Wikimedia Commons)

Scarpa designed the *genius loci* making it apprehensible inside and outside of the museum gallery (see 40.S.1). The real condition of water around the castle walls is imagined inwardly signifying a separation between the new floor and the old walls (see 41.E.1). Scottish architect Richard Murphy acknowledges this design move as, "analogous, as in so many projects of Scarpa, to water almost overflowing its container into channels around."[69] This design move is enhanced through material expression and construction detailing; a site level design move given the gallery spaces are part of the overall architectural promenade which accepts the visitor from the courtyard by way of an outward extension of the new floor paving design inside (see 41.E.5) and taking them through the enclosure until arrival at the crux of the experience: the Cangrande statue. Architect Arrigo Rudi, who worked with Scarpa, remarks: "The presence of Cangrande, the statue, is emblematic for the town - the symbol of Verona - and I believe when you cross in this part of the museum you can feel, in a very strong way, emotional way, all the history of the town, the presence

69 Agon Efendiu, “Carlo Scarpa - A Profile (Documentary)."



Top to bottom:
41.E.1 - rooms w/ water surround
41.E.2 - old pattern
41.E.3 - new pattern (disruptive)
41.E.4 - old / new pattern merge
41.E.5 - entry ext., room insertion w/ scale shift in pattern

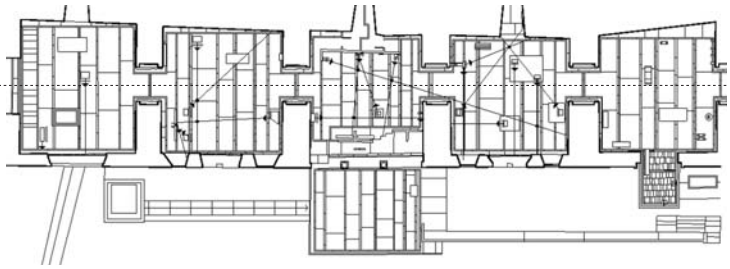


Figure 41: Gianna Stavroulaki and John Peponis, plan of intersections between the gazes of statues in the sculpture galleries, 2003; *The spatial construction of seeing at Castelvecchio*

of the master."[70] It would seem Rudi is evoking the emotive content modality presencing from Scarpa's design of the architectural experience.

Kenneth Frampton remarks on this user experience as, "Scarpa elected to treat the building as a continuously unfolding promenade that would mark its progresss through space by the discrete articulation of elements."[71] Elements which embody In making this experience more characteristicly vivid, Frampton states:

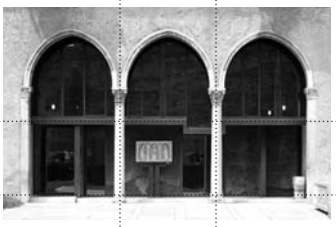
> ...the changing character of the interior arises from a constant play between the worked surfaces of different materials and the articulation of contingent seams, steps, borders, and reveals that serve to advance or check to the overall progression. Against this constant yet changing beat are set all accents that arise out of the necessary orchestration of various spans, support, joints, and hinges, irrespective of the scale at which they emerge.[72]

What is particularly relevant to the transition from site to enclosure is how the "changing character" informs the "constant yet changing beat." That is, how this character appears in the enclosure system as reflected in the development of the site design. Specifically, the fenestra-

70 Agon Efendiu, “Carlo Scarpa - A Profile (Documentary)."

71 Kenneth Frampton, *Studies in Tectonic Culture,* 321.

72 Ibid., 321.



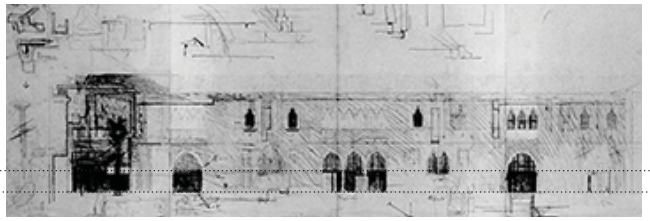


Figure 42: Scarpa's elevation sketch; source unknown

Top to bottom:
Figure 43: Day view of courtyard elevation, 2018; photograph by M. Introini, from Atlante Architettura Contemporanea
Figure 44: Night view of courtyard elevation, view of the loggia, terrace and new glazing screens, date unknown; by Richard Murphy, from Carlo Scarpa and Castelvecchio Revisited, 162
43.E.1/44.E.1: New pattern 'floats' above the ground while representing inward significance of design intentions outwardly: architectural promenade and water theme

tion patterning, like the new floor patterning, disrupts the rhythms of the existing facade and in doing so differentiates between what is old and what is new (see 41.E.4, 43.E.1, 44.E.1). Further, the treatment of "restless mullions creates the effect of disturbing the 1924 false facade."[73] This design move helps remove any confusion from the person experiencing the project regarding where they are in history.[74] That while moving through the gallery spaces, although a clear distinction between old and new is made, their is harmony and attunement as each aspect of the intervention is careful considered and precisely integrated with the old allowing space to flow freely.

For example, to clarify the distinction between the old interior castle walls and the new floor, Scarpa reconfigured the placement of local prune stone slabs which were previously located both on the old floor and walls. By reposition the slabs on the floor to the locations where it was absent on the walls (arched passageway between gallery spaces) Scarpa creates a continuous surface expressed by the rough textured prune stone (see Figure 45). To differentiate this move on the floor, Scarpa deployed an orthogonally precise paving system which was offset by the non-orthogonal walls in plan.

73 Agon Efendiu, “Carlo Scarpa - A Profile (Documentary)."
74 Ibid.

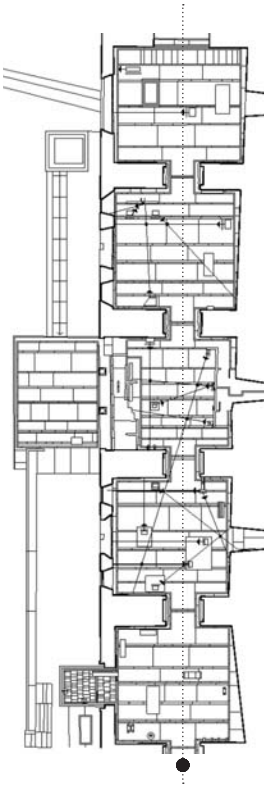


Figure 46 (top): Photograph fragment from Figure 45
46.M.1 (bottom): Plan view of spatial sequence with imagined directionality implied by the beams (dotted line; black dot indicating view point in Figure 45)

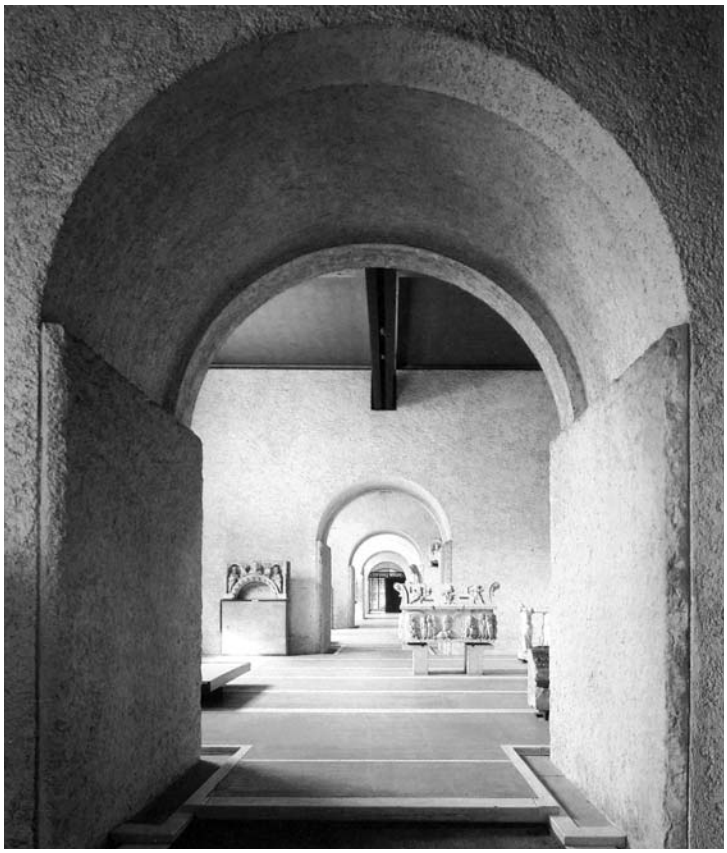
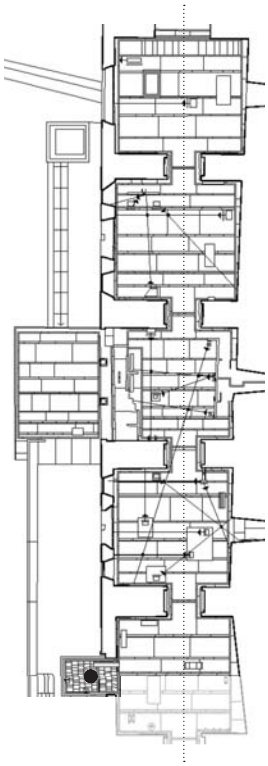
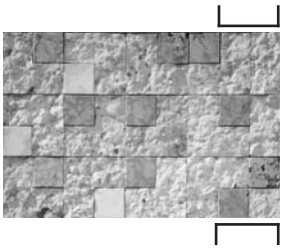


Figure 45: View of museum's interior enfilade gallery spaces, 2013; from Carlo Scarpa y el museo de Castelvecchio (Verona) by José Santos Torres (photographer unknown)

The regularilty of the gallery spatial sequence associated with the prune is then disrupted by the irregular sequence of the paving pattern and detailing which plays several roles in organizing the architectural experience: entry, procession, spatial heirarchy, among others (see 41.E.1-41.E.5). Overriding these design moves is the linear directionality of the structural beams overhead. A device which provides visual continuance from one gallery space to another.

At the next level, there is a small room inserted into the main gallery space which houses artifacts from a tomb. The theme at work in the tomb design is one reflected at various scales throughout the overall intervention to the museum. Specifically, a recurring act of insertion as best





Top to bottom:
Figure 47: View of 'tomb room' insertion, 2016; photograph by Enrique Pérez Rodero
47.E.1: 'Tomb room' plan location
47.T.1: Josef Albers inspired stone pattern; photograph by Jim Laser

described by Richard Murphy:

> Just like the main room, from which this small gallery springs, it also is a series of detached elements. In particular, the floor is inserted in such a way that it doesn't touch the wall... So there's a kind of seemless quality between museum design and the design of the building. The objects sit on the pedestals, the pedestals are connected to the steel, the steel bounds the floor, the floor is inserted into the room, and the room itself is inserted into the gallery. We can see this from the outside too. From the outside, the room is a kind of cube inserted into the original opening. The cube is decorated with small stone cubes of many different colours. Each rough cube has within it a smaller smooth cube stone and the whole composition is based on a painting by Albers."[75]

This "seemless" quality of insertion at various levels of the design seems analogous to the water theme. That is, the separation between the floor and the walls allows this small room insertion to appear as if floating into or out of the building (see Figure 47). Harmonizing this small space with the larger gallery sequence, Scarpa deploys a scaled-down version of the floor patterning: visual connector and spatial reducer.

Unifying the overall experience, as reflected in the design of the 'tomb-like' space, is how Scarpa manipulated materials to express the inward significance of the rough textured prune stone walls in Albers inspired square pattern deployed on the exterior of the inserted volume. That is, the pattern is materialized in a composition of square stones; each square constituting the whole is composed of four smaller squares, one rough, three smooth, in various arrangements: a recurring theme that echoes the idea of water at the site level, reflecting throughout the enclosure configuration.

75 Agon Efendiu, “Carlo Scarpa - A Profile (Documentary)."

Figure 48 (top): Aerial view of the National Museum of Roman Art under construction in relation to the ancient Roman amphitheatre above to the left; photographer unknown, from Rafael Moneo, Merida classic/anti-classic - National Museum of Roman Art
Figure 49 (bottom): View of arched Roman brick passageway leading into the ancient Roman amphitheatre (see 50.S.3); source unknown

Rafael Moneo: The National Museum of Roman Art

The interests which brought Rafael Moneo to Merida, Spain were to design a museum to display ancient Roman art while facilitating a live excavation site in the 'crypt' space located in the bottom of the museum. The primary ideal for Moneo being how to manifest the presence of the ancient Roman past in a new architectural episode for Merida. Moneo describes the first intention of the project, "was to build a museum that would offer to people the opportunity to understand the lost presence of the Roman town."[76]

At the level of the site, it appears Rafael Moneo is establishing several connections and relationships between the new museum and the ancient Roman site beneath it while acknowledging surrounding contexts. Surrounding the museum, the primary relationship Moneo establishes with the ancient Roman amphitheatre is through identification and reappropriation of the arched Roman brick passageway which leads into the amphitheatre site (see figure 49, 50.S.3). A dialectical relationship that not only informs the site concept strategies but provides design inspiration regarding how the architect imagines enclosure and materiality for the project.

Secondary readings of the context indicate how Moneo draws from the urban patterns of more recent buildings which inform the spatial organization and rhythm of the museum's structure and enclosure (see 50.S.1). The museum enclosure is articulated on the south side by acknowledging the existing road and its relationship to

76 Rafael Moneo, "Museum for Roman Artifacts, Merida, Spain," *Assemblage*, no. 1 (1986): 73.

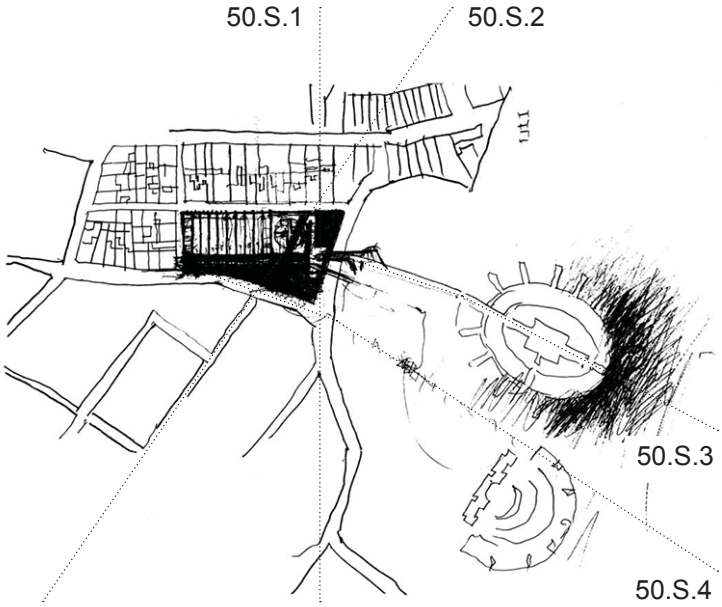


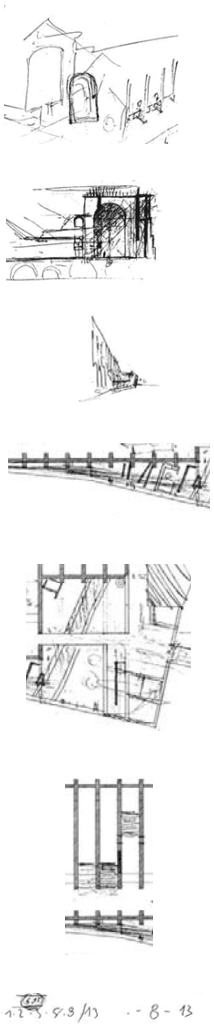
Figure 50: Interpretation of Moneo's site concept sketch identifying visible and invisible continuities; from Moneo, *Rafael Moneo: Remarks on 21 Works*.

the amphitheatre site (see 50.S.4). Within the building, the crux of the architectural experience could be viewed as the intersection between the old axis (see 50.S.2) and the new axis (see 50.S.1) which the enclosure system reveals. This architectural moment captures the ancient Roman foundations at ground level juxtaposed by a bridge leading to the nave on the main level of the musuem. Moneo describes this interaction:

> By ignoring the alignment following the layout of the ruins, one of the defining features of the project became apparent: the lack of coincidence - the opposing and discordant encounter - between the geometry of the ruins and the layout of the new museum. The chosen construction method ensured the desired closeness and affinity.[77]

Between the primary source and this secondary source the project appropriates two axis which informs several

77 Rafael José Moneo, Michael Moran, and Guereñu Laura Martínez. *Rafael Moneo: Remarks on 21 Works*. (New York: Monacelli Press, 2010), 107.



Drawing fragments, top to bottom:
51.S.2: Reappropriating old Roman arch to nave concept (*typology*) informing *architectural promenade*
51.E.1: Roman arch type is being transformed into enclosure *type*
51.E.2: Perspective view of articulation of enclosure to acknowledge amphitheatre site
51.E.3: Articulation of enclosure in plan
51.E.4: Crux of architectural experience representing the reveal of enclosure showing intersection of old and new
51.T.1: Indications of *free plan* enabling gallery exhibits to move between main structural walls
51.T.2: Fibonacci sequence in reference to foundation arches

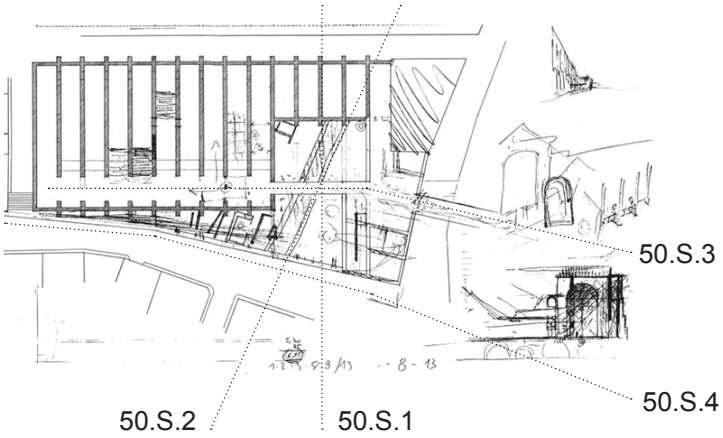
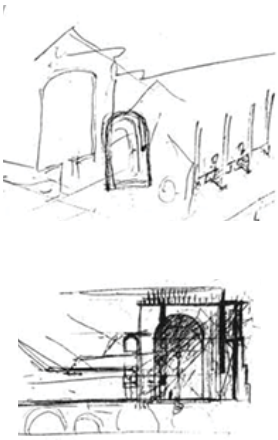


Figure 51: Interpretation of Moneo's developed concept sketch, Andrew Peckham, 2008; from Peckham, *Moneo, Libeskind and a question of influence*

key moments in the architectural experience that Moneo unfolds through implementing the *architectural promenade*. The architectural promenade is imagined through an invisible connection to the arched Roman brick passageway which is made visible in the 'nave' enclosure sequence that spatially organizes the primary museum space (see 50.S.3). Utilizing the *free plan* (see 51.T.1), Moneo creates subordinate gallery spaces off the nave which provide levels of variation on this theme while revealing architectural moments through openings in the floor slabs (51.E.4). This is made possible by the concrete floor system, a modern interpretation of the Roman hypocaust floor system, which povides lateral structural support to the main walls which are a modern interpretation of the ancient Roman brick construction system. The mode of interpretation utilized by Moneo is done through a process of abstraction. Moneo remarks on the importance of this process so that "the museum building achieve the character and presence of a Roman building: thus the prominence given to the construction



Drawing fragments from previous pages to emphasize the clarity of Moneo's translations

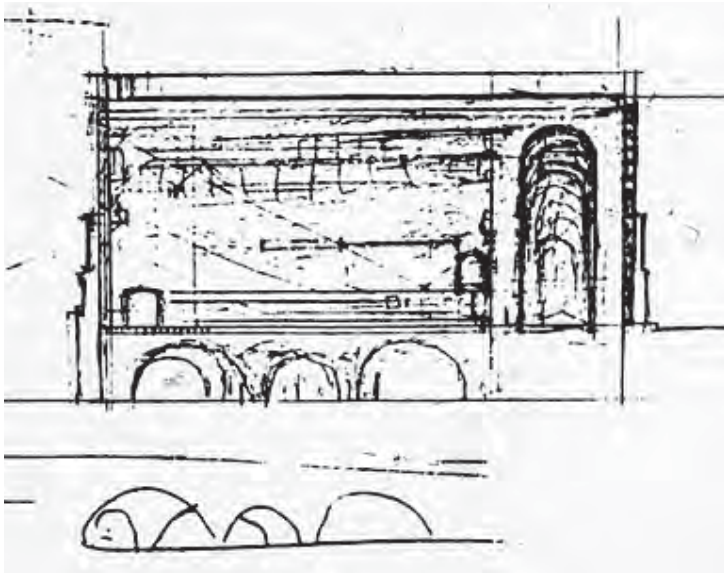


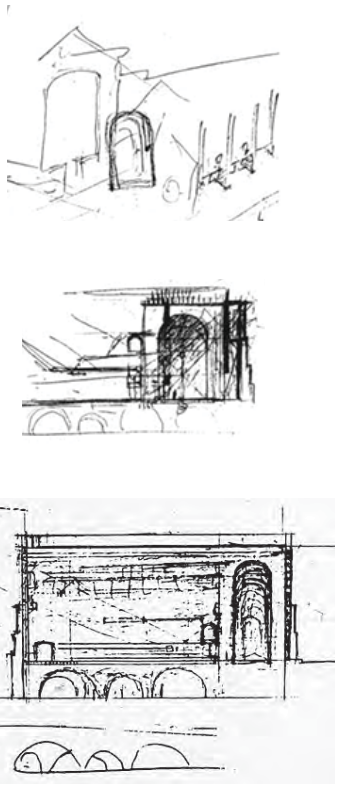
Figure 52: View of Moneo's translation, lateral cross section; source unknown

as the expression of the architecture itself."[78] Moneo is describing what he previous described as "reality" and "consistency" between the built form and the image. Specifically, he describes how "the walls are constructed by a procedure not far from the Roman manner - a massive masonry bearing wall infilled with concrete - a manner of building that allows the materiality of the Roman brick wall to become, finally, the most important feature in the architecture of the museum.[79] By re-appropriating the Roman brick and understanding how it was used in the past Moneo was able, through the utilization of interpretation and translation, to take the brick and its subsequent aggregate element, the wall, into a new typology.

This new typology becomes the primary mode of enclosure for the museum. From the elongated Roman brick, the single unit of Roman construction, Moneo was able to interpret what it meant, how it was used to cre-

78 Rafael Moneo, "Museum for Roman Artifacts, Merida, Spain," 73.

79 Rafael Moneo, "Museum for Roman Artifacts," 73.



Drawing fragments from previous pages to emphasize the clarity of Moneo's translations, top to bottm: 51.S.2, 51.E.1, Figure 52

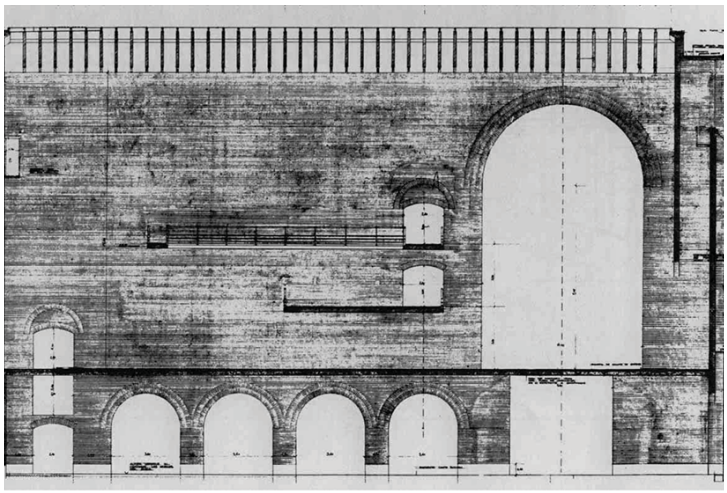


Figure 53: Andrew Peckham, view of lateral cross section, 2008; from Peckham

ate an old type, what that type signified in relation to other elements and reimagined its use and meaning in a new context, a new *architectural episode* resulting in the "the creation of an entirely new object and an entirely new being."[80] In this continuous way, the ancient Roman world is able to transmit from and persist through the new construction. This process is made particularly clear in the architects drawings as the Roman arch typology is visibly identifiable in the architects initial sketches and through a series of translations becomes transformed into something new (see 51.S.2, 51.E.1, Figure 52, Figure 53).

Moneo's process of presencing the ancient Roman past through the new construction is actualized through his manipulation of the material. Specfically, by removing the heavy grout joint which characterizes the ancient Roman brick construction system and expressing a "dry joint" the brick comes to the fore, presencing as an element which unifies the entire museum space from which the ancient artefacts on display are set apart from.

80 Rafael Moneo, "The Idea of Lasting," 151.

Figure 55: Larry Speck, National Museum of Roman Art, Merida, Spain, 2020

Figure 54: View of new museum foundations actively engaging with ancient Roman foundations, from Rafael Moneo Arquitectos website

Moneo describes this process as it:

> secures the *brickness* of the material, keeps the brick in a more pure state, and allows the wall to remain as an almost abstract architectural element, without becoming the kind of agglomeration that these walls tend to be. I believe the abstract use of materials depends on our attempts to keep their own identities alive, without dissolving them in the reality of the architectural element.[81]

This process of preserving the "identity" of the material, that is, the memory and associations the material has with its original use for a particular culture, is a direct link to the intentions of the project which, as previously remarked by Moneo, are to evoke the presence of the Roman past. However, it would seem this act reaches its crux through its clarity in removing what is arbitrary in place of what is mandatory: as "arbitrariness of form was dissolved in construction and *architecture acted as a bridge between the two*."[82]

81 Rafael Moneo, "The Idea of Lasting," 149.

82 Rafael Moneo, "Museum for Roman Artifacts," 74.

Figure 56: Interior view of the protective housing for Roman excavations. Danuser, Hans, and Peter Zumthor. “Hans Danuser, Peter Zumthor. Shelters for a Roman Archaeological Site, from the Zumthor Project / Scores and Images (Sheet: IV 2). 1988–1992: MoMA.” The Museum of Modern Art. Accessed March 6, 2020

Peter Zumthor: Protective Housing for Roman Excavations

The interests which brought Peter Zumthor to Chur, Switzerland were to design a shelter over an ancient archaeological site. Being a local resident and having worked extensively for local government recording and documenting historic buildings in the area, Zumthor brought an *authentic* perspective to the project. Authentic in the sense of understanding the *real* conditions under which such a project could be possible. Art historian Philip Ursprung remarks Zumthor's process:

> ...it is about articulating latent processes, about envisioning the invisible…where the architectural shell not only echoes the contours of long-gone Roman houses but also directs the viewer’s gaze to the scarcely visible remnants of a lost civilization...this is very clear, for instance, in his 1986 Protective Housing for Roman Archaeological Excavations in Chur[83]

Authentic and *real* are used in reference to Ricoeur's *Contrasting Reflection*, that is, Zumthor seems to have a deep understanding of local cultural values and how the significance of these cultural values manifest outwardly in the built environment. Specifically, he seems to be able to recognize local materials, building elements, and construction techniques which can be re-appropriated and transformed into new types while serving the very nature of the project requirements. For example, when imagining the site, enclosure and materials for the protective housing, it appears as though Zumthor drew directly from a vernacular structure near the site (see Figures 57, 59). Zumthor expresses the value of drawing from history as he states, “…we do well to get

83 Philip Ursprung, “Limits to Representation: Peter Zumthor and Hans Danuser,” *Visual Resources* 27, no. 2 (2011): 180, https://doi.org/10.1080/01973762.2011.568180.

Figure 58 (top): View of protective housing for Roman excavations in relation to the historical dialectic called out in Figure 57
Figure 59 (bottom): View of vernacular building in relation to the historical dialectic called out in Figure 57

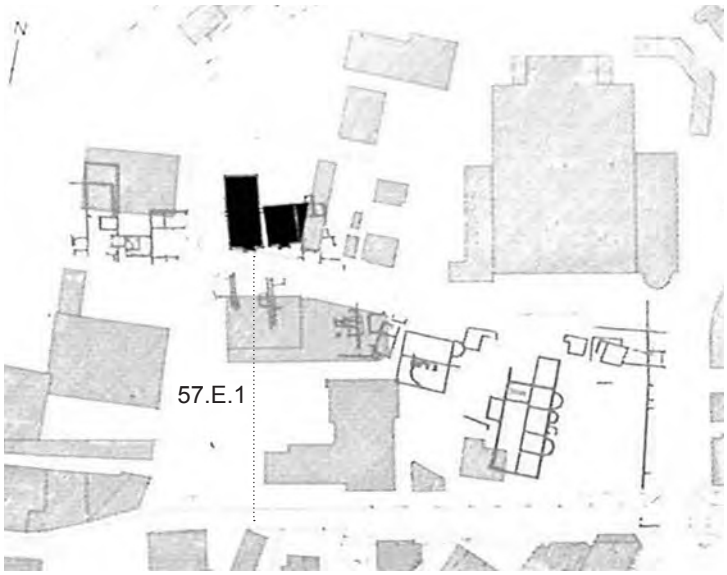


Figure 57: Site plan drawn by Peter Zumthor. Dialectic relationship which appears to inform enclosure is overlaid (57.E.1)

acquainted in the history of architecture. I believe that if we integrate this in our work, we have a better chance of making a genuine contribution of our own…design has once again become invention."[84]

This particular vernacular building appears to display elements born of traditional construction practices while performing in a way which could be repurposed, or reimagined, to serve the new programmatic needs of the protective housing. For example, the wooden lamella haybarn element traditionally serves as an open-air exchange system. The protective housing enclosure seems to apprehend this concept and extrapolate its function to serve as the entire enclosure system while accommodating a secondary enclosure system of apertures for entry, daylighting, and views (see Figure 58). Based on the archaeologists findings, fragments of a work of Roman art depicting various aspects of the con-

84 Peter Zumthor, *Thinking Architecture*, (Basel: Birkhäuser, 2017), 18.

Figure 60 (top left): Vernacular wooden lamella haybarn element which appears to be re-appropriated in Zumthor's enclosure system
Figure 61 (bottom left): Vernacular storefront viewing window element which appears to be re-appropriated by in Zumthor's enclosure system
Figure 62 (right): Aspect of Zumthor's enclosure system representing the wooden lamella element transformed into a new typology. Vernacular storefront viewing window appears to be re-appropriated as a viewing portal for the Roman excavations

figuration of the Roman houses which once occupied the site provided clues which Zumthor seems to have drawn from when configuring the new structure (see Figure 63). Specifically, the fragments of the Roman art work appear to indicate the old floor datum, the proportion of the floor structure, and the height of the overall space. Zumthor states:

> ...this height is about the height the houses could have had, that's what the archaeologists taught me…this, of course, is not just a box, it's a shelter and it's open like a haybarn and you can listen to the city and this is what I had to do, I had to give shelter from the rain and the snow but keep the inside and outside temperature the same – no climatic barrier – because this would destroy the ruins.[85]

It would seem plausible that given the reference to the archaeologists findings, the fragments of Roman art, it seems plausible that Zumthor drew further from the genius of the place like the Roman's.

If this argument holds, then it would appear the proportion of the ancient Roman construction system is being reflected in Zumthor's design at mulitple levels (see Figure 63). If the new *imagined* spatial configuration reflects the old Roman spatial configuration then this would indicate a modern interpretation of the old Roman houses at multiple levels (see Figure 64). If this is an accurate reading, this would be one of many reasons why Peter Zumthor is considered a remarkable architect. His ability to generate inward significance which translates to outward appearance is masterful due to its subtlety and authenticity. This could be viewed as a tangible objective measure for evaluating the architecture.

85 Tony Chapman, "The Stuff of Architecture: Peter Zumthor," Last modified Oct 8, 2016, YouTube, 56:28, https://www.youtube.com/watch?v=H_oyK3xQZtE.

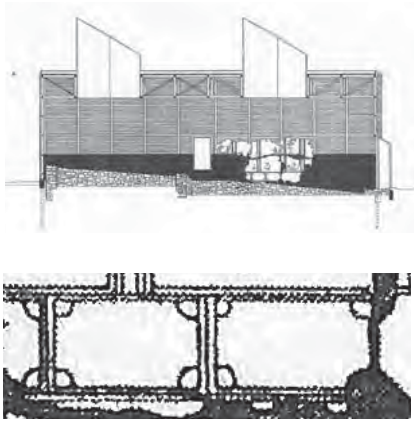


Figure 64 (top): Overall cross section drawing by Peter Zumthor scaled down in proportional relation to Roman art representing ancient building system
63.E.1 (bottom): Roman art representing ancient building system proportionally scaled in relation to Figure 63 and Figure 64

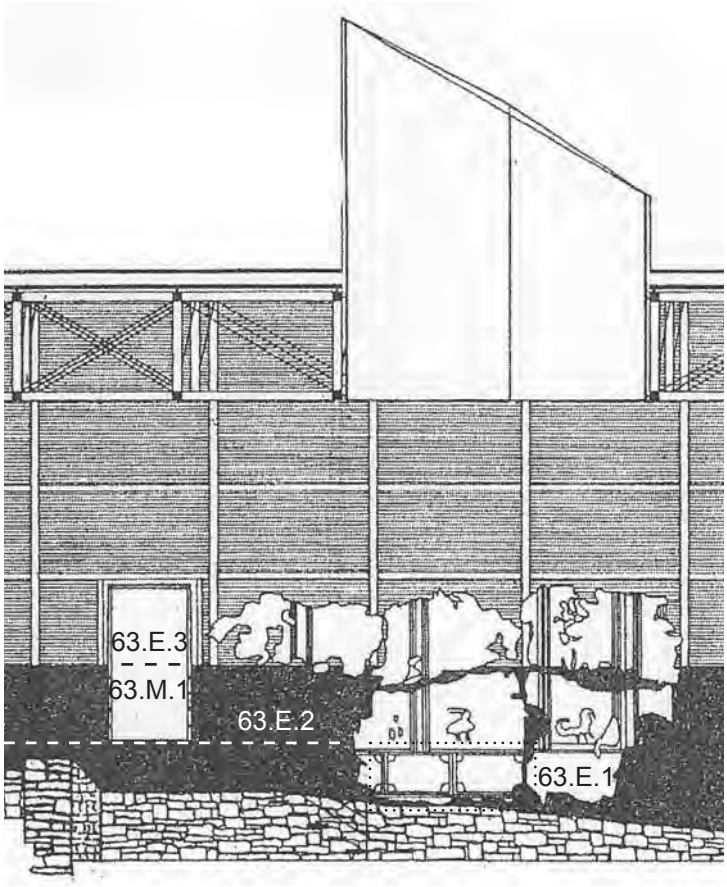


Figure 63: Interpretation of section drawing by Peter Zumthor representing different elements which appear to inform the architectural experience of imagined enclosure

Continuining this line of interpretation, the fragments of Roman art depict a floor datum (see Figure 63, 63.E.2). This ancient reference appears to inform the datum of the new bridge element which at a functional level provides the primary circulation route throughout the protective housing volumes (see 65.S.1). However, there seems to be more than meets the eye regarding the bridge in this instance. For example, note the location of the bridge in reference to the black cloth fabric (see 63.E.2). Metaphorically speaking, it appears the bridge is located halfway between the ancient Roman past and the present. A device which indirectly and subconsciously affects the human occupant given it marks two

worlds: the ancient world cloaked in black fabric below (see 63.M.1) and the modern world interpreted from local vernacular building elements which are transformed into contemporary enclosure devices (see 63.E.3). This mode is furthered by the instance in which the bridge descends into the actual ancient space of the Roman houses where the human occupant is completely within the world of the cloaked black fabric: the ancient Roman past.

The floating appearance of the bridge above the ground seems to mark the suspension of time between entering the bridge from the exterior and exiting the bridge in the space evoking the presence of the ancient Roman world (see 65.S.2). What Zumthor has done here could be viewed as a tangible subjective measure for evaluating the architecture.

The level of precision in executing these various aspects of the imagined design could be understood in the broader aim of Zumthor's intentions. That is, to create an emotional experience for the user by removing what is inessential. Further, Philip Ursprung remarks that Zumthor's intervention, "allows the visitors to emotionally and intellectually reconstruct the lost identity in their imagination and feel like archaeologists who are discovering the historic fabric under various layers of the past...an open process that can be individually experienced."[86] In this mode, the bridge as a formal device facilitates the temporal transition from the present and entry to the past.

86 Philip Ursprung, "Earthworks: The Architecture of Peter Zumthor," The Pritzker Prize (2009): 3, https://www.pritzkerprize.com/sites/default/files/inline-files/2009_PhilipUrpsrungEssay.pdf.

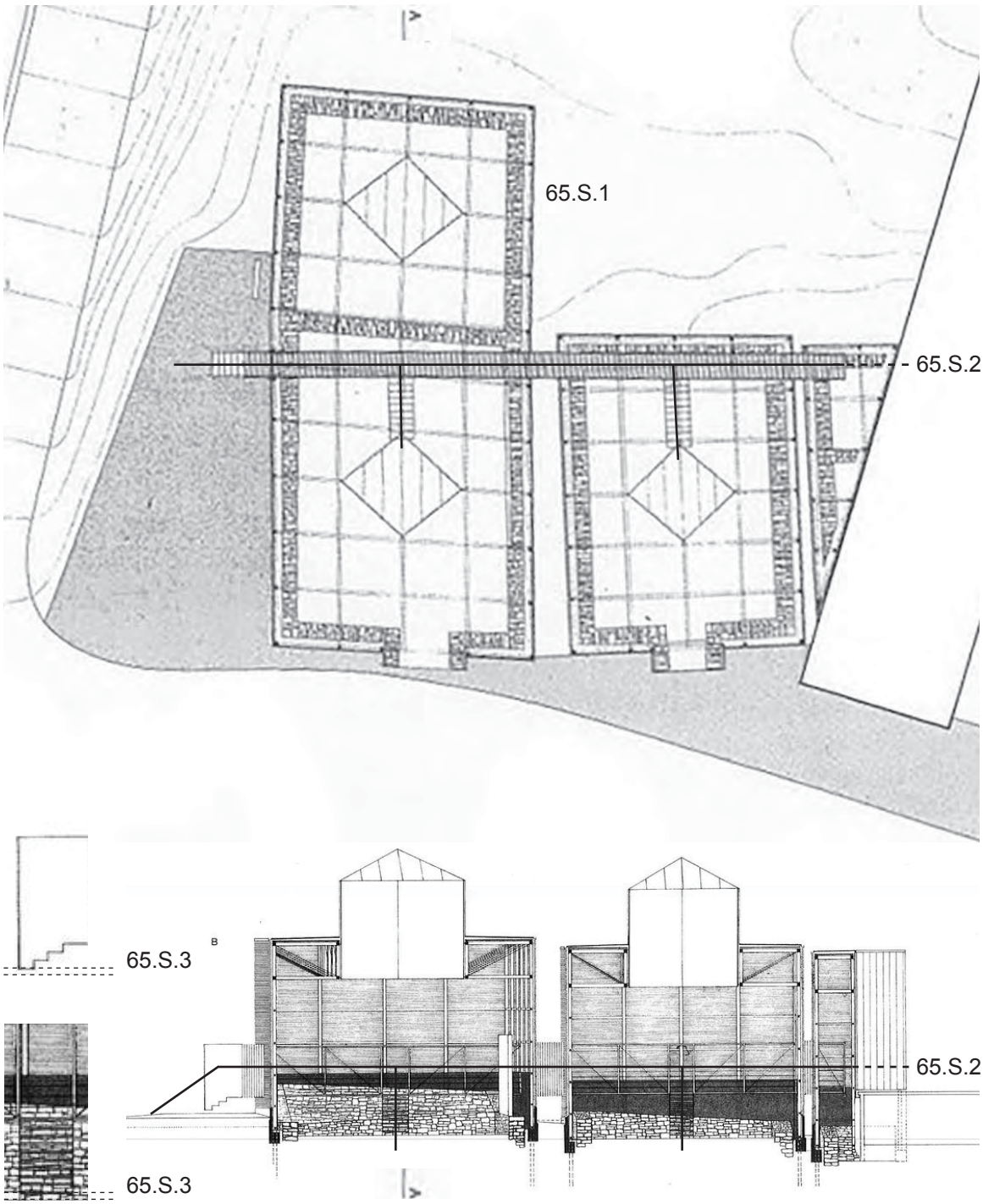


Figure 65: Interpretation of ground level plan and section drawn by Peter Zumthor representing the new enclosure system precisely reflecting the old Roman foundations (65.S.1). The bridge element (65.S.2) provides circulation between the outside and the inside of the structures. In section the new structure, which reflects the spatial configuration of the old Roman houses, is accessed by the bridge element which appears to be disconnected from the ground on the inside and outside of the structure (65.S.3). This could be read as an element which suspends the user in time from when they step onto the bridge from the outside and step off of the bridge on the inside of the structure into the *imagined* ancient Roman world

Chapter 3: Design

Bridging Worlds

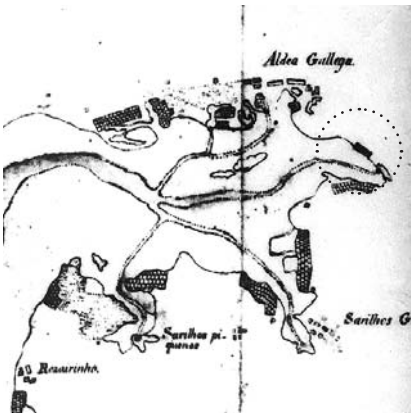
The Place Museum of Local Culture

The interests which brought me to the salt pans location on the postindustrial waterfront site in Montijo, Portugal were initiated by the interests of the University of Lisbon's architectural design studio. That is, to propose an overall site strategy as well as a building program and design for a specific location on the site.

When visiting the site, among other students and professors, local municipal officials guided us along the main site road while commenting on some of the ruins and historic elements which were significant to local culture. In addition to these site features, the municipal officials discussed the proposal for a new airport in the area which raised questions as to how tourism could benefit the local economy and how this might bear upon the site and its contexts. Based on this reading, it soon became apparent to me that the conditions under which a project for this site might be possible reflected Paul Ricoeur's paradox: "how to become modern and to return to sources; how to revive an old, dormant civilization and take part in universal civilization."[87]

I interpreted Ricoeur's paradox as to how the project for the site could serve modern interests like the social and economic benefits of tourism, acquired through the interaction between locals and visitors, while serving the unique history and traditions of the place and the culture of Montijo. That is to say, how these interests and conditions could provide entry to, and establish a framework

87 Paul Ricoeur, *History and Truth*, 277.



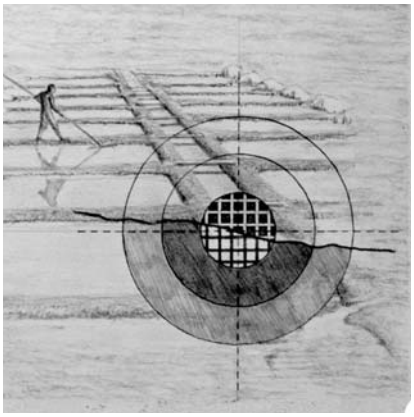


Figure 66 (top): Historic map of salt pan locations in the Tagus Esturary, Photograph of Museum display board, Montijo, 2018; dotted circle overlay marking site
Figure 67 (bottom): Identification of salt pans as a culturally significant element

for, *the world of the works* for this particular project.

Specifically, *the world of the works* for this particular site in Montijo finds its origins in the creation of the Tagus Estuary. The artefacts which mark the post-industrial waterfront site are attributed to the effects caused by the estuaries formation. To revist Frampton's remark on architecture "as having the capacity not only of expressing the different materials from which it is made but also of revealing the different instances and modes by which the world comes into being,"[88] it now seems appropriate to reflect his view on the formation of the Tagus Estuary to understand the different materials at work. Further, research indicates:

> The Tagus Estuary was created after the end of the last glacial period, when the rising sea level drowned the lower Tagus River valley. After being drowned by the rapid post-glacial sea level rise, the inland delta of the Tagus grew through sediment deposition, and sediment further accreted along the margins of the estuary, allowing the establishment of tidal wetlands...as the frontline of mudflats and saltmarsh accreted and moved downstream, it created behind it a large floodplain of fertile soils, which were seized and used for agriculture by all the successive civilizations that controlled it, from the Romans to the Visigoths, on to the Moors and, eventually, the Portuguese.[89]

This research not only indicates the modes and instances by which the Tagus Estuary came into being, but also the natural materials which were apprehended and utilized by various cultures to work the land and establish settlements. Further, this working of the land shaped industries and industrial artefacts that bear "cross-cul-

88 Kenneth Frampton, *Studies in Tectonic Culture...*, 23.

89 Pedro Pinto and G. Kondolf, "Evolution of Two Urbanized Estuaries: Environmental Change, Legal Framework, and Implications for Sea-Level Rise Vulnerability," *Water* 8, no. 11 (2016): 5.

Figure 68 (top): View of warehouse smoke stack
Figure 69 (bottom): View of weep-hole pattern in train corridor retaining wall

tural ramifications" from "the Romans to the Visigoths, on to the Moors and, eventually, the Portuguese." This layered, transcultural history is not only evident in historic literature but also materially evident in artefacts. That is, as different cultures came and went their "mind" shaped the "matter" which found form in industrial artefacts to serve each groups interests in order to work the land based on the conditions of their time. From salt pans to lime kilns to other industrial structures like smoke stacks and retaining walls, all of which bear this layered history.

In this way, the "*images* of the city" tell a rich historical narrative both of the subjective aspects of different cultures and the objective aspects of how matter was shaped and formed by human minds. This *multiplicity* and *plurality* of languages as interpreted through topography is what ultimately presents *the image of the city* on the post-industrial waterfront site. Architecture, in this light, could be viewed as the presence of the past revealed through each natural and artificial aspect of the topography. An *open work* of cultural references expressed through physical characteristics on the landscape.

Based on this, it could now be understood how the tidal mill "preserves truth" as previously noted by Heidegger. That as a response to the natural formation of topography and the reading of tidal patterns, the artefact emerged from the landspace as a structure born of response to its objective (material) conditions to utillize tidal power for a processing industry and (human) interests to grow an economy and establish human settlement. A pure manifestation signifying the identity of a culture: a culture in

Figure 70 (top): View of topography around lime kiln
Figure 71 (bottom): View of fisherman houses

its formative stages; significance that is now sought after by the current municipality of Montijo in any new urban development on the waterfront. This aspect of *Cultural heritage* has been identified by research as inclusive in the needs of revitalizing postindustrial waterfront sites. Further, research indicates:

> ...the need to create availability of cultural and leisure spaces that respond to new cultural consumptions which have arisen in the context of the postindustrial era; the need for preservation of reference elements (or drivers of territorial identity) that communicate with new users and consumers of the intervened spaces, creating connections to the place; and the need to assert each waterfront's characteristics for the purposes of differentiating them from the multitude of other revitalization interventions worldwide.[90]

This line of research indicates the value associated with these artefacts and whats at stake if they are lost or disregarded in the revitalization of the postindustrial waterfront site. Specifically, with respect to the salt pans site location, other sources indicate that "with the decline in the production of artisanal salt, associated environmental, cultural, historic and human values are lost, as artisanal salinas maintain a high biodiversity, constitute a highly valued man made landscape and are part of our industrial heritage."[91]

Based on this research, in addition to personal observations and design intentions, it would seem that a way to address these issues and conditions is through a design that embraces the rich cultural and historical diversity

90 André Fernandes, João Figueira de Sousa, and Regina Salvador, "The Cultural Heritage in the Postindustrial Waterfront: A Case Study of the South Bank of the Tagus Estuary, Portugal," *Space and Culture* 21, no. 2, (2018): 171.

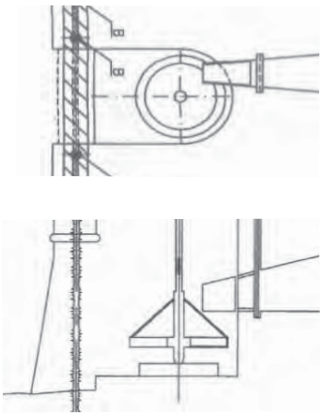
91 Carolina Rodriques, "Artisanal salt production in Aveiro/ Portugal: an ecofriendly process", *Saline Systems* 7, no. 13, (2011), doi: 10.1186/1746-1448-7-3.

Figure 72 (top): View of tiling pattern on vernacular building
Figure 73 (bottom): View of warehouse columns in a state of ruin

of Montijo, with a particular focus on the salt pans site location. My interpretation of this information has led me to consider a new museum typology. That is to say, a museum which through its architectural language, form, and material expression, all work in unison to transmit and signify the presence of Montijo's past. To do so in a way which facilitates an architectural experience and historical narrative which is open to interpretation for the individual user. As an anchor to the overall site, it would seem that such a cultural institution would create a strong public presence in the area thus potentially re-activating and revitalizing the waterfront in its perceived urban extent: from the restored tidal mill west of the site to the tidal mill ruin east of the site. However, beneath these horizons, within the limits of the site, lies the primary "topic" which is capable of generating the primary pattern: salt.

Upon studying and interpreting historic maps, the ancient salt pans were drawn from and reimagined in a precise way, like Zumthor's technique utilized for the protective housing for Roman excavations (65.S.1), platforms emerging from the shoreline. Accessing these platforms is done through a series of bridges (65.S.2) which are seemingly floating at the connection points (65.S.3) to enhance the architectural experience of stepping off from the present and into the past; the bridge serving as device to suspend the person in time between connection points.

Unifying this overall experience of movement through the architectural promenade, that is from departing the train station and moving through the various mark-



5.E.1: Interpretation of drawing fragments from Figure 5 depicting tidal mill wheel mechanism in plan (top) and section (bottom) as *type* elements

er locations toward the final 'formal device' or 'cultural releaser,' is a paving system which is derived from the orthogonal salt pans geometry. This pattern functions at three scales: the primary being the architectural promenade (large squares), the second being the connections between the promenade and the formal devices (small squares), the third being the pattern of the museum program platforms (rectangular). This paving sequence is drawn from Scarpa's technique utilized at the Castelvecchio Museum (41.E.1 - 41.E.5). Further, Scarpa's idea of the water surround to separate the new from the old seemed appropriate as a way to separate the tile pattern from the platforms which is enhanced and perceivable at each bridge connection. A location where the platform, the tiling pattern, and the bridge device all converge.

At the level of enclosure, based on the previous tidal mill and lime kiln studies, it seemed appropriate to draw from these two typologies, effectively reappropriating their content meanings and in doing so transform and extrapolate aspects of their types. That is, by understanding what certain elements are doing and how meaning can be interpreted and reimagined in a new architectural language, a language which speaks to the formation of a new architectural episode. Specifically, the translated tidal mill wheel mechanism, when scaled up, now serves as a circulation element which moves the user from the platform surface up a labrynth-like ramp system which is accompanied by terraced gardens to the top landing (see 5.E.1). This extrapolated element becomes a 'hinge' mechanism that reconciles discordant geometries between the angle of the 'formal

device' and the orthogonal geometry of the new 'housing' type for the spaces of the museum complex on the adjacent platform. At the top of the formal device is a second bridge which takes the user across to the dedicated museum spaces.

This move speaks to how Moneo deals with the two site axis, old and new, at Merida where the free plan opens up over the old foundations and the new promenade bridge device passes over. While in this particular instance Moneo reveals the material presence of the two site axis in physical isolation from one another (see 51.E.4), which he later reverses in the 'crypt' space by directly engaging the new foundations with the old ones (see Figure 54). The move I have deployed directly implicates both axis through a 'hinge' mechanism which allows the visitor to directly experience the architectural moment through a gradual ascent from bottom to top. Where at the top, the visitor can reflect on this experience through viewing apertures in the bridge form which are focused back at the shoreline markers: where they just came from (surrounding artefact reference) and where they are about to go next (associated artefacts on display in the museum galleries).

This particular moment of the architectural experience, the high point for each 'formal device,' allows the visitor to look back, through focused apertures, and to observe the historic artefact in the distance which has informed their current experience in relation to its broader cultural and historical context. This experience continues into the new 'housing' type where artefacts are on display to reveal the historic and cultural *world of the works*.

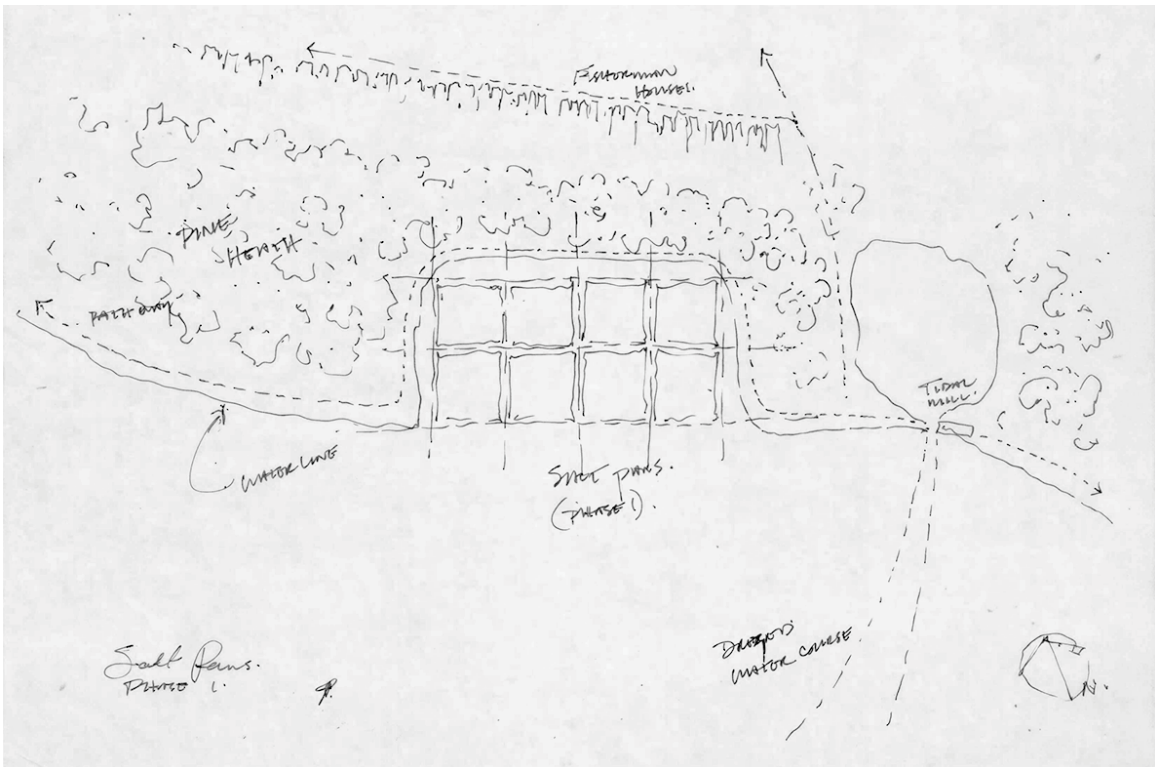


Figure 74: Original salt pan configuration; interpreted from historic map

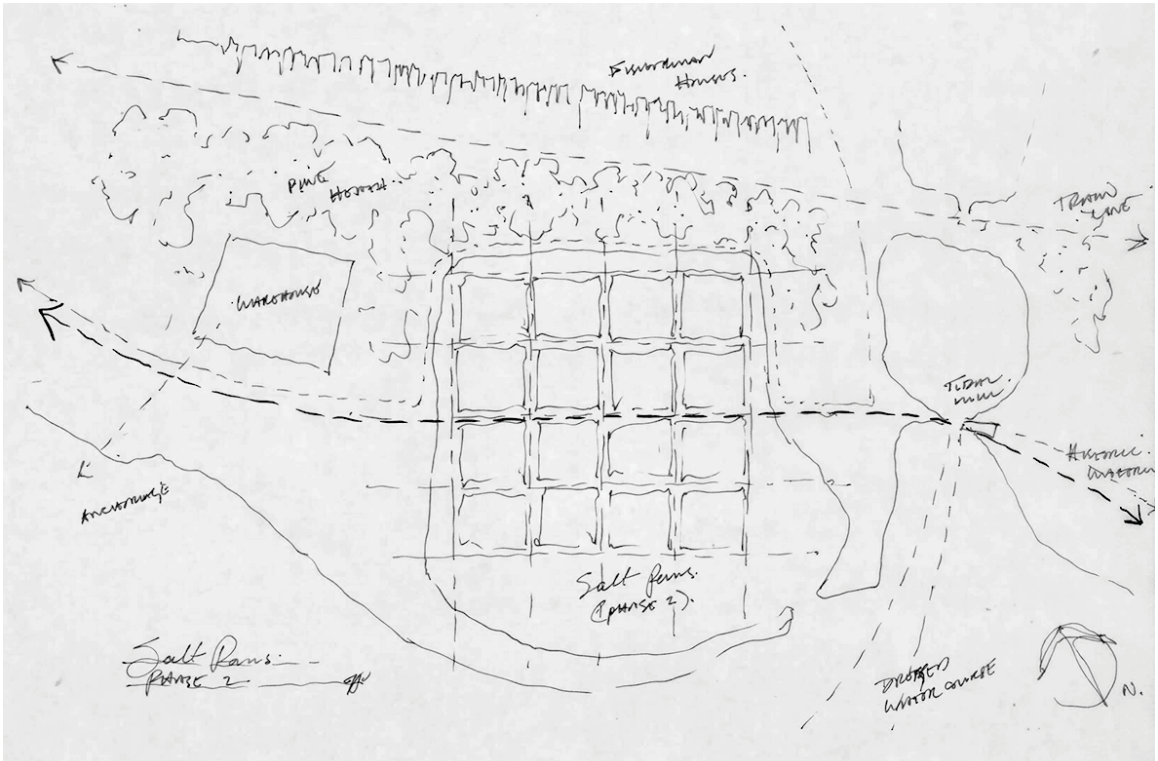


Figure 75: Shoreline extension, salt pan configuration doubles in area, new train line, new warehouse. Interpreted from historic map

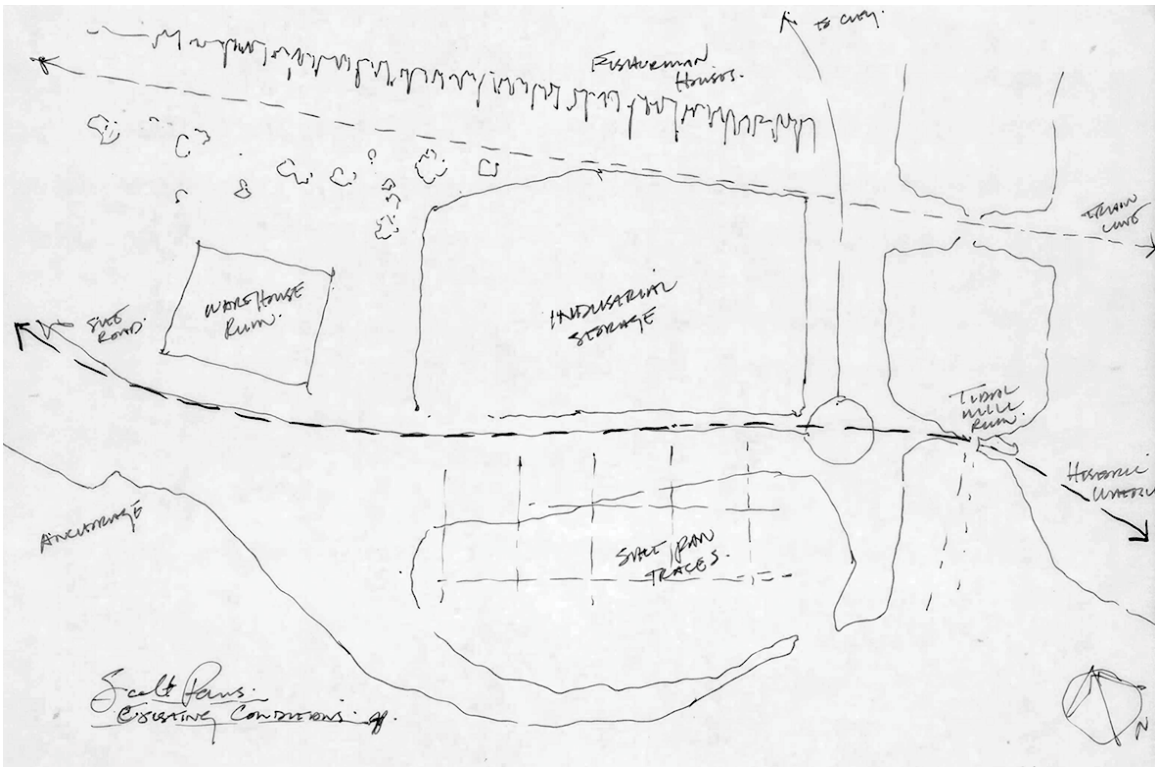


Figure 76: Existing site; industrial storage yard over ancient salt pans, site road running along historic waterline, pine heath depleted, tidal mill in state of ruin. Interpreted from personal observation

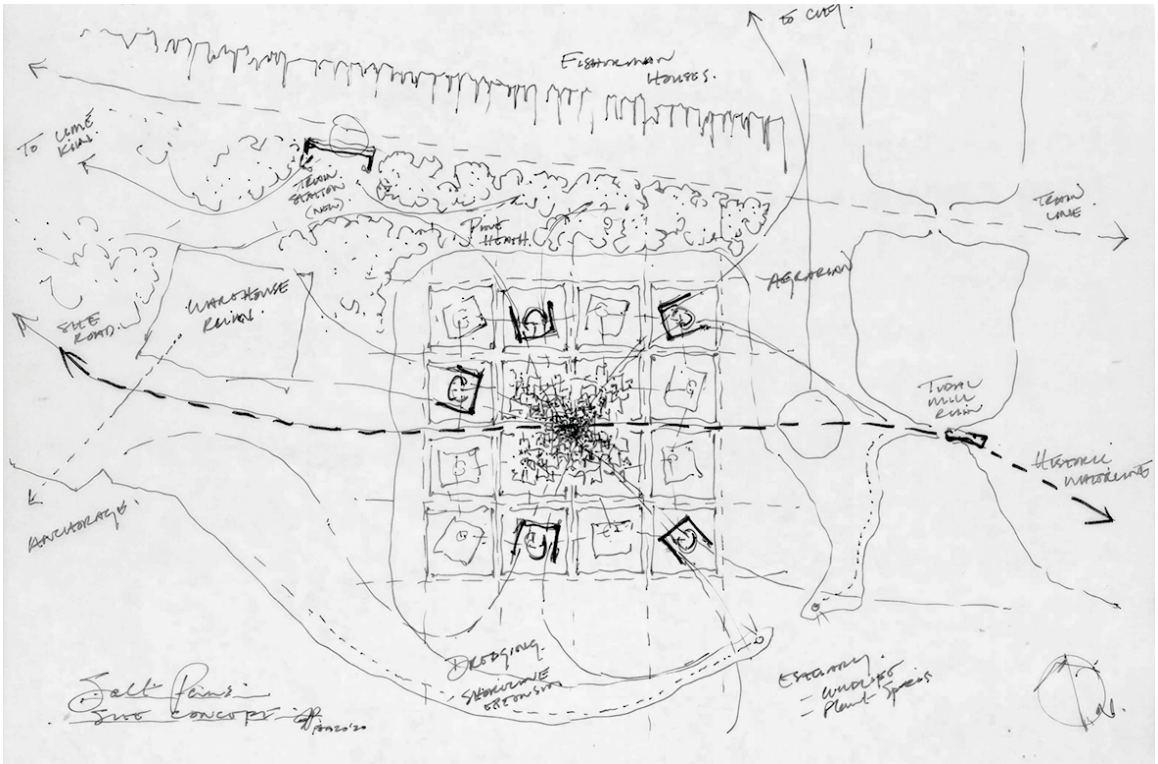


Figure 77: Site concept; acknowledging aspects of ancient patterns of human occupation on and around the site through 'formal devices' which link them with the ancient salt pans. Thinking about enduring patterns of human occupation. How can they be 'filled' with new meaning?

Figure 79: Traditional Portuguese fishing boat, photograph of display board

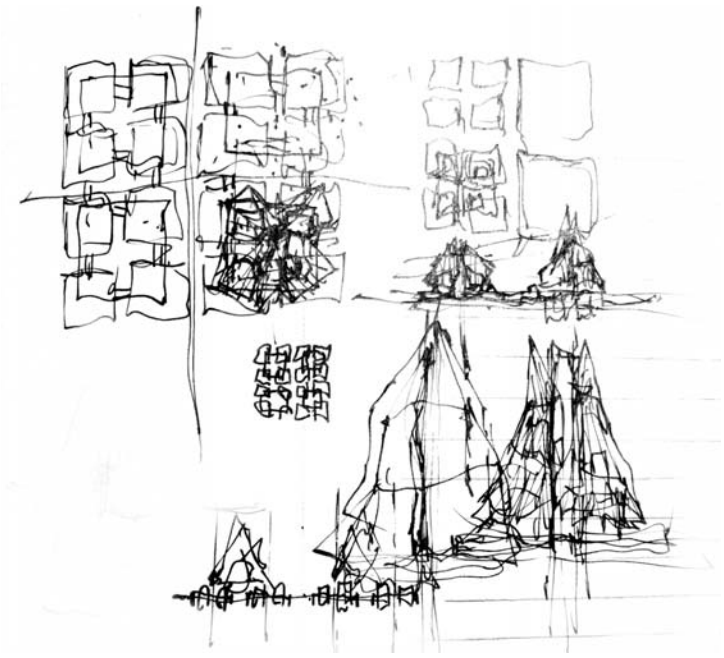


Figure 78: Translation study of emerging pattern from salt pans, salt crystals, and sailboats

Enclosing the architectural experience are 'formal devices' derived from the lime kiln typology. That is, the lime kiln typology is transformed to a larger scale while its function is reversed. Specifically, the bridge device connecting the platform to the shore takes the visitor into the 'draw hole' of the 'formal device' which leads up the circular-like ramp system, whereas the original lime kiln opening was used to draw lime powder from the kiln which was top loaded as lime stone before the combustion process. At the top, the second bridge facilitates the movement of people out of the 'lime kiln' where they move into the museum to learn of this procession in relation to the process of the lime kiln's operations. That is, to learn by doing, to learn the operations of the kiln by becoming a part of it. Local tile patterns on vernacular buildings and columns in the warehouse ruins informed the composition and scale of the elements of enclosure (see Figure 72, 73) for the 'formal device' (labrynth).

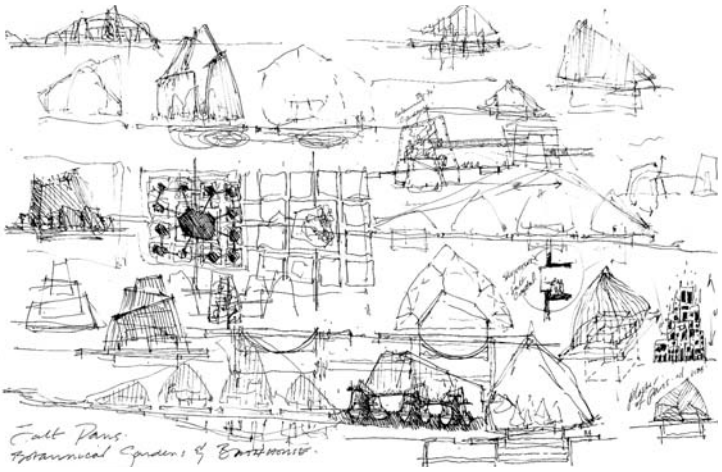


Figure 80: Utilizing montage while translating aspects of the Portuguese sailboat, salt pan platforms, salt crystals

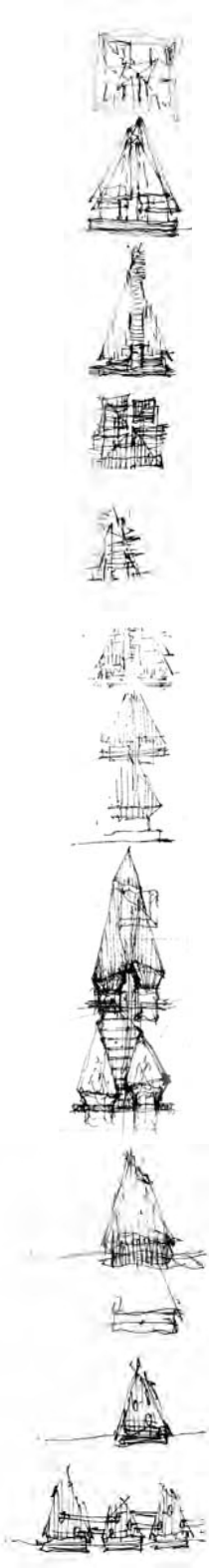


Figure 81: Continued translations of sailboats, salt crystals, salt pans

Enclosing the architectural experience for the museum galleries on the adjacent platform is a transformation of the fisherman houses typology. That is, the typology in plan is transposed to the site and transformed to a larger scale. The organic growth pattern evident in plan is transformed in scale to evoke a sense of growth from the old fisherman houses beyond the rail corridor onto the platforms where the new type becomes housing for the artefacts on display and an expression of the artefacts themselves. Additionally, studies of the local topography around the lime kiln (see Figure 70), the warehouse smoke stack (see Figure 68), and the weep hole patterning of the retaining along the old train corridor (see Figure 69) have all inflected the form of the core volumes encased by glass. In a way, the forms are open to various interpretations, perhaps, one may see fishing boats among waves at sea (see Figure 117).

This mode of reappropriating artefacts and their historic and cultural meaning is drawn from Moneo (51.E.1) and Zumthor (57.E.1). In other words, this is a mode of *maintaining continuities* and the *transmission of culture*.

This typology is given further definition by the organic material properties of salt crystals. That is, how salt grows in clusters and displays an apparent irregularity (see Figure 83, 113 'column clusters'). Further, this apparent irregularity is used to differentiate, or disrupt, the regularity of the tiling pattern during the procession from outside of the museum gallery complex to inside. The datum of the glass enclosure is disrupted by the emerging square columns from the platform. A datum like the one utilized by Scarpa at Castelvecchio (see Figure 43). A mode of distinguishing between the grounded ancient salt pans and the emerging gallery spaces. A technique utilized by Scarpa (43.E.1, 44.E.1) to bring definition between what is old and what is new, to enhance the visitors awareness of the *architectural experience*: to draw the visitor into the *world of the works*. How is this experience actualized?

The materials utilized at the level of the site are concrete for the platforms and lime stone for the paving tiles. Concrete is utilized in its modern capacity to form large monolithic-like forms in a seemless, precise manner. In this way, the salt pans are abstracted in a way which preserves their geometry as monumental forms imbedded in the shoreline. This smooth, monolithic reading allows for strong contrasts between the organic textured shoreline and varying tidal levels, both marking what is natural and what is human made. Further, the modern technologies of concrete allow for a relatively thin brim which seemingly abuts the tiling system inserted topside. As if the square tiles emerge as a subordinate pattern in the salt pans orthogonal grid heirarchy while being suggestive of other cutlural references such as

'tiling' and the 'Portuguese paving stone' industries of the past. Limestone and concrete continue to shape the architecture at the level of enclosure. Specifically, the platforms which serve the 'formal devices' are devoid of tiling around the perimeter of the devices. In other words, the pan appears as a concrete platform with a relatively skewed enclosure at its centre.

The 'labrynth' construction system is suggestive of salt cluster forms constituted by precast concrete 'sticks' which plug into a non-corrosive metal 'pin' set in the 'column pad' (see Figure 113, 114). Structurally, to laterally enforce this system are several elements: the concrete ramp system which interconnects the 'sticks' at various heights, plant pans which plug in to the top of the 'sticks', and the enclosure columns which further enmesh the overall system. This recurring theme on the salt pattern - the square - at various scales is informed by Zumthors reading of the Roman art at Chur (see 63.E.1). That is, from the platform to the column cluster to the enclosure skin, this geometric shape is repeated and grouped to achieve design proportions at the level of site and enclosure.

This process is informed by Zumthor's reappropriation of the wooden lamella's from a single enclosure element into an entire enclosure system (Figure 60, 62) as well as Moneo's abstraction of the ancient Roman brick construction system which he seemingly removes the mortar joint from to achieve a new unified visual field of reference linked to the ancient Roman past (Figure 55).

Moving into the museum, the archtiectural experience is realized through materials which reflect the nature of

the salt pans while utilizing Scarpa's disruptive rhythm technique to enhance this encounter. Specifically, glass and steel are used as surface and frame, respectively, to disrupt the regularly of the tile patterned surface of the platform.

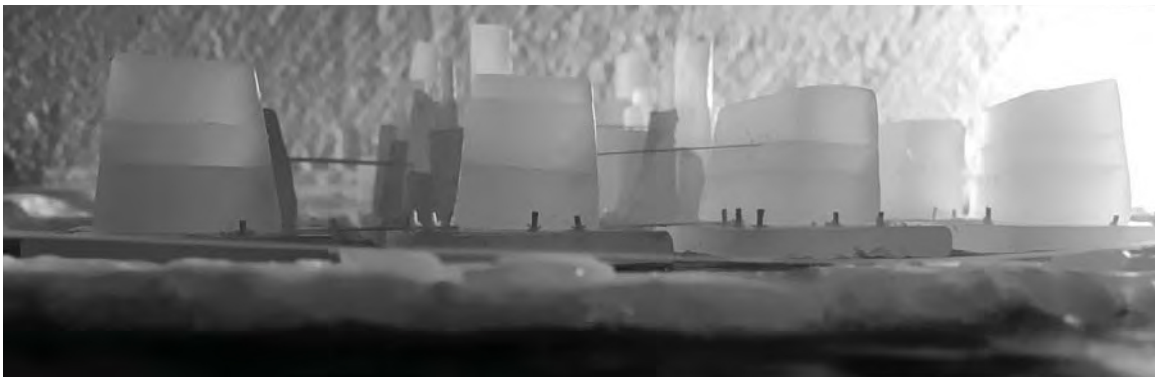


Figure 82 (top): Photograph of wax model representing salt pan design as viewed from estuary
Figure 83 (bottom): Aerial photograph of wax model representing the inner clusters and outer cubes connected by bridges while isolated on platforms which reflect the ancient pattern

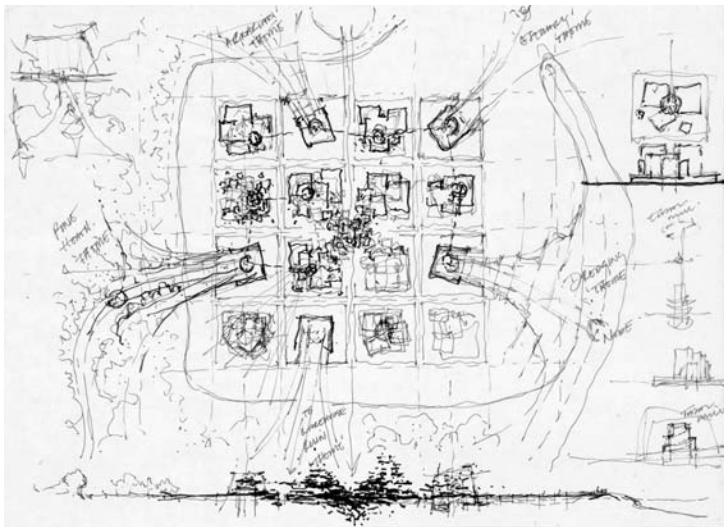


Figure 84: Acknowledging edge conditions and potential building program which speaks to the old patterns of human occupation (clockwise from left): pine heath (associated with lime kiln, used as an energy source to heat homess), agrarian (tidal mill and associated agrarian activities on the land and sea), estuary (wildlife, fishing and salt), dredging (associated with shoreline extension, a major economy which helped establish Montijo), import and export (warehouse which speaks to pork and cork industries)

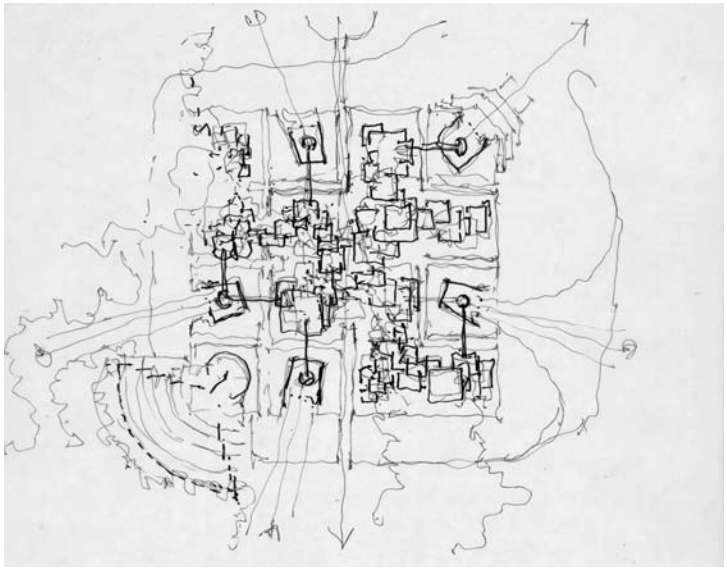


Figure 84: The idea of salt crystals serving as a pattern that flows among the 'formal devices' while linking the platforms to the shore. Considering linkages between the 'formal devices' and whatever program spaces emerge among the other platforms. Perhaps, these other spaces will become dedicated program to accompany the 'formal devices' thus creating a more enhanced architectural experience

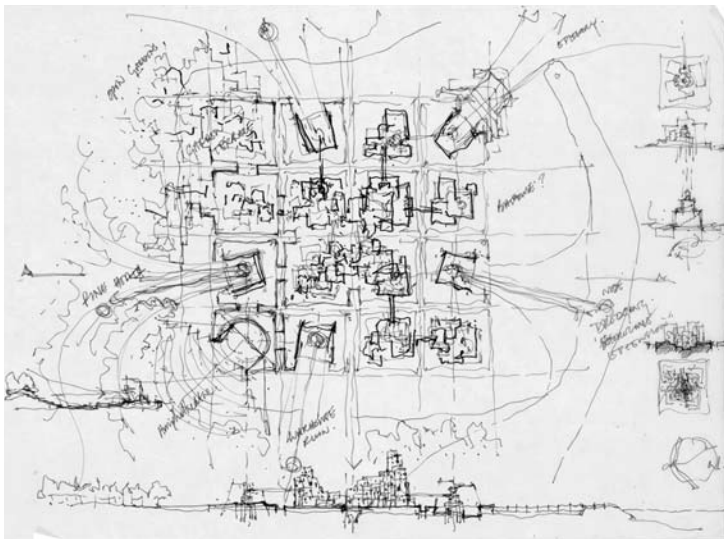


Figure 86: thinking about deeper connections between the salt pan geometry and the edge conditions; developing relationships between the patterns which coexisted. Study on the right side of the trace explores the tidal mill wheel: could this mechanism be drawn from in ways which inform the 'formal devices' which bridge the program between the salt pans and the shore. The idea of a 'hinge' or 'wheel' seems akin the performative nature of this device as each one is cranked at an off angle the more dominant patterns

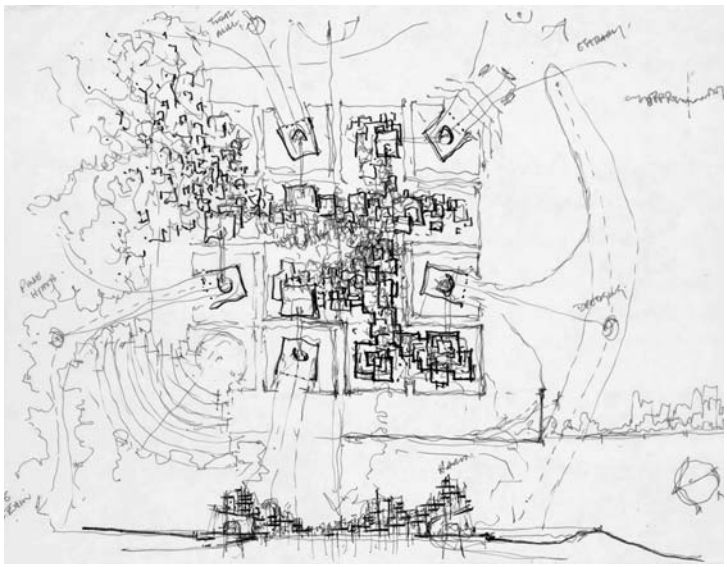


Figure 87: Thinking about the core of the site vertically and horizontally with respect to flow and movement; how the rigid salt pan grid can become something new while maintaining its essential characteristics. Squares are beginning to merge which poses the question of heirarchy in program. Do these larger, joined pans become larger forms for program? The section is beginning to reflect the idea of grounding and emergence. Right now this is happening in toward the land and the sea from the core - in both directions seems unsettling.

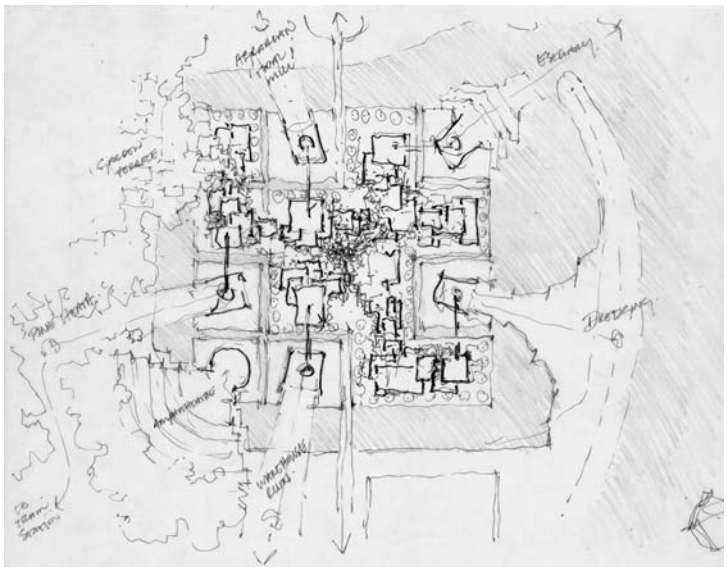


Figure 88: Salt crystal patterning emerging out from the core of the salt pans is becoming more clear while its relationship to the land (top left) is being questioned. However, this seems to provide some balance to the overall plan concept, with the dredging connection (bottom right), in relation to the estuary connection (top right) and the amphitheatre (bottom left). Thinking about the nature of these various activities and how they can imbue the characteristics of the design - *genius loci*?

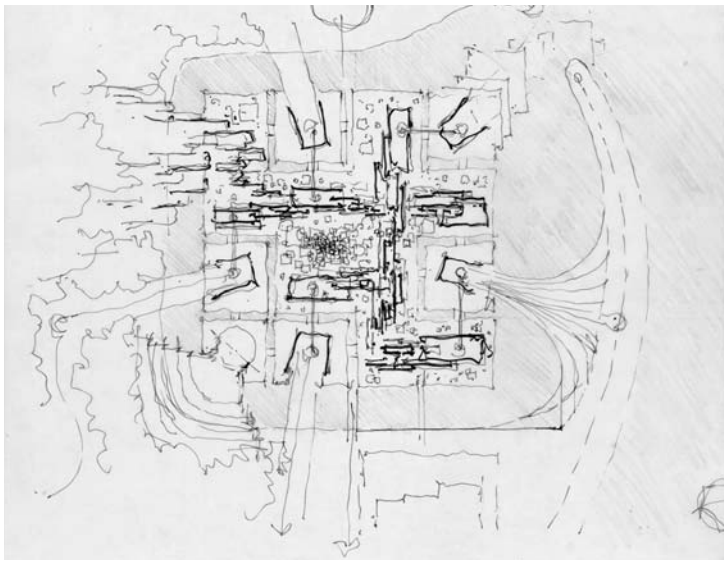


Figure 89: Organic patterning of the fisherman houses from the historic site studies has been drawn from. This emerging patterning seems to provide varying levels of both harmony and tension with the site concept. Salt crystal patterning has become subordinate. Uncertain about the new pattern working in two directions. Beginning to consider what types of human occupation these two patterns will serve. Connection between dredging location on salt pans and the extended shoreline (right) is being question - how can it reflect the nature of this activity?

Figure 90: One direction has been implemented for the patterning drawn from the fisherman houses while the idea of continuing it onto the surrounding land is emerging (bottom right). Thinking about salt crystal patterning as an exterior program element. Perhaps a wayfinding device or experiential feature regarding the historical narrative? Perhaps to help people understand where they are, how things have become what they are and why things have been done a particlular way?

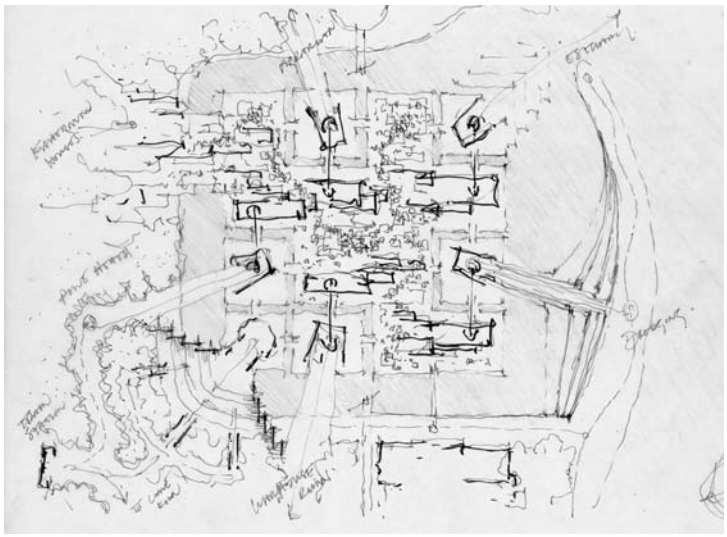


Figure 91: Patterns are becoming clearer, relationships between 'formal devices' and associated artefact or landscape alteration are strengthening. It seems a bit cluttered and could use some refinement. Perhaps the rectangular building forms could be reduced in quantity and arrangement more intentionally?

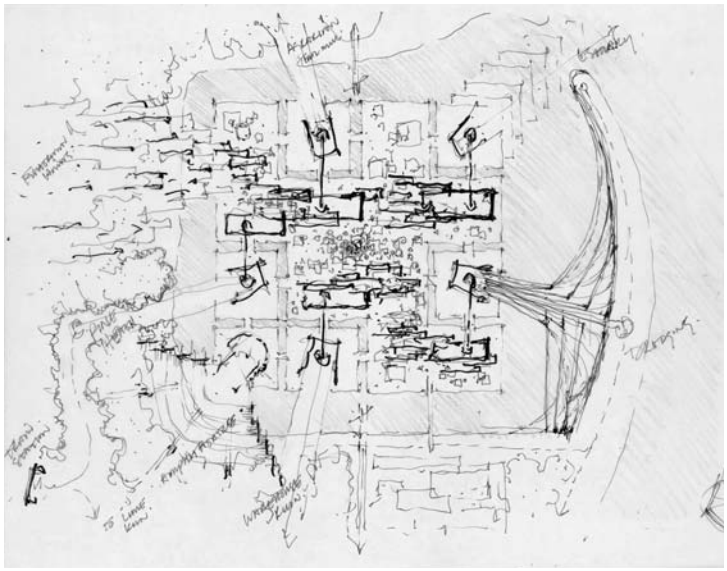
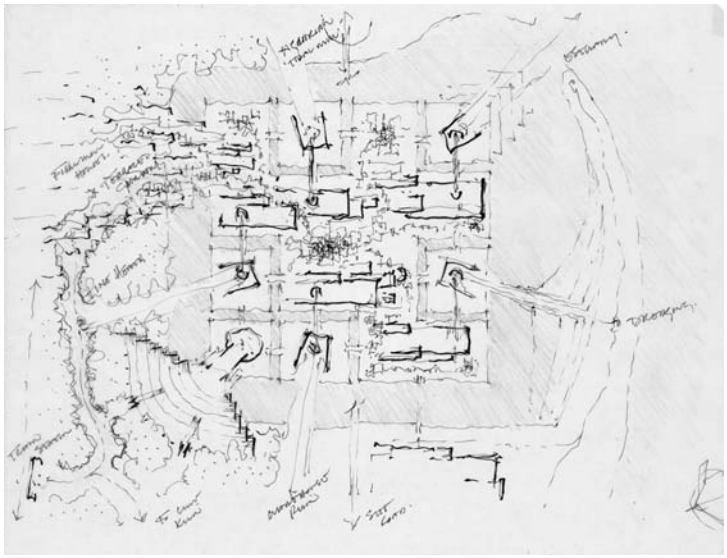


Figure 92: Site concept is becoming refined and primary elements are coming to the fore, they are becoming pronounced and clear. That shoreline pathway is beginning to shape an architectural promenade which takes the visitor from the train station along the shore and onto the site (platforms). This path seems to beg definition on the platforms; where is it going?



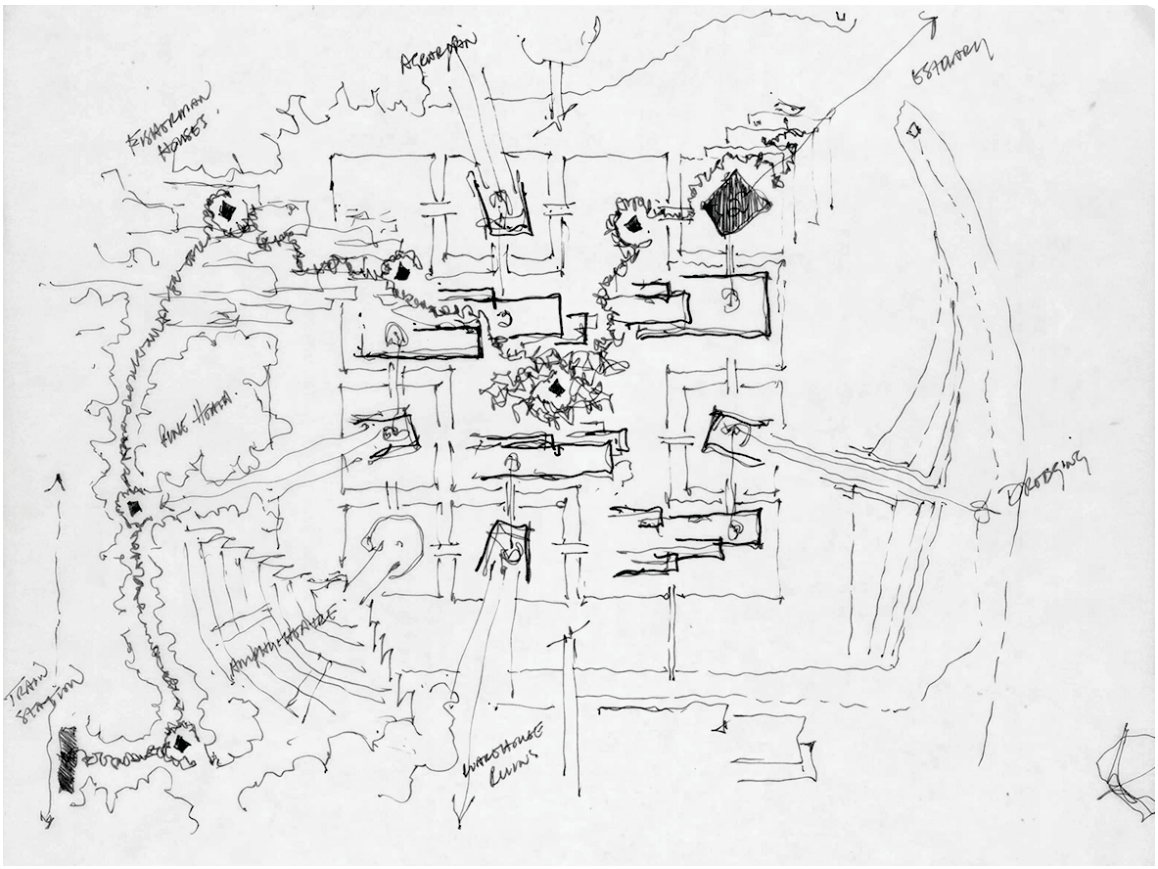


Figure 93: Architectural promenade in sequence from train station node (departure point), pine heath node, fisherman houses node, salt pan node, botanical gardens node, estuary node (cultural releaser) suggestive of the origins of the Montijo culture and place

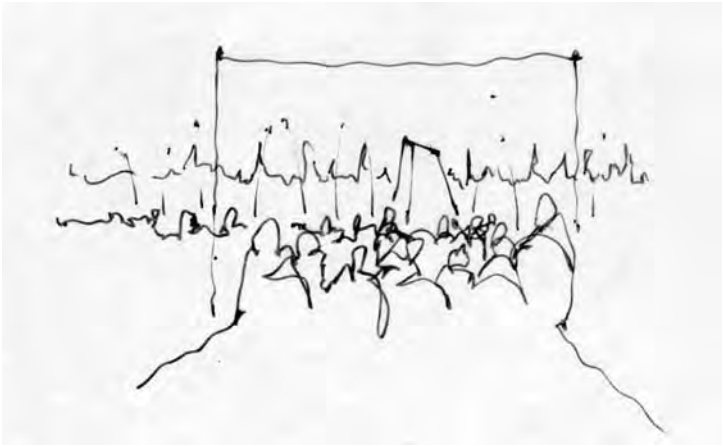


Figure 94: Vignette suggesting an experience of leaving the train station and entering the pine heath. Some type of way-finding device is being considered. Perhaps a crystaline-like obelisk form?

Figure 95: Vignette suggesting an experience of approaching the pine heath 'obelisk' which connects to the 'formal device' on the salt pans. Thinking about this connection being sub-ordinate to the 'architectural promenade' in order to continue the experience toward the fisherman houses 'obelisk' in the distance to the left

Figure 96: Vignette suggesting an experience of approach-ing fisherman houses 'obelisk' while revealing the connective nature of the pathway leading to the salt pan 'obelisk' on the site proper

Figure 97: Vignette suggesting an experience of approaching the salt pans 'obelisk' while revealing the nature of the site core. This seems to want to be a highly energized space which draws the visitor in. The crescendo? Building forms are being thought about. Unclear at this point

Figure 98: Vignette suggesting an experience of approaching the highly energized core of the site proper. Perhaps this is the botanical gardens? Could the salt pan patterning be suggestive of a terraced artificial landscape which transitions vertical and horizontally? A working of the earth that draws from sources of the sea and the landscape?

Figure 99: Vignette suggesting an experience of passing the final estuary 'obelisk' and approaching the 'formal device' which ancors the overall architectural scheme. Suggestive of old fisherman boats going about the days work

Figure 100 (top): Vignette suggesting an experience of 'openess' to the landscape as it was once experienced which is heightened by release from the relatively intense preceding experiences on the architectural promenade. Two 'obelisks' mark the end on the arm-like extensions of the land.
Figure 101 (bottom): historic work of art depicting the town of Aldea Gallega which is now the city of Montijo. A place and a culture defined by the relationship between the land and the sea

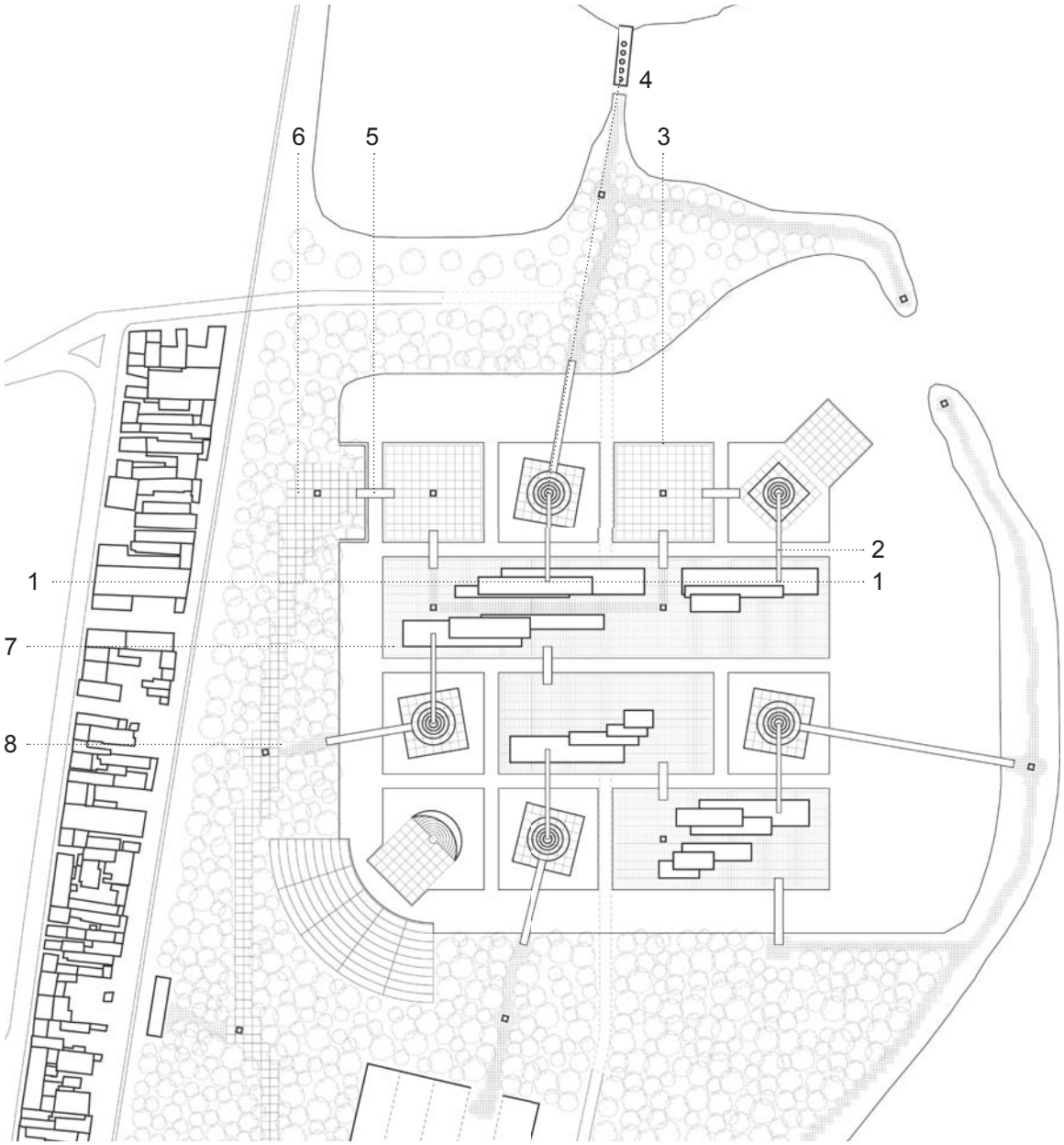


Figure 102: Formalized site plan

(1) Reappropriating fisherman housing type (see Moneo 51.S2, 51.E1; Zumthor 57.S1)
(2) Utilizing bridge to connect active and dedicated program spaces (see Zumthor 65.S.2)
(3) Utilizing precise reading of ancient pattern for new pattern (see Zumthor 65.S.1)
(4) Reappropriating vernacular element, transforming type (see Moneo 51.E.1; Zumthor 57.S.1)
(5) Utilizing 'floating' bridge between site and surround (see Zumthor 65.S.2, 65.S.3)
(6) Utilizing paving pattern to facilitate architectural experience (see Scarpa 41.E.2)
(7) Utilizing disruptive paving pattern to identify main space (see Scarpa 41.E.3)
(8) Utilizing scaled down paving pattern to identify subordinate space (see Scarpa 41.E.5)

Figure 103: View from 'pine heath' marker

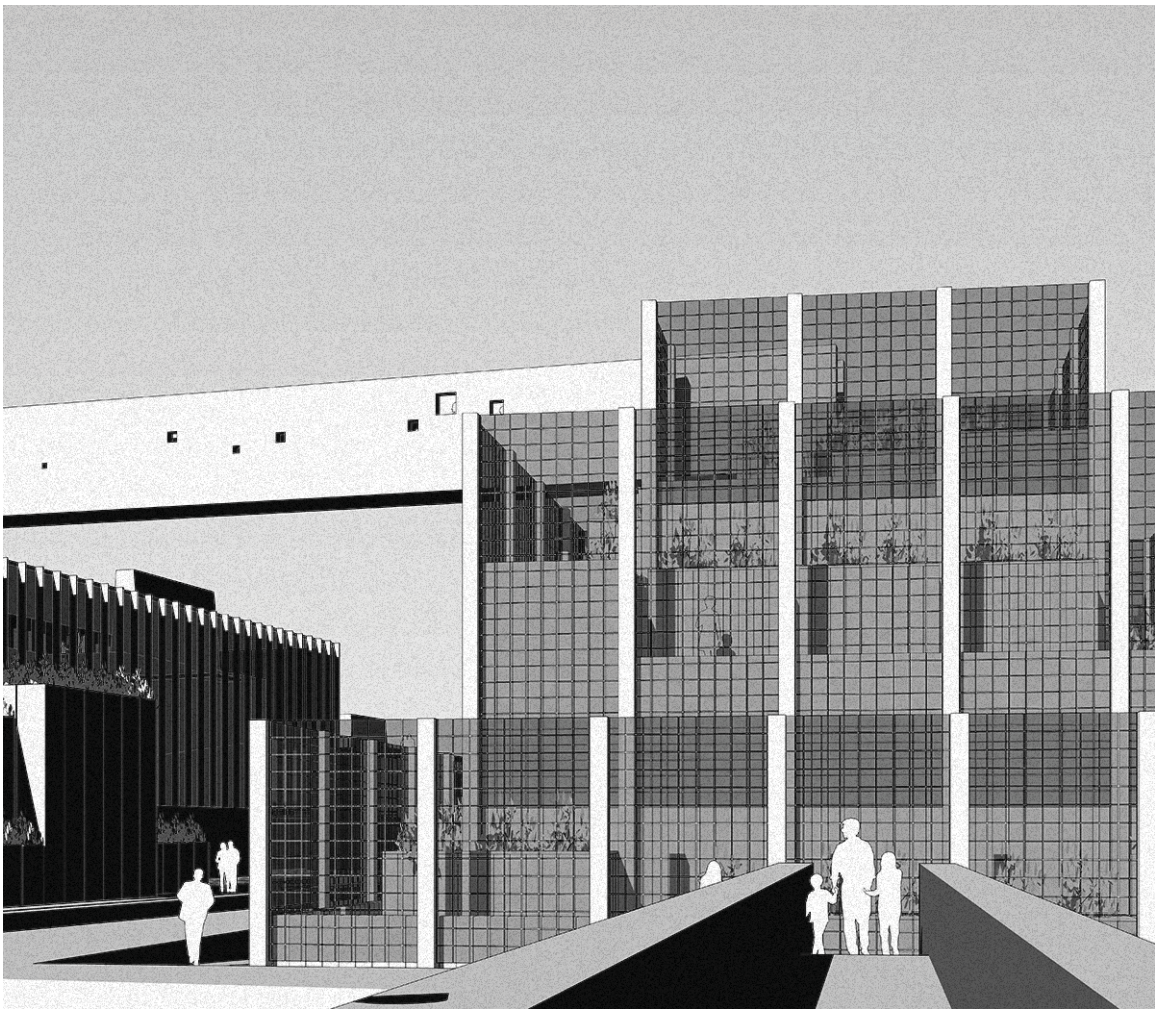


Figure 104: View from the bridge connecting shoreline to 'salt pans' platform

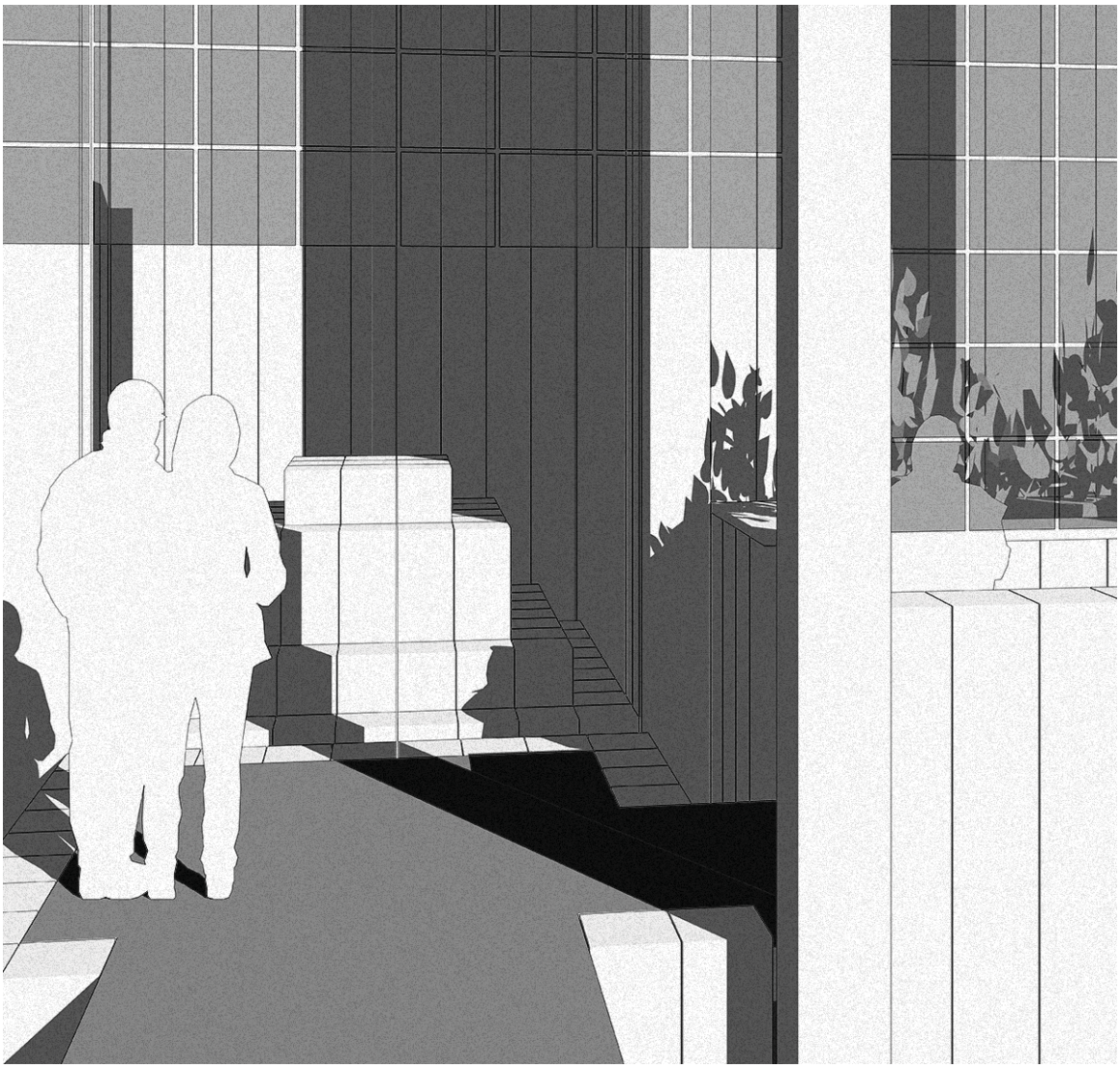


Figure 105: Entry from platform to ramp and terraced gardens, feature reflecting overall form

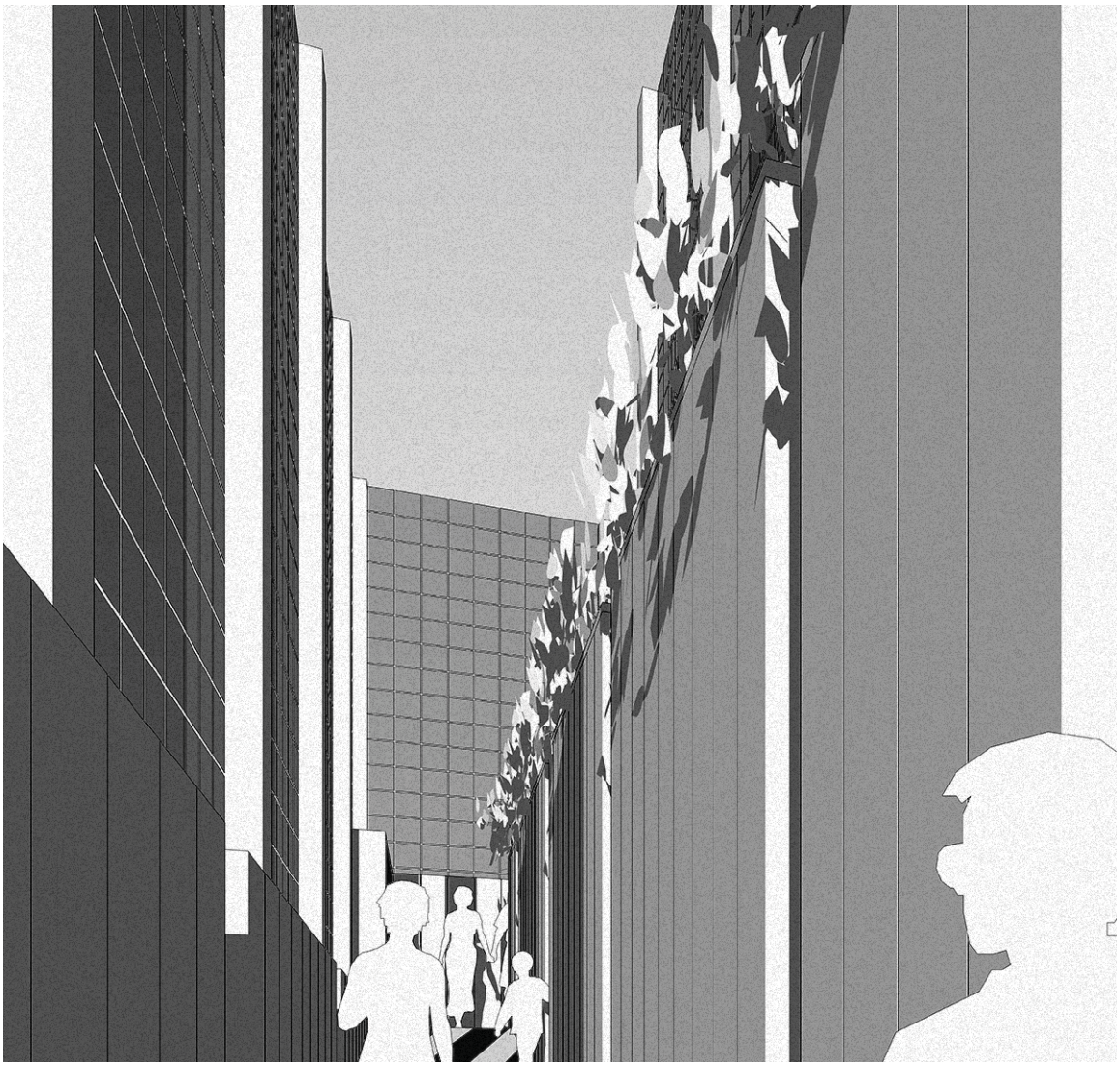


Figure 106: View of midpoint in ascent

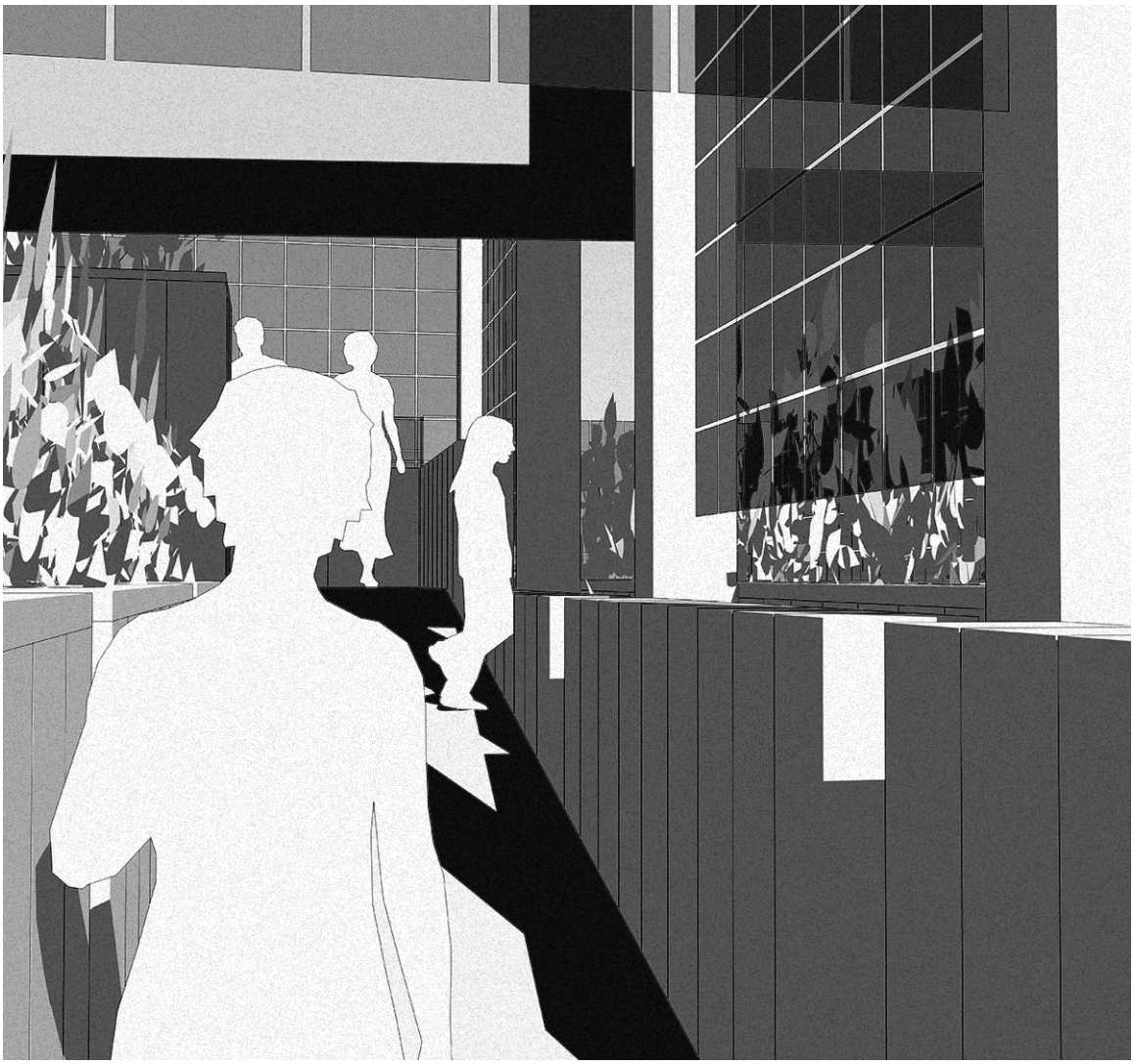


Figure 107: View of passage under bridge

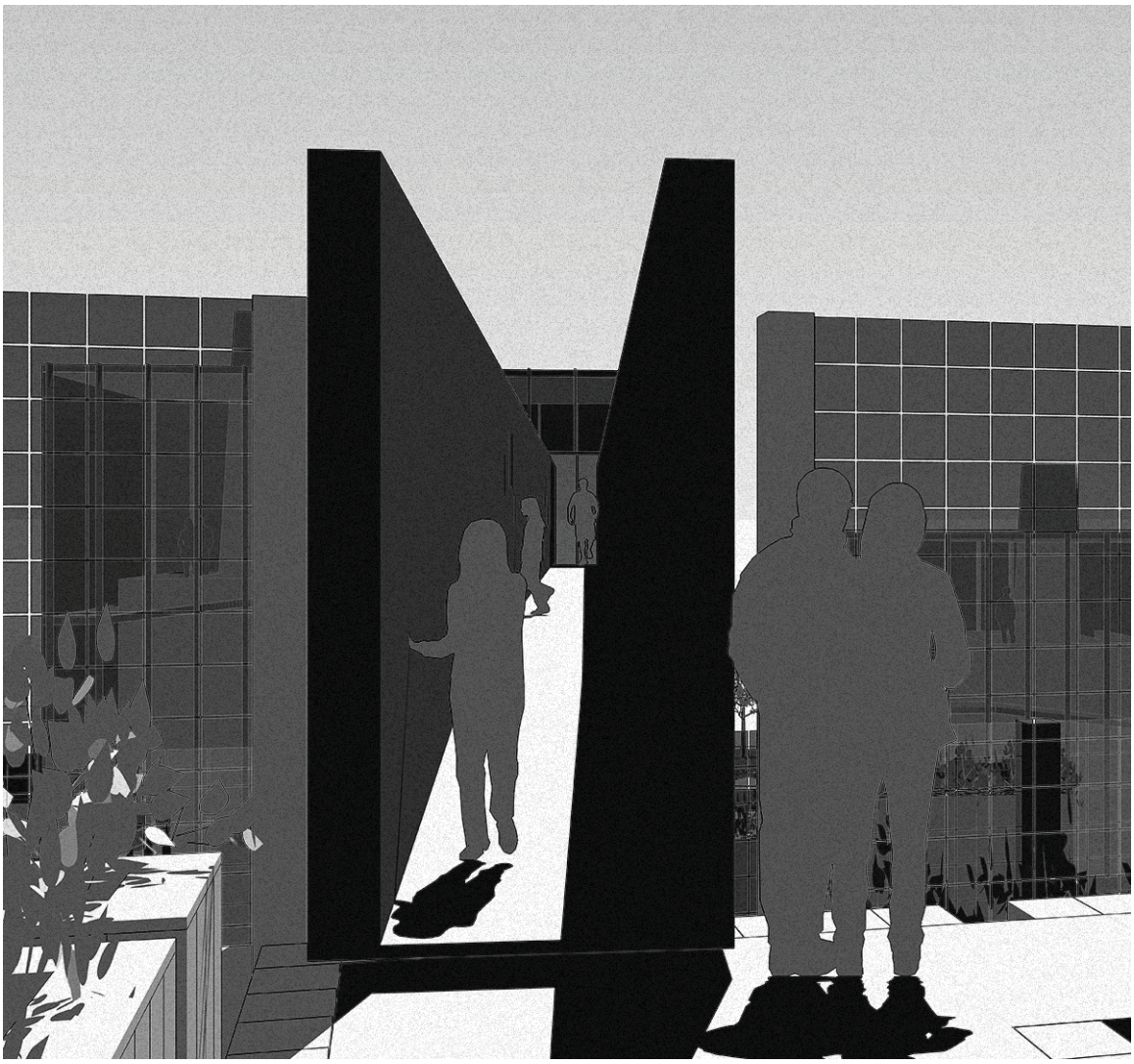


Figure 108: View of bridge to museum, apertures framing 'pine heath' marker

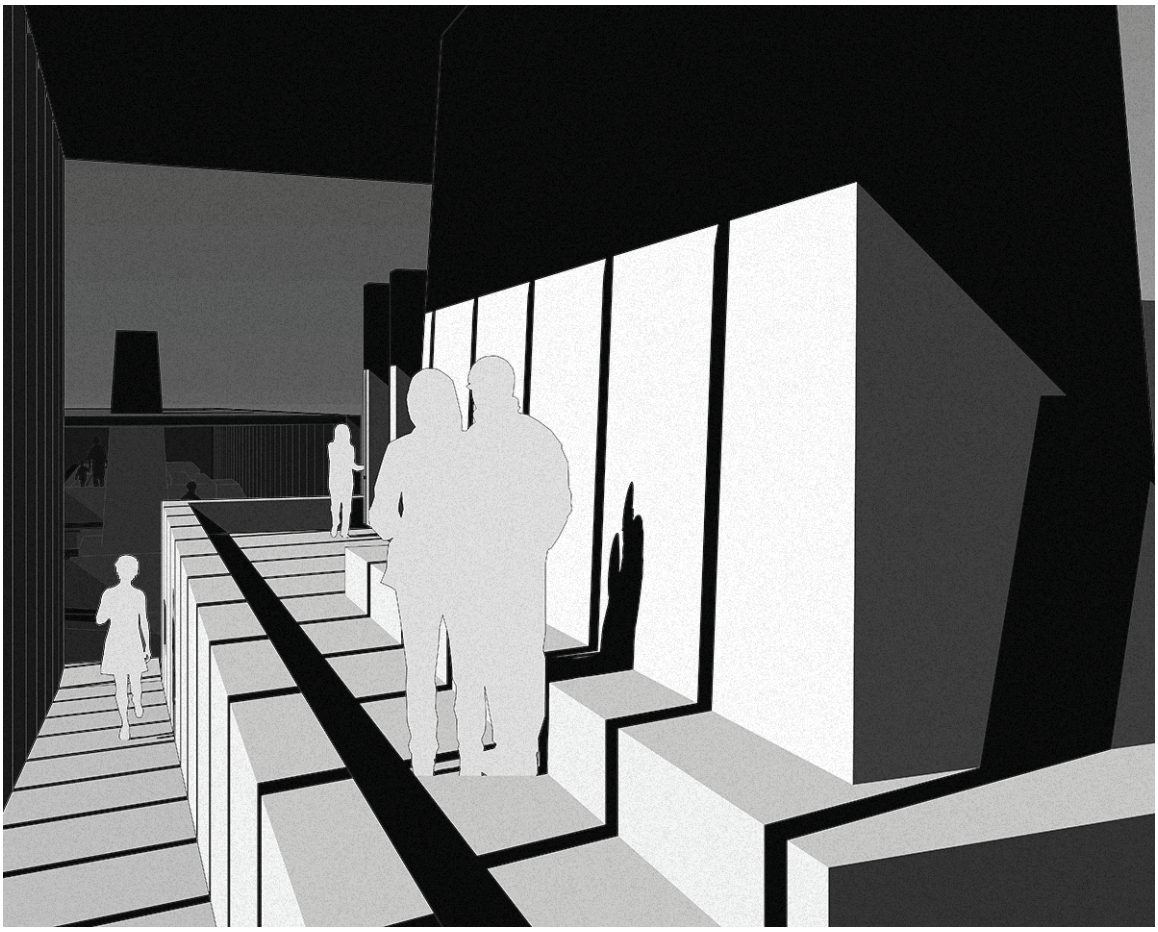


Figure 109: View of ramp descending from bridge lookout on museum side

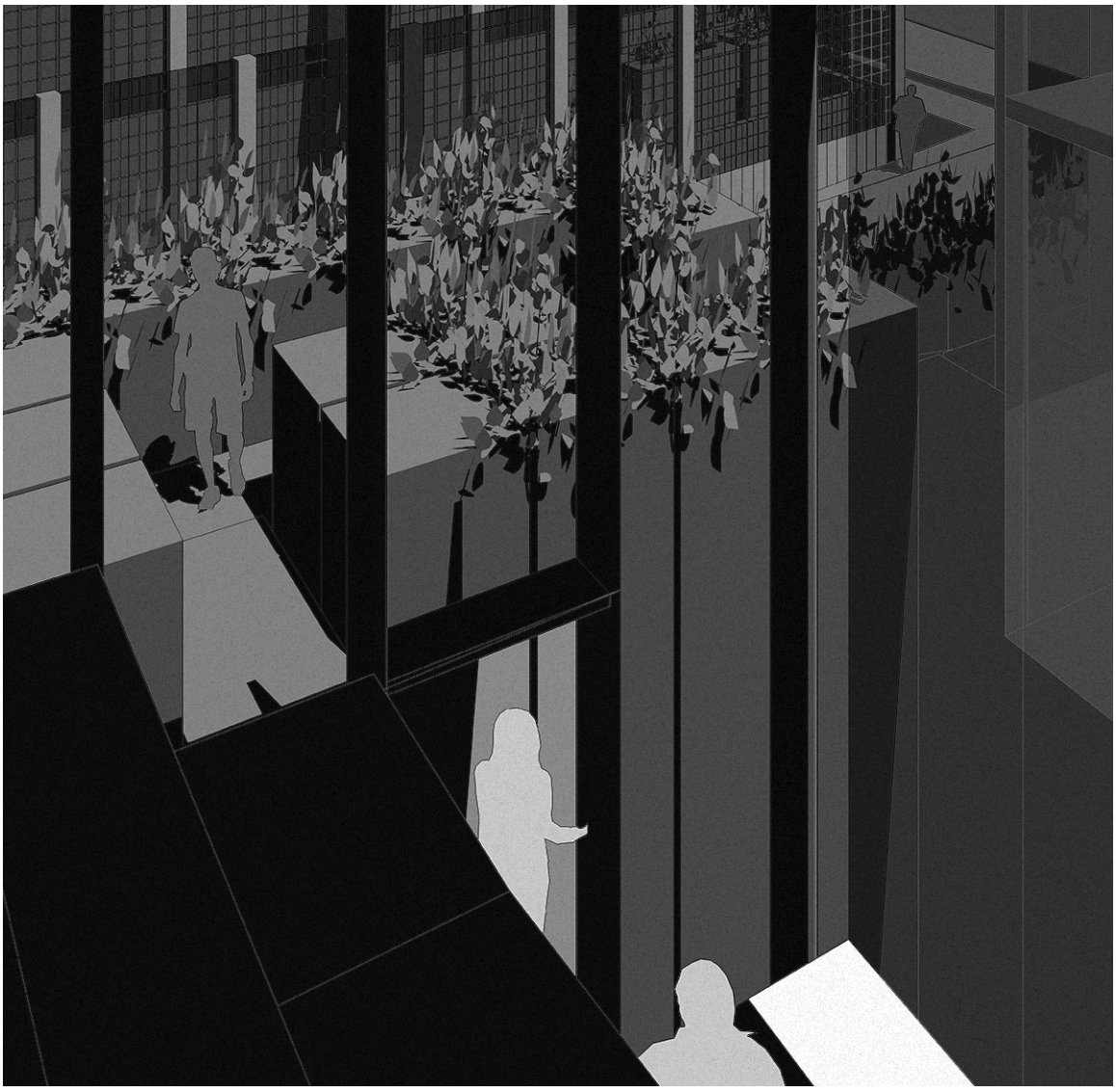


Figure 110: View of exterior ramp and terraced garden connecting volume 1 and 2 of museum complex

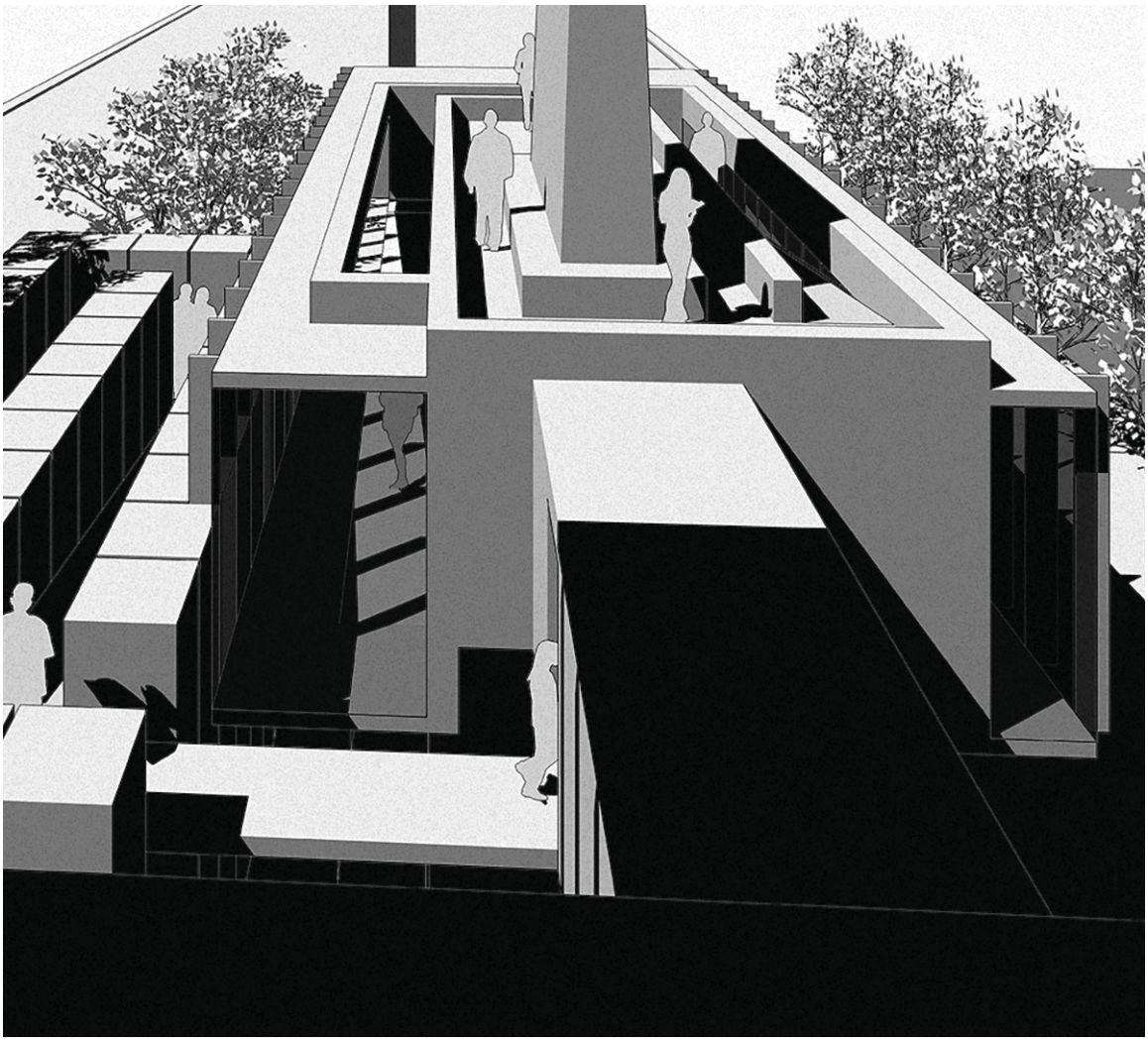


Figure 111: View of ramp to entry and lookout atop the rear volume of the museum complex

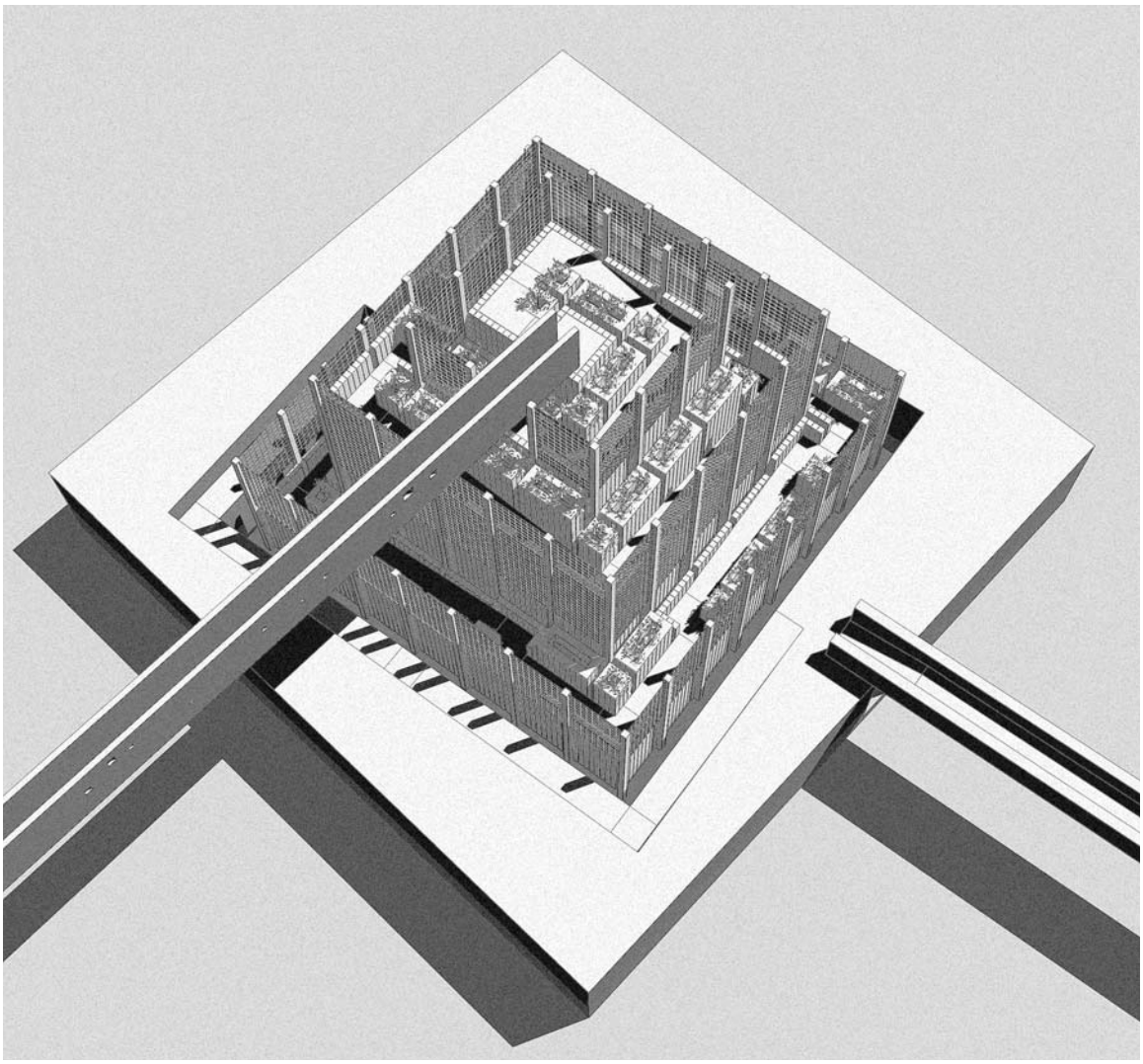


Figure 112: Formal device, 'labrynth'

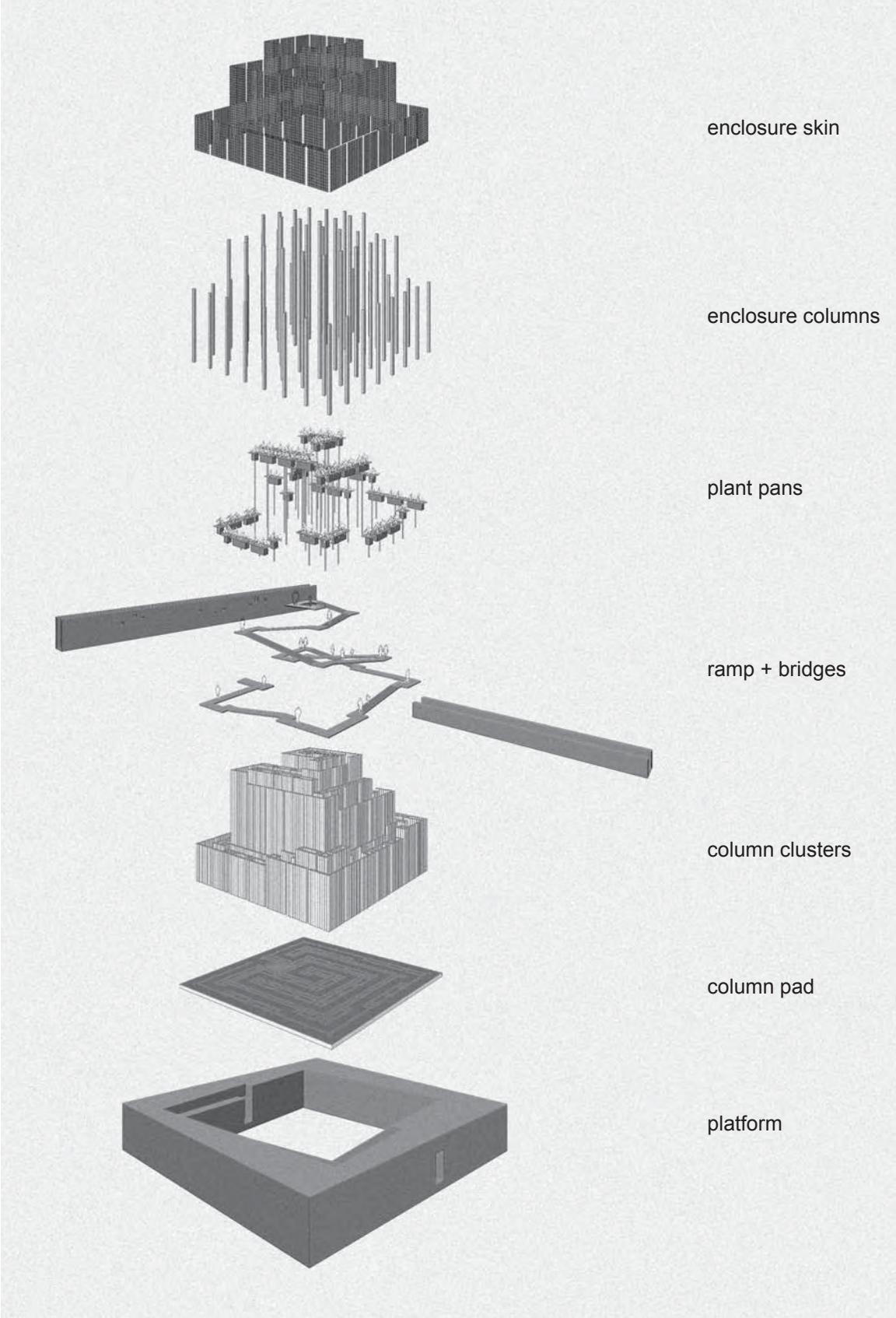


Figure 113: Elements of formal device

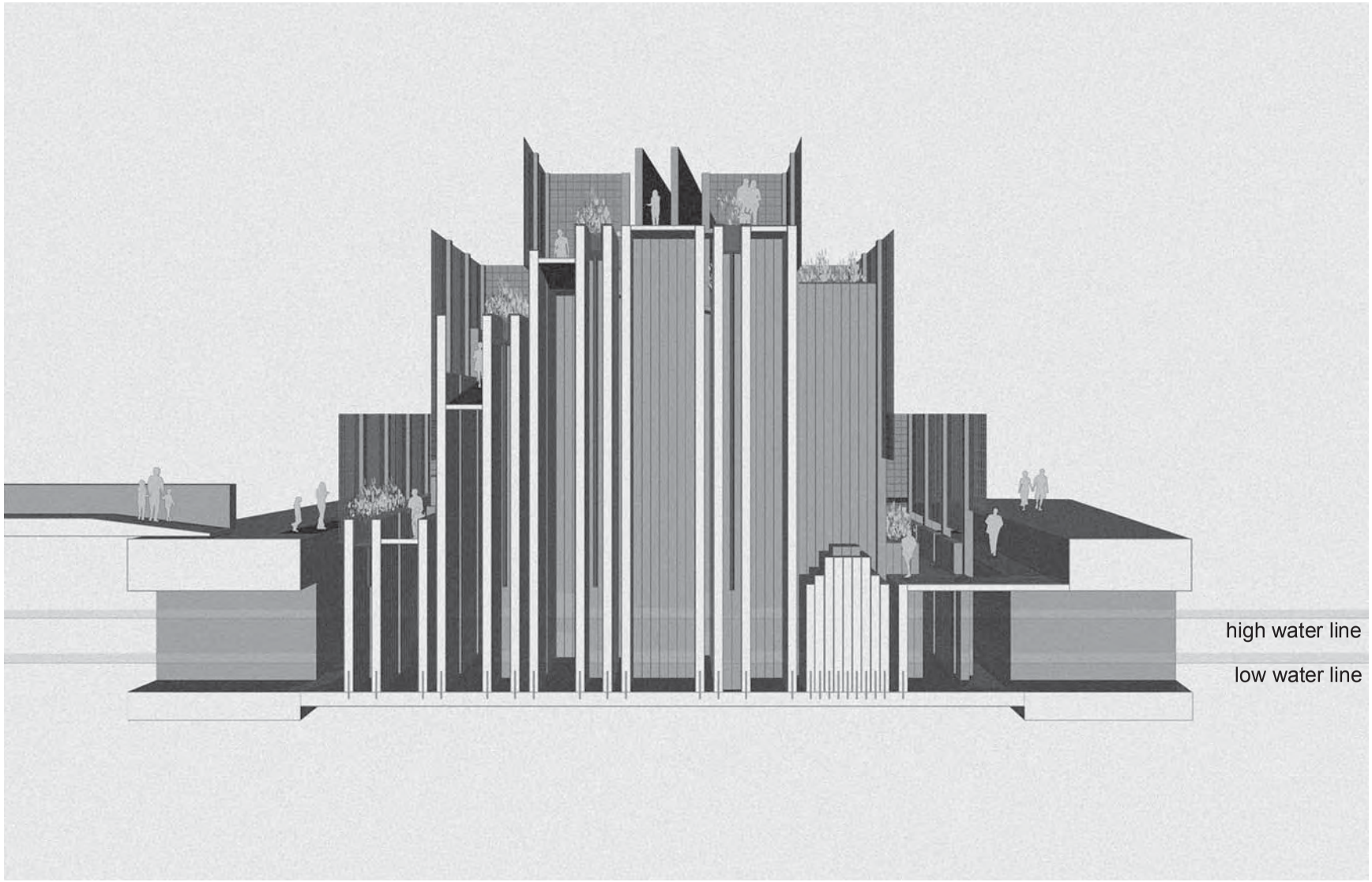


Figure 114: Cross section

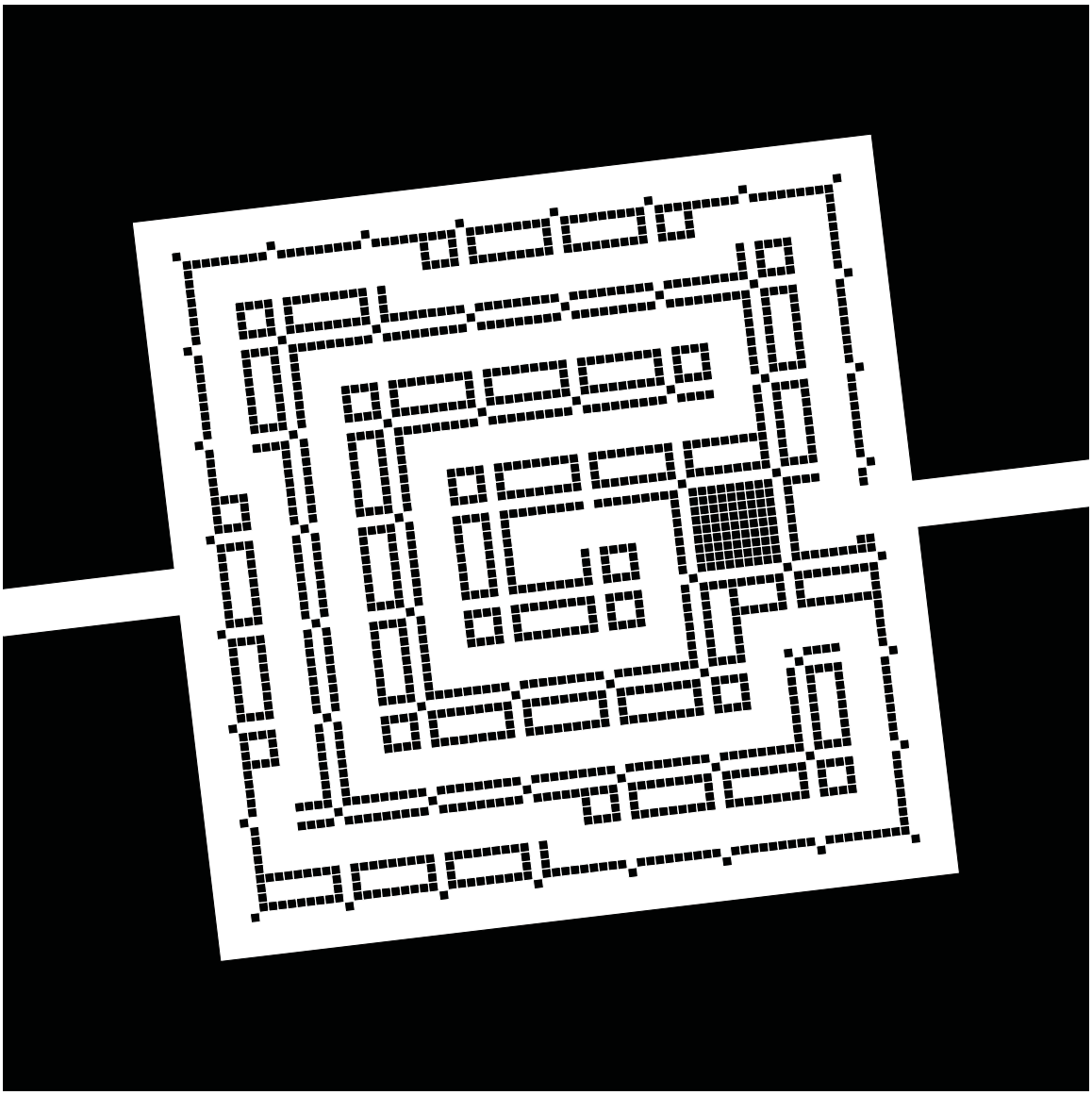


Figure 115: Watermark

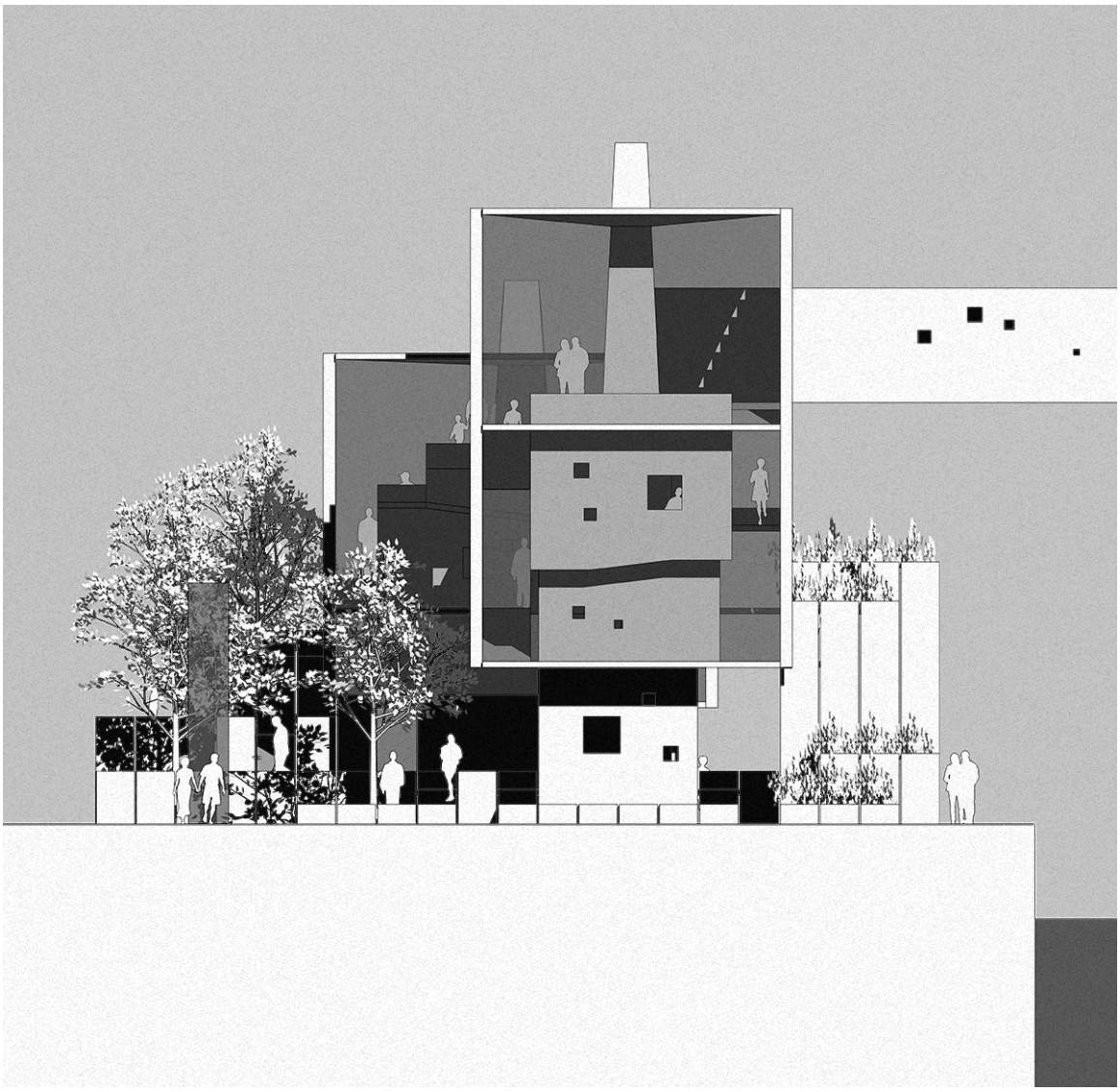


Figure 116: North elevation of museum

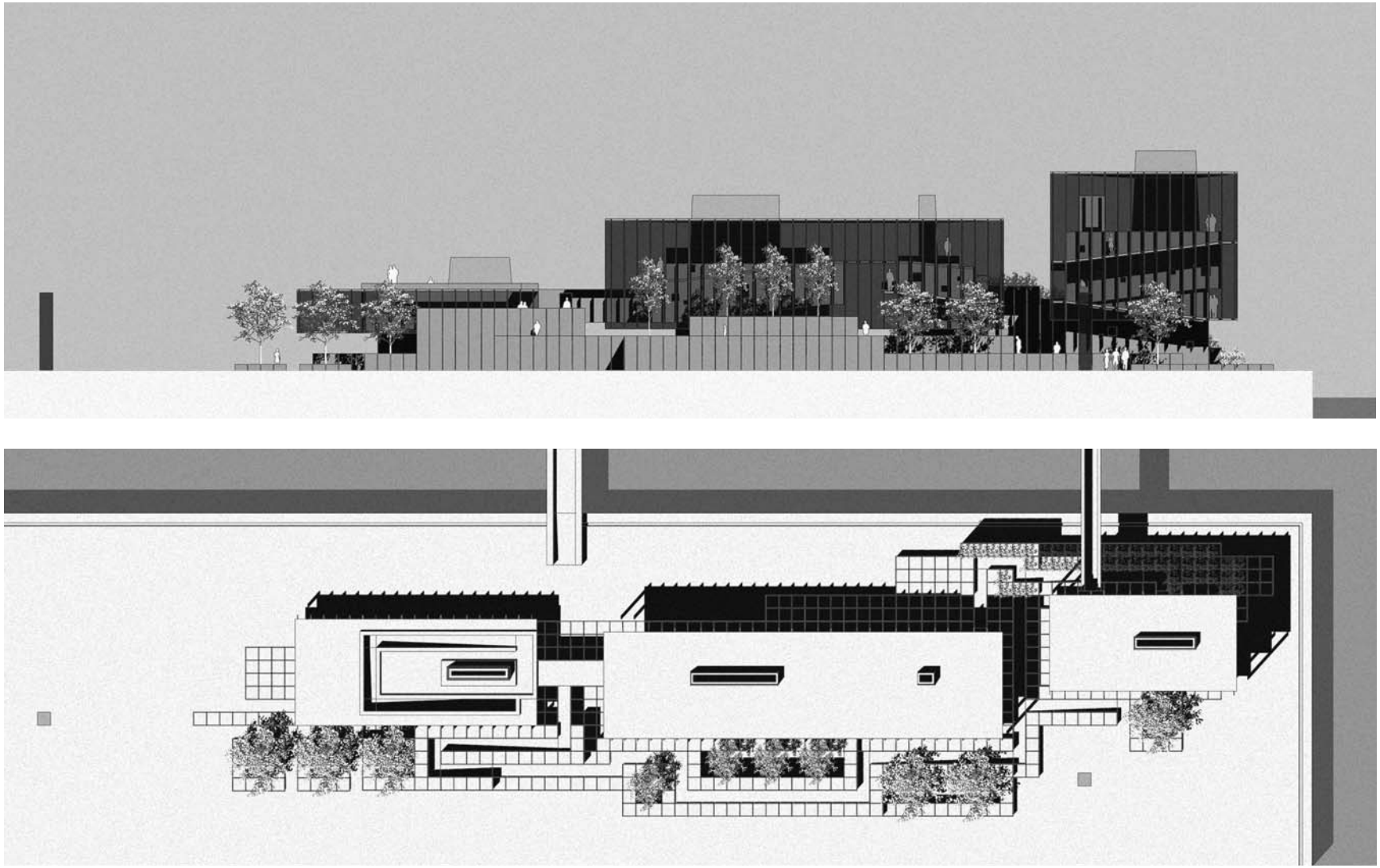


Figure 117 (top): East elevation
Figure 118 (bottom): Partial site, roof plan

Figure 119: View from 'fisherman houses' marker

Chapter 4: Conclusion

Reflections on the bridge

The argument presented in this thesis set out to establish and identify architecture not as an isolate object on the landscape nor a singular stylized image, rather, architecture has been unfolded as a construction of manifold acts, real and imagined. Acts performed through different modes of the cognitive, emotive, and sensate, all of which impregnate the architectural idea in the project and enable its proceding conceptual elaboration through the design process and ultimately stage the architectural experience for human life to take place.

It is hoped that this thesis has indicated, and if at all successful, restored to some measure the very nature of the design process: a human process aimed at designing physical environments for human habitation, for dwelling. More to the point, that architecture is not something which appears through a loss of nearness: virtual processes or the latest so-called technological advancement. Although such tools of the architect may undoubtedly contribute to the production of thoughtful and meaningful architectural work, the origins of such work must be conceived and generated through an expanded notion of what it is to design architecture. That architecture is not so much what is seen but rather what is experienced and to experience architecture is to move from a static state of mind and body to a dynamic mode of gathering information from the world present in a particular location. That architecture has the capacities to contain and disclose meaning, to serve as a resevoir of memory, to store and release the hopes and aspirations

of a culture, all of which maintain the cultural and historical narrative of a people of a place through its next *architectural episode*: continuities.

It would seem human nature, as currently expressed in architecture, displays tendencies towards indulging on the visual when evaluating and identifying architecture; something which has occurred for some time now. That our capacities to understand what is reallly happening with a work of architecture or an aspect of its development in the design process has been numbed and looked over to feed an insatiable appetite for visual stimulus. To satiate in stylized projections of something other than what has been, what is or what could ever be.

It is hoped that this thesis provides some bearing on a return to sources for designer's when conceiving architecture. That there are tools available to designer's which enable the designer to interpret the world around them and draw from it. To be able gather meaning from old artefacts and use it to design new artefacts. Meaning which is both visible and invisible to the interpretor but undoubtedly present.

In terms of the structured references which have been utilized in this thesis, that is, the references which have direct applicability to design and avail tools to the designer, David Leatherbarrow's *topics* and examples from his book *The Roots of Architectural Invention: Site, Enclosure, Materials* weigh heavily. Specifically, Leatherbarrow's argument is not so different from the one established in this thesis: that archtitecture is to be experienced; it *happens* for us. More specifically, if architecture happens for us then we need to know what

is *happening* as designers so that we can *imagine* this happening for others when they experience the architecture.

It seems to me, this is a critical point of view when designing: to imagine an experience which manifests in material form. That is, as Jules David Prown so elegantly discloses, mind shapes matter and matter is a repository for cultural knowledge. Just as Loos and Scarpa echoed the *genius loci* into a new architectural expisode while Moneo and Zumthor reflected elements of the ancient Roman world in a modern way, it would seem these masters recognized the value in building on the work of others: to draw from history, from local culture, from vernacular artefacts and to transform what was or what is into what will be; or rather, "the yet not made."

In this way, architecture is *open* to place, *open* to history, *open* to culture, and ultimately *open* to interpretation: architecture becomes an *open work*. Scarpa, Moneo and Zumthor all masters in their own right, all interpreters of the world around them, the world present, seemed to exhibit a level of modesty as architects by valuing what has already been done in the world as more important than what they could do on their own. Each architects design is initiated by apprehending something *real* in the world. An idea that allows their own work to begin because the door is then already *open*, the work is already *accepted* at the most fundamental level because the origins of archtectural ideas are born of ideas behind the culture and the place: the ideas are c*ompatible*. However, what was required of these master architects was to stay true to their original intentions; to be honest

about their judgements and their decisions which in turn manifested *authentic* work, *consistent* work, *real* work. Real work "back to front" that engages people in ways which allow them to interpret and imagine *the world of the works*. Because the works of Scarpa, Moneo and Zumthor are so charged with content, so dense with real, meaningful substance, it seems to me there is no need for fanciful features or cumbersome characteristics, that is to say, what is superficial or nebulous is rendered inessential through the process of architectural invention. It is hoped that this type of architectural work has continued into my own work.

Reflecting on my design development in relation to these references, its seems to me that there may be some commonalities to consider. Specifically, in light of David Leatherbarrow, the topics *site*, *enclosure* and *materials* have provided a valuable framework within which the design developed. That framing the project at these different levels, or scales, allowed for somewhat of a controlled environment where objects could be worked and made sense of in relation to the underlying intentions of the project. However, what may have been most useful was the way in which Leatherbarrow evokes, through examples, a sense of *how* to imagine architecture in that he is able to elucidate meaning from how things appear. That in gathering meaning from the appearance of things it is possible to make sense of these meanings and in doing so use them in new ways. That is, to imagine the found meaning through the design of something new; some *thing* which acquires significance through the ways in which it utilizes and manifests found meaning in a new way.

The salt pans site location seems to embody this idea in various ways: as the ancient salt pans pattern was recognized the new forms (platforms) emerged, as the fisherman houses pattern was recognized the new forms (museum volumes) emerged, as the ancient tidal mill elements were acknowledged the new forms (labrynth) emerged.

The old patterns were filled with new meaning by reappropriating the typological language of the artefact and the way of life associated with it through "forms of agreement." Thus the architecture became a construction of layered acts. Acts which imbue the form with various content modalities. Modalities derived from the appearances of artefacts and an understanding of what these appearances meant and what they mean in a new context. Ultimately, when the "forms of agreement" reached critical mass they were fused into a collapsed act. The architecture seemingly became an object on the landscape yet much more than that. The architecture became *open* to all it drew from; each opening a way into it. Each opening a bridge into the world of the works.

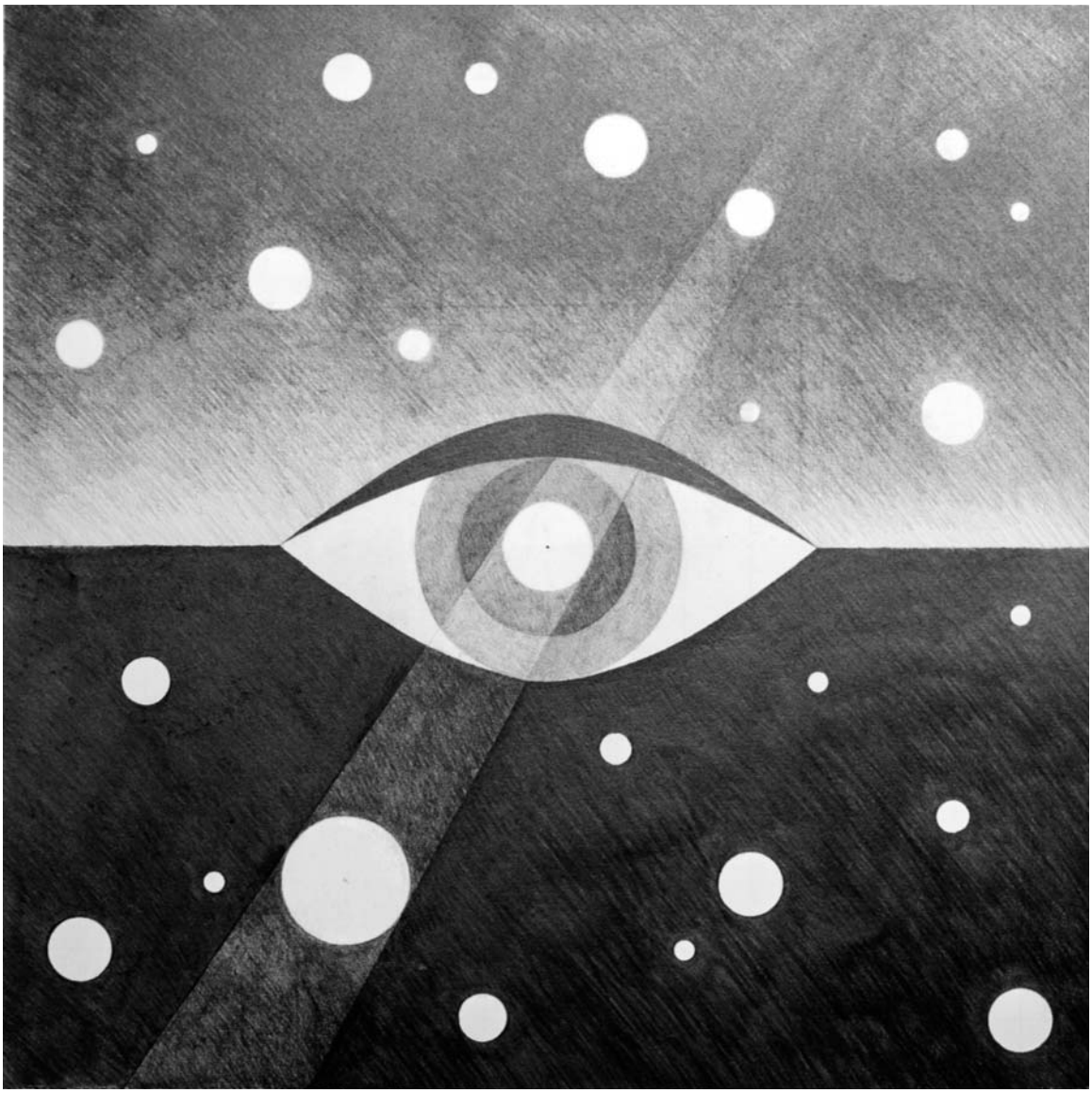


Figure 120: Bridging worlds

Bibliography

BBC. "In Our Time: Phenomenology." Last modified January 22, 2015, https://www.bbc.co.uk/sounds/play/b04ykk4m.

BBC. “Heidegger: Human, All Too Human (Full BBC Documentary),” YouTube Video, BBC, 49:04, July 2014, https://www.youtube.com/watch?v=EDJ7Os-BNU8.

Blackwood, Michael. "The Practice of Architecture: Visiting Peter Zumthor." Michael Blackwood Productions, [58:00], Dec 9, 2015.

Chapman, Tony. “The Stuff of Architecture: Peter Zumthor.” Last modified Oct 8, 2016. YouTube, [56:28], https://www.youtube.com/watch?v=H_oyK3xQZtE.

Danuser, Hans, and Peter Zumthor. “Hans Danuser, Peter Zumthor. Shelters for a Roman Archaeological Site, from the Zumthor Project / Scores and Images (Sheet: IV 2). 1988–1992: MoMA.” The Museum of Modern Art. Accessed March 6, 2020. https://www.moma.org/collection/works/216481.

Eco, Umberto. *The Open Work*. Translated by Anna Cancogni. Cambridge: Harvard University Press, 1989.

Efendiu, Agon. “Carlo Scarpa - A Profile (Documentary)." YouTube Video, 49:17. February 10, 2012. https://www.youtube.com/watch?v=9KxXgkEWK1U.

Emerson, Ralph Waldo. *Nature and Other Writings.* Boston: Shambhala, 2003.

Emerson, Ralph Waldo, and Bliss Perry. *The Heart of Emerson's Journals*. Kessinger Publishing, 2011.

ericparryarchitects. "EPA Seminar 'The Hidden World of Contemporary Architecture' - 04 David Leatherbarrow." YouTube Video, 18:23, October 30, 2013. https://www.youtube.com/watch?v=7INicONr3hA.

Fernandes, André, João Figueira de Sousa and Regina Salvador. "The Cultural Heritage in the Postindustrial Waterfront: A Case Study of the South Bank of the Tagus Estuary, Portugal." *Space and Culture* 21, no. 2, (2018): 170-191.

Fisher, Saul. “Philosophy of Architecture.” Stanford Encyclopedia of Philosophy. Stanford University, September 9, 2015. https://plato.stanford.edu/entries/architecture/#For.

Frampton, Kenneth. “Prospects for a Critical Regionalism.” *Perspecta* 20 (1983): 147-162. https://doi. org/10.2307/1567071.

Frampton, Kenneth. "The Architecture of Jørn Utzon." The Pritzker Architecture Prize, (2003): 1-4. https://www.pritzkerprize.com/sites/default/files/inline-files/2003_essay.pdf

Frampton, Kenneth, and John Cava. *Studies in Tectonic Culture: the Poetics of Construction in Nineteenth and Twentieth Century Architecture*. Chicago: Graham Foundation for Advanced Studies in the Fine Arts, 2007.

Frascari, Marco. "The Tell-The-Tale Detail," VIA$_7$: *The Building of Architecture* (1984): 23-37.

Gadamer, Hans-Georg. “On the Circle of Understanding." University of Washington.” Accessed March 3, 2020. http://faculty.washington.edu/ewebb/R528/Gadamer.pdf.

Heidegger, Martin. *Poetry, Language, Thought*. Translations and Introduction by Albert Hofstadter. New York: Harper & Row, 1971.

Jackson, John Brinckerhoff. *The Necessity for Ruins and Other Topics*. Amherst: University of Massachussets Press, 1980.

Jackson, John Brinckerhoff. *A Sense of Place, A Sense of Time*. New Haven: Yale University Press, 1996.

Kahn, Louis. "Kimbell Museum Dedication." Fort Worth, Texas, October 1972. Qtd in What Will Be.

Laser, Jim. A291 Castelvecchio Museum. 2020. http://jimlaser.com/subcategory.php?subcatid=13.

Leatherbarrow, David. *The Roots of Architectural Invention: Site, Enclosure, Materials*. Cambridge University Press, 1993.

Leatherbarrow, David. *Uncommon Grown: Architecture, Technology, Topography*. MIT Press, 2000.

Louisiana Channel. "Juhani Pallasmaa Interview: On Jørn Utzon." YouTube Video, 10:30. March 22, 2018. https://www.youtube.com/watch?v=wzNTAqNdzH8.

Lynch, Kevin. *The Image of the City*. Cambridge: MIT Press, 1968.

Malpas, Jeff. “Hans-Georg Gadamer.” Stanford Encyclopedia of Philosophy. Stanford University, September 17, 2018. https://plato.stanford.edu/entries/gadamer/.

Moneo, Rafael. "On Typology." *Oppositions* 13, (1978): 21-45. https://doarch152spring2015.files.wordpress.com/2015/01/moneo_on-typology_oppositions.pdf.

Moneo, Rafael. "The Solitude of Buildings." GSD News 13, no. 3 (January - February 1985; Harvard University, Graduate School of Design): 9.

Moneo, Rafael. "Museum for Roman Artifacts, Merida, Spain." *Assemblage*, no. 1 (1986): 72-83. Accessed March 15, 2020. https://doi:10.2307/3171055.

Moneo, Rafael. “The Idea of Lasting. A Conversation with Rafael Moneo.” *Perspecta* 24 (1988): 146-157. https://doi.org/10.2307/1567131.

Moneo, Rafael. “The Freedom of the Architect.” *Assemblage*, no. 41 (2000): 55. https://doi.org/10.2307/3171315.

Moneo, José Rafael, Michael Moran, and Guereñu Laura Martínez. *Rafael Moneo: Remarks on 21 Works*. New York: Monacelli Press, 2010.

Moneo, Rafael. "Merida classic/anti-classic - National Museum of Roman Art." June 2014. https://www.area-arch.it/merida-classicanti-classic-national-museum-of-roman-art/.

Murphy, Richard. *Carlo Scarpa and Castelvecchio Revisited*. Edinburgh, United Kingdom: Breakfast Mission Publishing, 2017.

Norberg-Schulz, Christian. “Heidegger's Thinking on Architecture.” *Perspecta* 20 (1983): 61–68. https://doi.org/10.2307/1567066.

Norberg-Schulz, Christian. *Genius Loci: towards a Phenomenology of Architecture*. New York: Rizzoli, 1996.

Peckham, Andrew. "Moneo, Libeskind and a question of influence." *The Journal of Archtiecture* 13, no. 1 (2008): 23-51.

Pellauer, David, and Bernard Dauenhauer. “Paul Ricoeur.” Stanford Encyclopedia of Philosophy. Stanford University, June 3, 2016. https://plato.stanford.edu/entries/ricoeur/.

Perez-Gomez, Alberto. "Architecture: The Space of Participation." in Suburbs, PUBLIC 43. Edited by Steven Logan, Janine Marchessault and Michael Pro kopow. (Toronto: Public Access, 2011).

Perez-Gomez, Alberto and Louise Pelletier. “Architectural Representation beyond Perspectivism.” *Perspecta* 27 (1992): 20-39.

Pinto, Pedro and G. Kondolf. "Evolution of Two Urbanized Estuaries: Environment al Change, Legal Framework, and Implications for Sea-Level Rise Vulner ability." *Water* 8, no. 11 (2016): 1-23. https://org/10.3390/w8110535.

Prown, Jules David. "Mind in Matter: An Introduction to Material Culture Theory and Method," *Winterthur Portfolio* 17, no.1 (1982), University of Chicago Press: 1-19.

“Raimund Abraham by Carlos Brillembourg.” BOMB Magazine (2001). https://bombmagazine.org/articles/raimund-abraham/.

Ribeiro, Joel David Simoes, "Restauro e reabilitacao: Moinho de mare do Cais das Faluas no Montijo." *Pedra & Cal,* no. 21, (2004): 22-24.

Rodero, Enrique Pérez. Castelvecchio museum in Verona by Carlo Scarpa (20). 10 August, 2016. https://artchist.wordpress.com/2016/09/15/castelvecchio-museum-in-verona-by-carlo-scarpa/castelvecchio-museum-in-verona-by-carlo-scarpa-20/.

Rodriques, Carolina. "Artisanal salt production in Aveiro/Portugal - an ecof riendly process." *Saline systems* 7, no. 13, (2011). https:// doi:10.1186/1746-1448-7-3.

Rykwert, Joseph. "Architecture and Drawing." Mellon Lectures, Canadian Centre for Architecture, April 19, 2005: 1-12. https://www.cca.qc.ca/cca.media/ files/1488/1389/Mellon08-JR.pdf.

Schön, Donald. *The Reflective Practitioner*. MIT Press, 1983.

Speck, Larry. *Photography: National Museum of Roman Art.* Last modified 2020. https://larryspeck.com/photography/national-museum-of-roman-art/

Torres, José Santos. Carlo Scarpa y el museo de Castelvecchio (Verona). October 24, 2013. https://inarqadia.files.wordpress.com/2013/10/p1050583.jpg. Ur

sprung, Philip. "Earthworks: The Architecture of Peter Zumthor." The Pritzker Prize, (2009): 1-5. https://www.pritzkerprize.com/sites/default/files/in line-files/2009_PhilipUrpsrungEssay.pdf.

Ursprung, Philip. “Limits to Representation: Peter Zumthor and Hans Danuser.” *Visual Resources* 27, no. 2 (2011): 172–84. https://doi.org/10.1080/019737 62.2011.568180.

Wheeler, Michael. “Martin Heidegger.” Stanford Encyclopedia of Philosophy. Stan ford University, October 12, 2011. https://plato.stanford.edu/entries/hei degger/.

Zumthor, Peter. *Thinking Architecture.* Basel: Birkhäuser, 2017.

Zahavi, Dan. *Husserls Legacy: Phenomenology, Metaphysics, and Transcendent al Philosophy*. Oxford University Press, 2019.