

**Inhabiting Flow:  
Strategies for Tourist Oriented Architecture  
in Volatile Icelandic Landscapes**

by

Robin Ellis

Submitted in partial fulfilment of the requirements  
for the degree of Master of Architecture

at

Dalhousie University  
Halifax, Nova Scotia  
July 2019

© Copyright by Robin Ellis, 2019

## TABLE OF CONTENTS

|   |    |
|---|----|
| Chapter 1: Introduction.....                            | 1  |
| Understanding Iceland as Flows.....                     | 1  |
| Landscape Flow.....                                     | 4  |
| Tourism as a Flow.....                                  | 9  |
| Tourism Dynamics.....                                   | 16 |
| Tourism Imagery and Digital Flow.....                   | 20 |
| Ecological Concerns.....                                | 21 |
| Sustainable Tourism Strategies.....                     | 24 |
| Chapter 2: Analysis.....                                | 25 |
| Icelandic Landscape, Architecture and Culture.....      | 25 |
| Influence of Instability on Culture and Politics .....  | 28 |
| Icelandic Buildings.....                                | 32 |
| Infrastructure Strategies for a Flowing Landscape ..... | 37 |
| Variation, Change and Speculation in Architecture ..... | 40 |
| Heimaey Site Description .....                          | 41 |
| Tourism on Heimaey.....                                 | 43 |
| Hardships and Resilience .....                          | 57 |
| Architecture Lessons from Eruption .....                | 58 |
| Case Study: Carmen and Elin Corneil .....               | 59 |
| Chapter 3: Synthesis .....                              | 64 |
| Proposal Concept and Strategies.....                    | 64 |
| Case Study: Chipperfield .....                          | 65 |
| Site Description .....                                  | 68 |
| Mapping and Siting.....                                 | 72 |



|                                       |     |
|---------------------------------------|-----|
| Program and Building Description..... | 74  |
| Chapter 4: Conclusion .....           | 105 |
| Recap of Findings .....               | 105 |
| Reflections on Potential.....         | 106 |
| Bibliography.....                     | 108 |

## **ABSTRACT**

The volatile terrain in Iceland, a landscape of perpetual flux in the space of places, flows and time, demands building methods which are empathetic to its unwieldy behaviour. An inundation of tourists over the past decade has influenced both rural and urban approaches to development and occupancy, impacted ecological conditions and permeated the cultural atmosphere. By examining the introspective, performative and transitory expressions of Icelandic cultural identity through the built environment, design strategies emerge that can reinforce a resilient way of life. The Island of Heimaey serves as a test site for speculative research of the implications of integrated, anticipatory architecture for inhabiting flow.

## ACKNOWLEDGEMENTS

I would like to express my deepest gratitude for all of the professional guidance that I received from my Ted Cavanagh, Roger Mullin and Catherine Venart, as well as the additional assistance from Tanis Paul, Kristín Jóhannsdóttir, Steve Parcell, Diogo Burnay, Susanna Morash-Kent, Susan Fitzgerald and Ken Kam.

This work would not have been possible without my dear friends and classmates who helped in countless ways, Hilary Bergen, Andrew Budyk, Christin Burgess, Cassie Burhoe, Beatrix Casiano, Jillian Ellis, Alix Lanyon-Taylor, Marie MacInnis, Charles Freeman, Liam Healy, Courtney Ho, Lucien Landry, Alex Lavallée, Lydia Lovett-Deitrich, Ryan Swirsky, Ruth Vandergeest, and Matt Williams.

Maggie Hunter of the Canadian Architectural Archives, Andréa Steingrímisdóttir and Ivar Palmeson offered thoughtful observations, stories and experiences. Inga Torfadóttir shared Icelandic books from her personal library.

Finally, I would truly be lost without the enduring support, generosity and encouragement from my parents, Matthew and Nancy Ellis and my partner Thomas Woodcock.

## CHAPTER 1: INTRODUCTION

### Understanding Iceland as Flows

“The land is alive and we choose to live on it”<sup>1</sup> explains Alfred Alfredsson, who lived through the volcanic eruption in 1973 on Heimaey island in Southern Iceland that swallowed half of the town, and now guides for Viking Tours. Alfred’s sentiment was echoed in a 2010 qualitative survey conducted of inhabitants of the southern region of mainland Iceland, where the landscape is heavily prone to catastrophic glacial flooding.<sup>2</sup> Just as natural flows create dynamic environmental conditions, flows in Iceland’s economic, political and social landscapes shape the immaterial systems that generate place. Over the past decade, the consequences of the surge in the flow of tourism can be measured and felt throughout the nation. Heimaey, the island town off the southern coast, a “place of mysterious attraction”<sup>3</sup> This influx of people in places is due to flows, in economy, land, and digital information.

Volatile streaming landscapes – flows of people, goods, services, information,<sup>4</sup> and environment – influence the spatial transformation of the country. Manuel Castells predicts that the “interface between places

- 
- 1 Rebecca Conway, “The Westman Islands Are Alive (Even In The Wintertime),” *The Reykjavik Grapevine*, February 19, 2016, <https://grapevine.is/travel/travel-featured/2016/02/19/the-westman-islands-are-alive-even-in-the-wintertime>.
  - 2 G. Jóhannesdóttir and G. Gísladóttir, “People Living Under Threat of Volcanic Hazard in Southern Iceland: Vulnerability and Risk Perception,” *Natural Hazards Earth Systems Science* 10 (2010): 410.
  - 3 John McPhee, *The Control of Nature* (New York: Noonday Press, 1990), 168.
  - 4 Manuel Castells, “Globalization, Networking, Urbanization”, *Urban Studies* 47, no. 3 (2003): 2738.

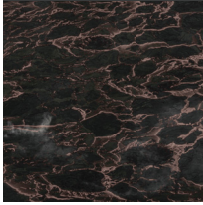
and flows and between cultures and social interests, both in the space of flows and the space of places” will create the “geography of the new history.”<sup>5</sup> He described that flows link places, imply movement, and their effects can be purposeful but can also be quite random. Iceland’s precarious geological position between the North-American and Eurasian tectonic plates, straddling the Mid-Atlantic ridge, means the earth periodically splits and cracks in the form of fissures, faults and flexures. Up to five hundred earthquakes are recorded each week<sup>6</sup>, two volcanic belts pass through the country, and eruptions result in everything from flowing lava and noxious gasses, raining tephra (volcanic ash), lightning, glacial melt resulting in burst flooding, as well as sand storms created by residual sediment.<sup>7</sup> By understanding the site as a set of flows, analysing local building traditions, and the transposing existing techniques, this thesis develops new strategies for tourist architecture to accommodate change and support a resilient way of life.

---

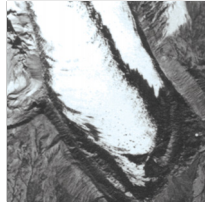
5 Manuel Castells, “Grassrooting the Space of Flows”, *Urban Geography* 20, no. 4 (1999): 294.

6 Sigprúdur Ármannsdóttir et al., “Development and Implementation of Seismic Early Warning Processes in South-West Iceland,” *Icelandic Meteorological Office*, (2012): 05.

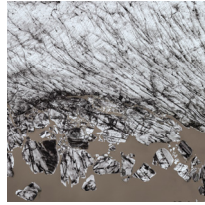
7 Jóhannsdóttir and Gísladóttir, “People Living Under Threat,” 420.



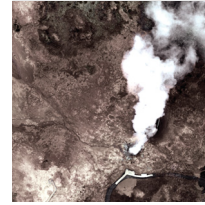
Magma



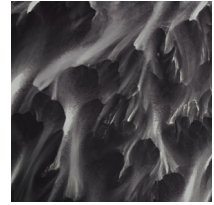
Glacial striation



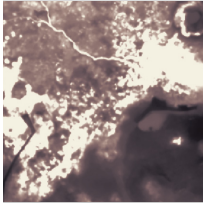
Glacier fracturing at the sea



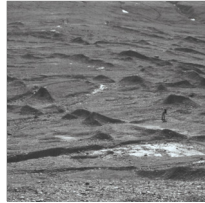
Geyser



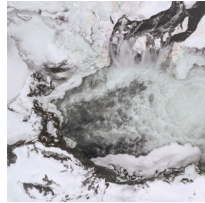
Deposits in delta



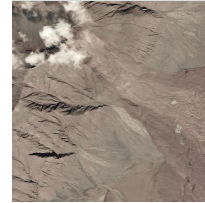
Geothermal Groundwater



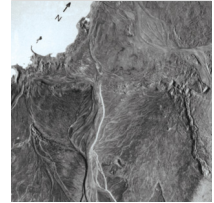
Sand Drift



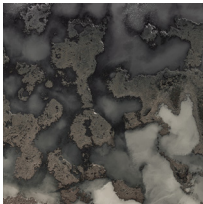
Volcanic glacial melt



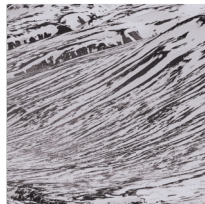
Landslide



Flowing landscape



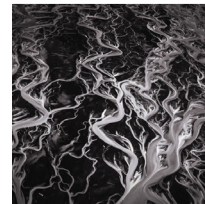
Alluvial Plain



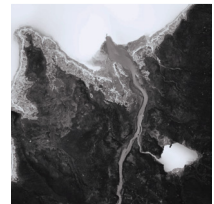
Avalanche hazard



Lava meeting the sea



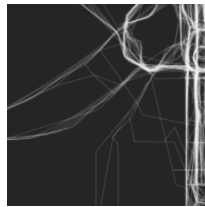
Braided river



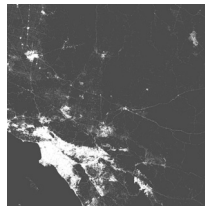
Snow and ice flows into the sea



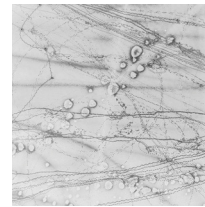
Fishing vessels



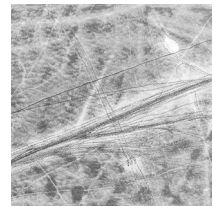
Running routes



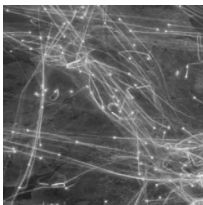
Urbanization



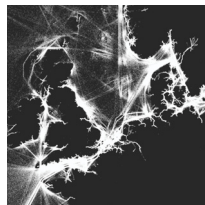
Footprints in snow



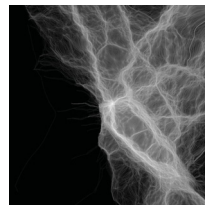
Tire tracks in snow



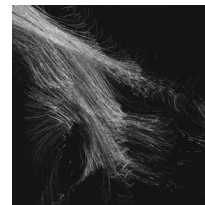
Air traffic



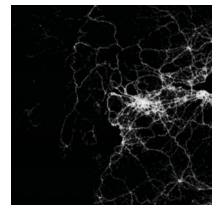
Shipping routes



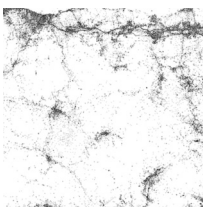
Travel routes



Mobile phone data



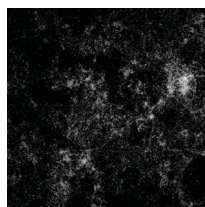
Road Casualties



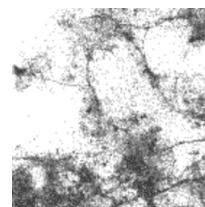
Tweets



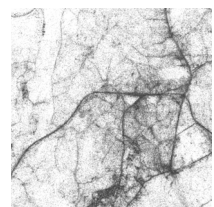
Geotagged photos



Flickr posts



Local and tourist routes



Automotive traffic

Photomontage correlating traces of landscape, human and information flows.

### ***Landscape Flow***

The spatial and temporal boundaries of the Icelandic landscape are in a constant state of change; these changes, which emanate through physical and immaterial flows, are expressed in the evolution of building traditions. William Morris, who visited Iceland in 1871 and 1873, later described change as “the natural state of tradition.”<sup>8</sup> Ethnographer Henry Glassie furthers this position, adding that “tradition is the creation of the future out of the past.”<sup>9</sup> He sees tradition and culture as temporal phenomena, in constant state of change: “Drifting through endless, numberless changes so subtle as to provide an illusion of stability, traditions stream into continuity.”<sup>10</sup> He differentiates three methods for carrying tradition forward: repetition, preservation and experimentation. “In one dynamic, the whole is repeated. In another, entities are dismembered and essences are preserved. In a third, what is preserved is a general tone, a sound, a look, a certain spirit.”<sup>11</sup> Vernacular relationships with the flowing landscape reflected in infrastructure that contends with volcanoes, earthquakes, tremors, landslides, avalanches, glacial flooding, torrential rain, sand storms and other volatile weather events, suggest flexible architectural strategies that, in addition to adding and joining, may also subtract and subdivide. In a volatile landscape, the

---

8 William Morris, “Hopes and Fears for Art: Five Lectures,” (Delivered in Birmingham, London, and Nottingham, London: Longmans, Green. 1878-1881), 157-158.

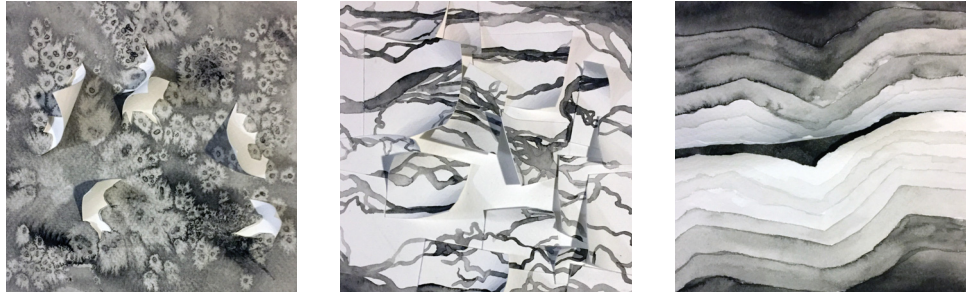
9 Henry Glassie, “Tradition,” *Journal of American Folklore* 108 (1995): 400.

10 *Ibid.*, 405.

11 *Ibid.*, 408.



fastest growing continent,<sup>12</sup> development should incorporate dynamic structures which can be physically dismantled and reassembled in response to flows.



Interpreting the physicality of flowing landscapes through recreation and abstraction. India ink on watercolour paper.

Steven Christer, codirector of the long-standing, accomplished Reykjavik practice Studio Granda Architects, alongside Margrét Hardardóttir, has worked within this ever-changing environment throughout his career; he describes the firm's approach to the landscape of his adopted country in a practice statement:

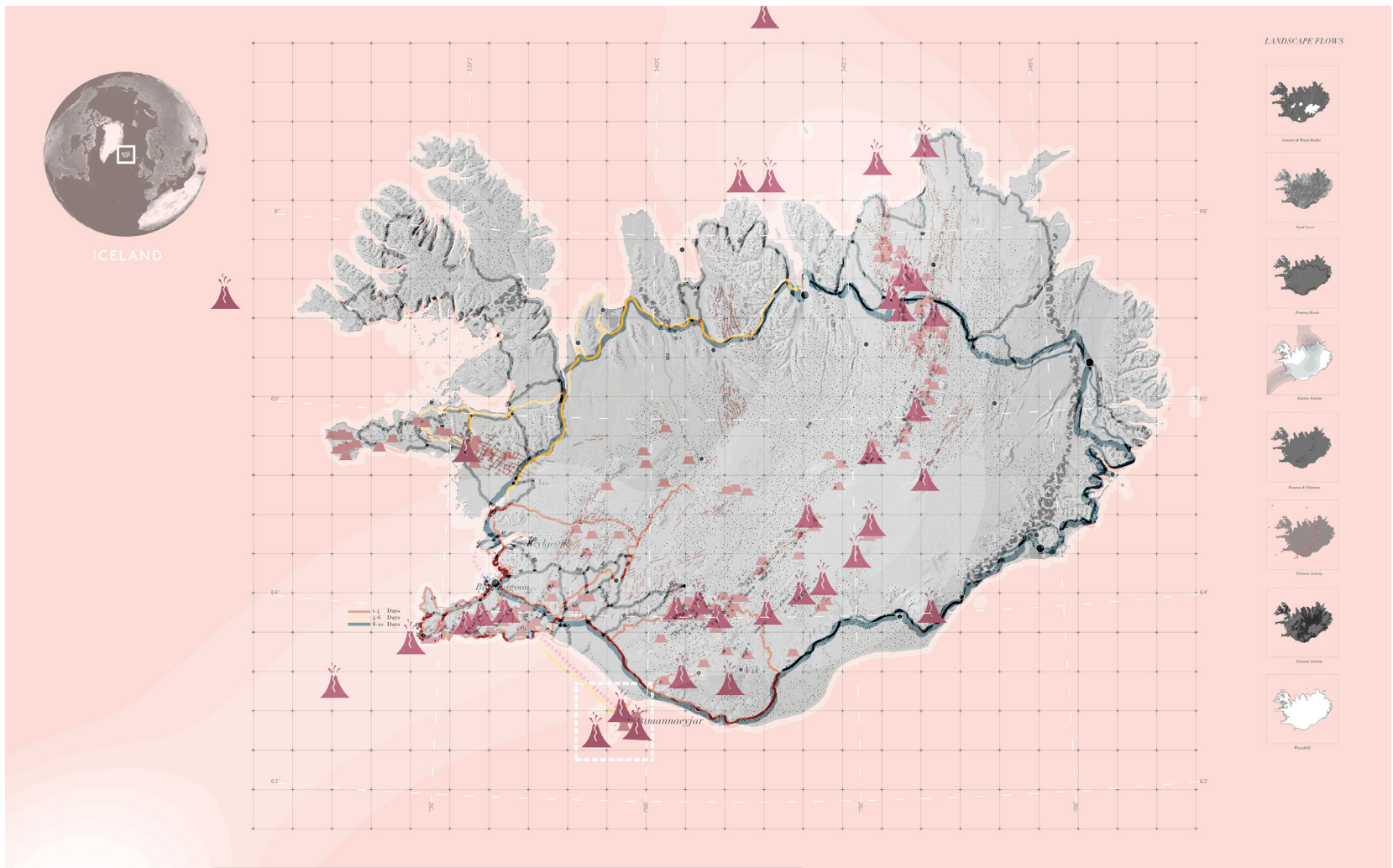
The sands of an arctic volcanic desert are black, shadowless and constantly shifting. There are no trees, buildings or roads and footprints are instantly erased. To survive one must watch the celestial bodies, focus on the horizon, heed the warning of the winds and make clear and precise judgements. The necessary acuteness of thought and tuning of the senses is equivalent to the practice of architecture where listening, reevaluation and production are all equally interdependent.<sup>13</sup>

Christer acknowledges the ephemerality of human intervention in such the volatile conditions, and emphasizes that the acute attention paid to the landscape must be duly applied to architectural processes.

<sup>12</sup> Katherine Sherman, *Daughter of Fire : A Portrait of Iceland*, (Boston: Little, Brown, 1976): 20.

<sup>13</sup> Steven Christer, and Margrét Hardardóttir, "Studio Granda" *Architecture and Urbanism* 93, no. 4 (1993): 22.





Map of Iceland depicting the numerous environmental and human-driven flows that occur across the country's landscape. (Data from ArcGIS)



An early architectural tourist, William Morris, observed that Icelandic society was “held together almost in defiance of the elements. It was a society that took care of its own.”<sup>14</sup> He made two lengthy expeditions to Iceland in the 17th Century, arriving by sea and then travelling with his guides and companions throughout the country on horseback.<sup>15</sup> He chronicled his experiences in a personal journal, where he described the materiality of the landscape and its interaction with architecture in several informal passages.

... then round the foot of a grassy down to a pretty little nook once, where the lava flowing down the valley between the two downs, has made an island of grass where stand yet the foundations of three houses that it surrounded without destroying, then again another stream of lava that passes by us and breaks on the lake-strand stopping short of the stead of Reykjaldid, where however the church (the same as then) yet stands in an island surrounded by it along with a big sheep-house. A few rods further on and we are among the black sand, and huge clinker rocks of lava at the foot of the sulphur hills, an ugly place.<sup>16</sup>

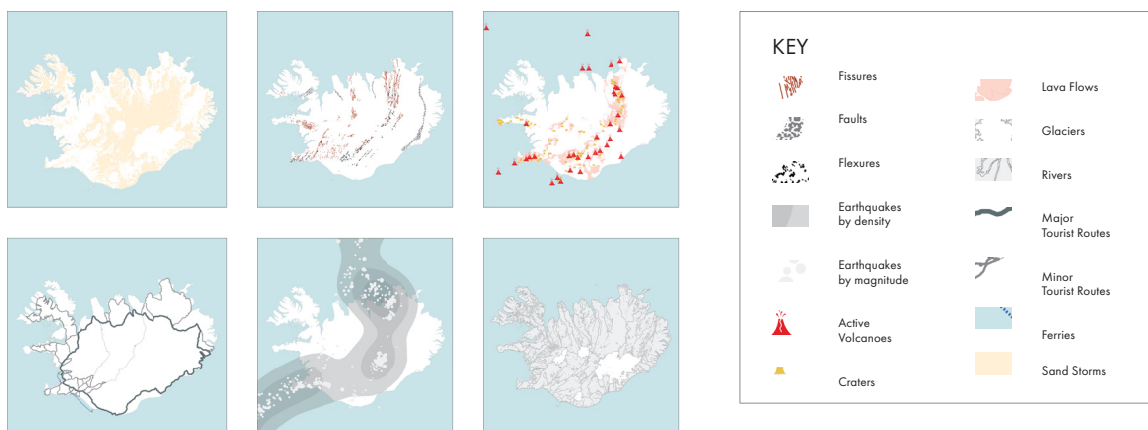
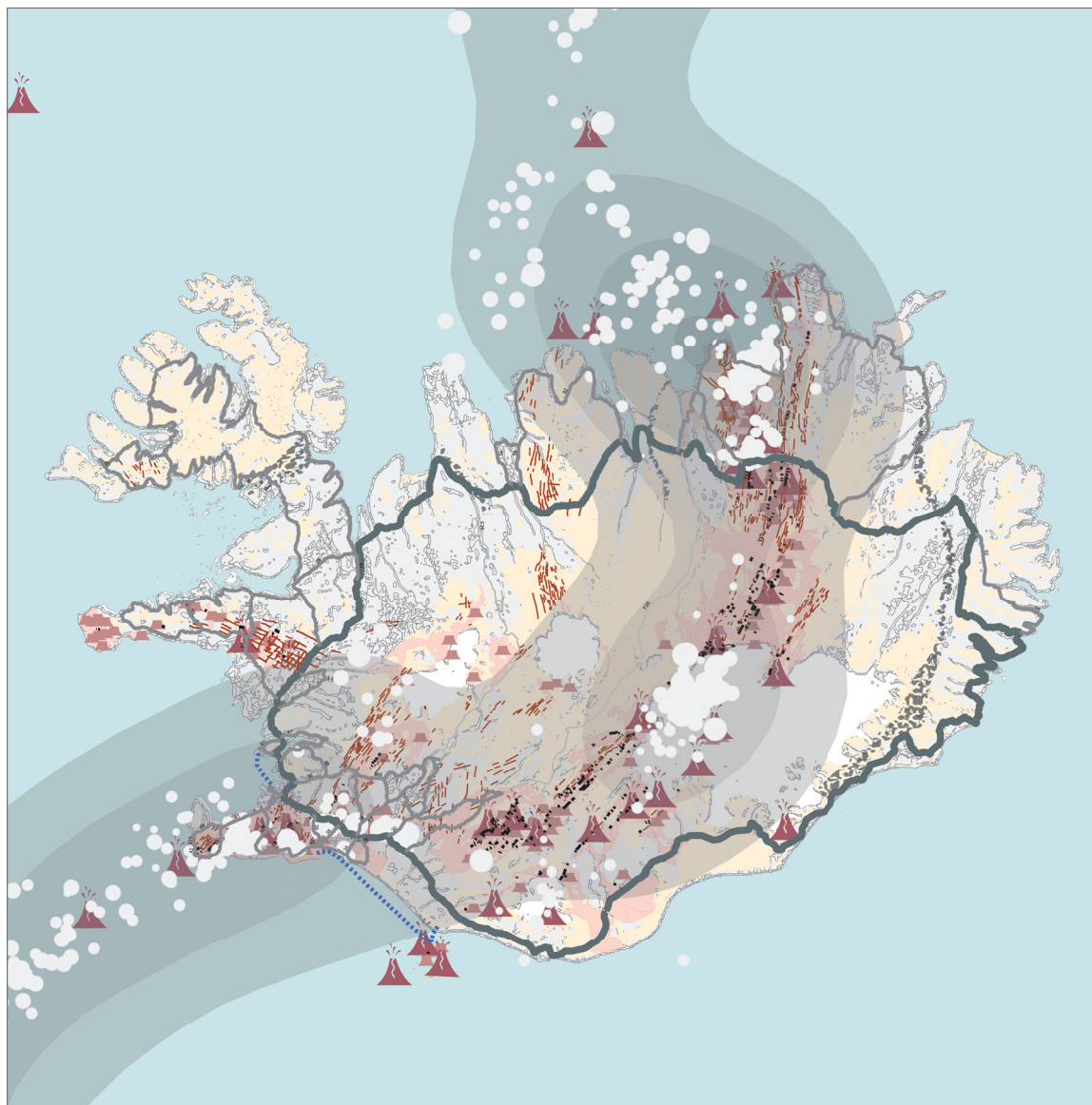
The landscape can be both inviting and unforgiving, ugly and alluring, immaculate and crude. It is never in stasis. This fluidity shapes the physical and immaterial composition of the country over time. The proposed architecture tests strategies developed in response to local traditions in order to adapt to, endure and inhabit flow.

---

14 Fiona MacCarthy, “William Morris in Iceland,” *The Guardian* (27 March 2010). <https://www.theguardian.com/artanddesign/2010/mar/27/william-morris-iceland-ian-mcqueen>

15 William Morris, *Icelandic Journals*, 1871 (hand-written notes digitized by William Morris Society): 225, <http://morrisedition.lib.uiowa.edu/Images/BL-45319A/icelandicpageflip1-25.html>

16 *Ibid.*, 230.



Map of Iceland depicting the numerous environmental and human-driven flows that occur across the country's landscape. (Data from ArcGIS)

## Tourism as a Flow

In the past decade or so, Iceland has debuted in a new role as a top tourist destination. The sudden collapse of the country's three major financial institutions in the prelude to the global economic crisis set the scene by drawing attention to the remote destination. Next, the worldwide media coverage of the infamous, exotic-sounding Eyjafjallajökull volcano, which expelled so much ash into the atmosphere that it disrupted global air-traffic for several days, portrayed the country as an enchanting, uncanny destination. Finally, an enticing nation-branding effort, disseminated primarily online, resulted in an unprecedented increase in visitor numbers<sup>17</sup>. Travellers come in pursuit of the thrill, the spectacle, and/or the intrinsic healing power offered by the paradox of the otherworldly yet reachable, contrived yet whimsical, affordable (to access) yet expensive (to engage with), pristine, authentic wilderness.<sup>18</sup> In 2017, the United Nations declared the International Year of Sustainable Tourism. While an inpouring of tourists brings prosperity to the tiny nation, the resultant crowding poses significant threats to the natural environment, as discussed later in this chapter.

In their analysis of Iceland as a tourist destination, Lund et. al describe the destination as "mobile; it is multiple and varied, highly subjective and constantly changing, and has unlimited potential."<sup>19</sup> The economic boom from increased tourism steers the flow of money, but along with it, the physical presence of people in space and the flow of digital

---

17 Lund et al., "More than a Stopover: Analysing the Postcolonial Image of Iceland as a Gateway Destination," *Tourist Studies* 17, no. 3 (2017): 146.

18 Ibid., 150.

19 Ibid., 146.

information which expands the tourist gaze, the consumption of the image of the place. The phenomenological understanding of space and place of both philosopher Yi-Fu Tuan and geographer Edward Relph sees space as abstract, while place as space with meaning.<sup>20</sup> The present tourism surge is quickly evolving, along with the face, and sense place, in Iceland. The destination is at once an exoticized subject of the consumer tourist gaze<sup>21</sup>, a precious habitat for the ecotourist, a socially-conscious self-improvement destination for the slow-tourist, a temporary home for the global traveller/remote worker. As Airbnb out-prices and excludes citizens from their family homes, while new imposing hotels loom over them, Iceland is in need of a new architecture. An architecture that can address visitors needs, all while covertly preparing for future incarnations. The tourist architecture proposed for Icelandic town sites will react to flows by relieving pressure on the capital Reykjavik, and reflect the ever-changing landscape, and ultimately benefit local communities. A sheep in wolf's clothing, the "tourist" centre will meet demands of the tourist-consumers but as this need wains, it will live on. The hotel-turned-housing, the visitor-centre-turned-community-centre, the gift shop-turned-grocery... A building poised for transformation. An architecture that situates itself in a local culture, addresses concern for the sensitive landscapes, and anticipates further metamorphosis by embodying the internal, the external and the streaming composition of Icelandic identities.

---

20 Yi-Fu Tuan, *Space and Place : The Persepective of Experience* (Minneapolis: University of Minnesota, 1977), 4.

21 John Urry, *The Tourist Gaze : Leisure and Travel in Contemporary Societies* (London: Sage, 1990), 60.



# VISIT ICELAND



Iceland Tourist Poster #1. Imagined tourism posters depicting modular, mobile architecture that adapts to given flows and circumstances.



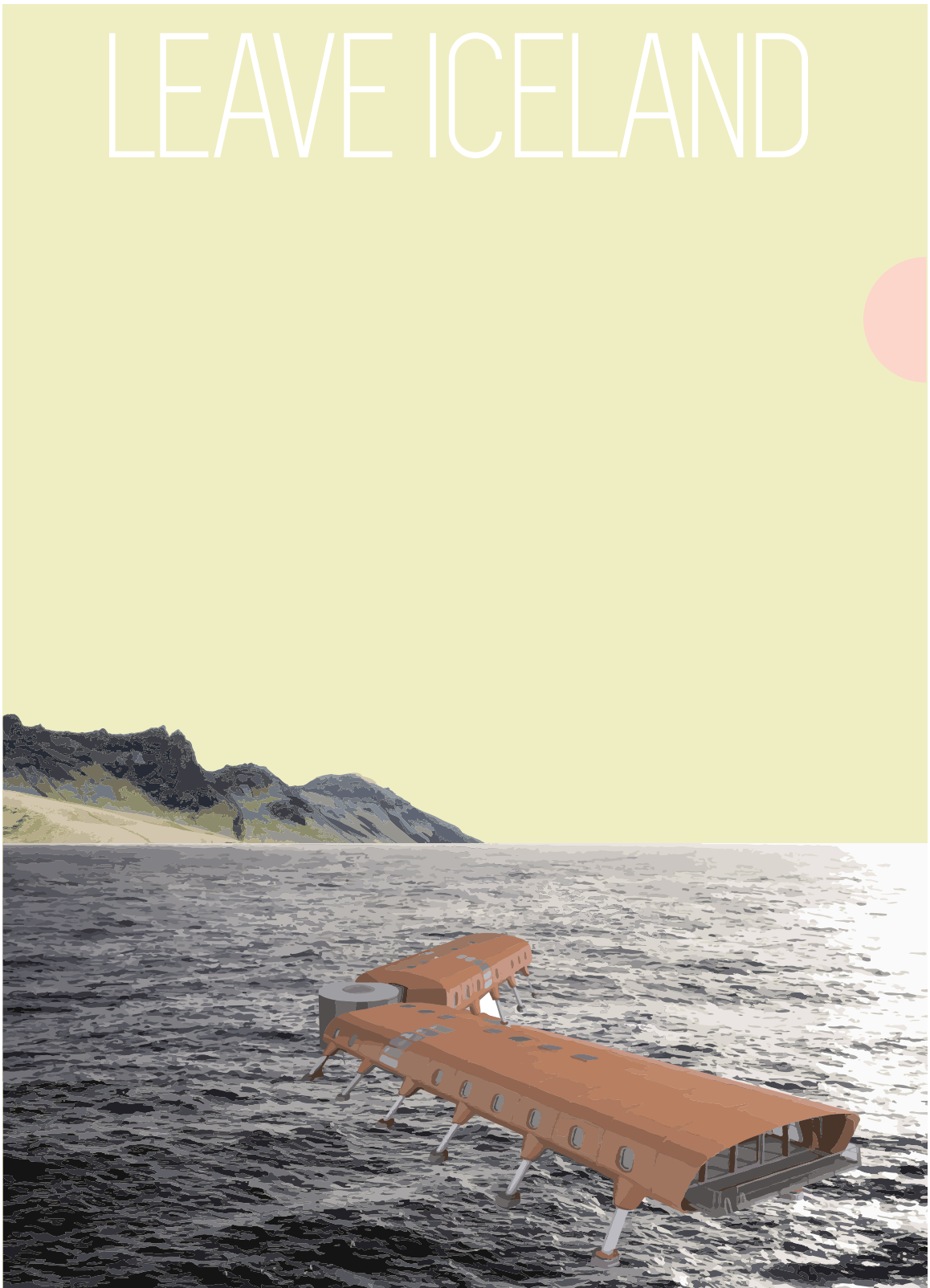
Iceland Tourist Poster #2. In envisioning the potential for this project, I have developed ideas through speculative collage by combining my own site photographs, historical images, and existing architecture with particular relevant qualities which play the role of the “characters” to inhabit each scenario/design inquiry.



Iceland Tourist poster #3. The British Antarctic Research Station modules are designed to be relocated when necessary, as the ice beneath them melts, moves, and breaks away from the continent. Perhaps this adaptable architectural method and technology can be applied to flowing volcanic landscapes.

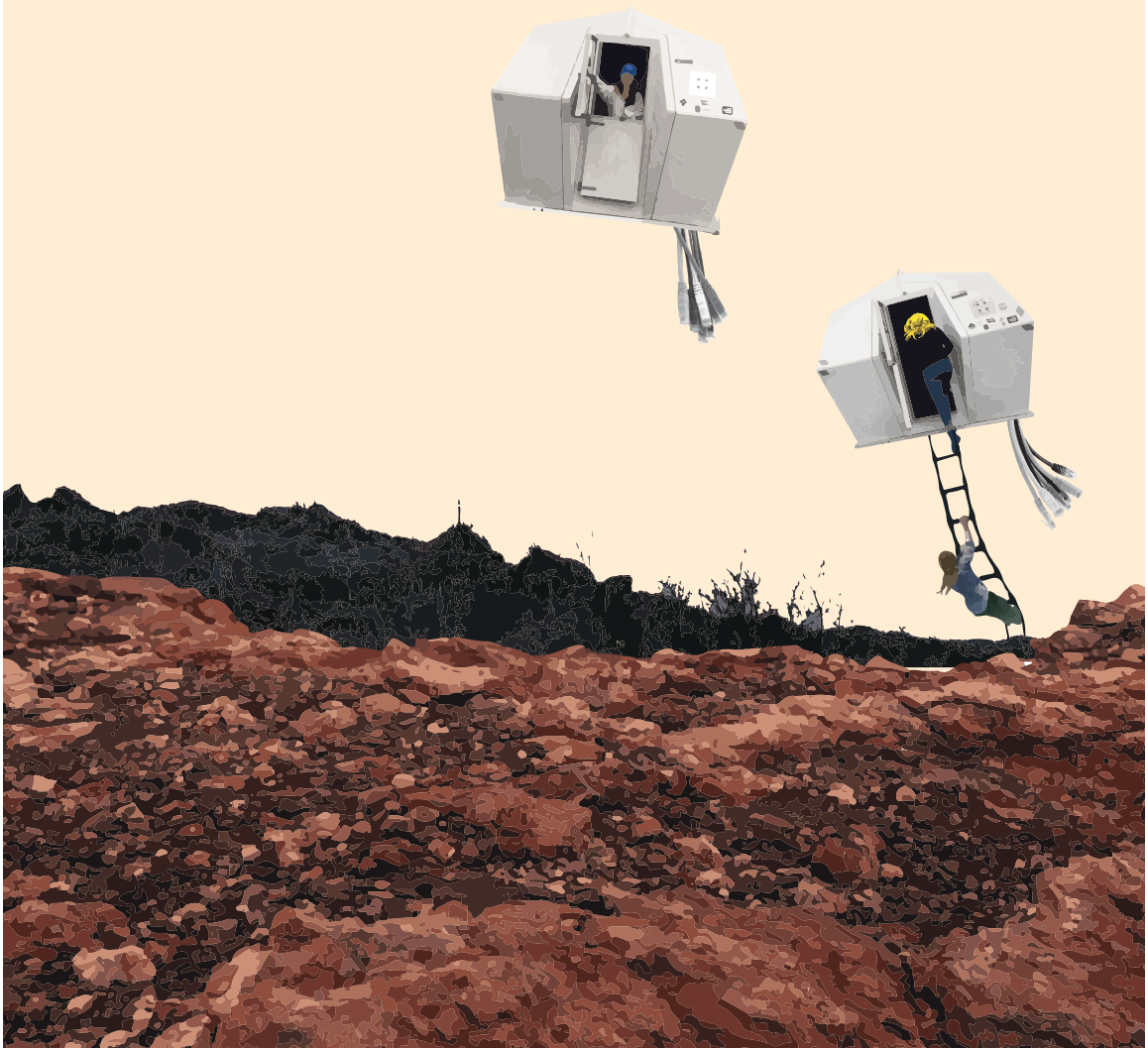


# LEAVE ICELAND



Iceland Tourist Poster #4. Amphibious modular architecture/vehicle/mobile homes linked in a train, evacuating. Speculative slithering critters.

# LIVE IN ICELAND



Iceland Tourist Poster #5. Volant modular architecture/vehicle/mobile homes returning to land. Speculative flying critters.

### ***Tourism Dynamics***

Iceland's unique global position allows it to act as a touch-down point between Europe and North America. Iceland's major airline, Icelandair, as well as the now defunct discount Wow Air, both enthusiastically contributed to the convenient destination image. "In Iceland's case, the image of the convenience of a layover in route to Europe or North America and, similarly, the exoticisation of the northern landscape are only able to exist because of Icelandair's particular target market who seeks to get a glimpse into elsewhere."<sup>22</sup>

Sociologist John Urry initially described the visual, image-saturated tourism as the collecting of signs.<sup>23</sup> He emphasizes more static, uneven power relationships between hosts and guests, and those structures imbedded in disseminated tourism images. His later descriptions incorporate senses beyond the visual and examine the physicality of gazing, or the performance of gazing. "Awareness of a pseudo-event or socially produced experience that is wittingly inauthentic."<sup>24</sup>

Sociologist Erving Goffman introduced the concept of the performance turn, which Dean MacCannell adopted in his analysis of dynamic tourism power structures, where he claimed that all actors have agency within the relationship between both 'hosts' and 'guests'. He described how each performs tourism, individually and in groups. Advancing this understanding, Tim Edensor describes tourism as "fluid and embodied

---

22 Lund et al., 144.

23 Jonas Larsen and John Urry, "Gazing and Performing," *Environment and Planning D: Society and Space* 29, no. 6 (2011): 1110.

24 Lund et al., 146.

performance between hosts, guests and locations."<sup>25</sup>

Issues of ownership, class, and authenticity repeatedly arise in the discussion of tourism. MacCannell and Urry both implicated the ideas of late nineteenth century theorist, Thorstein Veblen, who introduced *The Theory of the Leisure Class: An Economic Study of Institutions* 1899, which uses and critiques structuralism, as well as Walter Benjamin's query of authenticity from his chapter *Art in the Age of Mechanical Reproduction in Illusions*.

An understanding of tourism staging in Iceland using MacCannell's sacralization of attractions:<sup>26</sup> First, denote site as important by marking it as different from those which are similar, by naming it and specifying the importance of its' conservation. Second, elevate and frame it, such as bounding off land as a park, or a protected artwork or building, for example, Blue Lagoon over other geothermal spas. Third, frame and elevate by protecting or enhancing. One of many possible examples is the stairway built up to see the Skógafoss waterfall. Third, enshrinement, where the frame itself is marked, named.<sup>27</sup> For example, the glacial cave within the national park, present it as the "heart" of the destination. Fourth, mechanical reproduction - photos, miniatures, this encourages tourists to visit the original, in the case of Iceland post cards, stuffed animals, models of turf houses come to mind, but perhaps also, metaphorically, the naming of The Snæfellsness Peninsula as "Iceland in Miniature"

---

25 Tim Edensor, "Performing Tourism, Staging Tourism: (Re)producing Tourist Space and Practice," *Tourist Studies* 1, no. 1 (2001): 70.

26 Dean MacCannell, *The Tourist: A New Theory of the Leisure Class*, (Berkeley: University of California Press 1999), 48.

27 MacCannell, *The Tourist*, 44.

offers it as a diminutive of the greater expansive country, a stepping stone towards the complete experience, which demands more time and effort to visit. MacCannell argues that the original only becomes “authentic” once there is a copy.<sup>28</sup> Finally, social reproduction, when the place adopts name of the attraction itself.<sup>29</sup> Iceland, where the volatile landscape is the prime attraction, is thus branded as “The Land of Fire and Ice” where the guest may stay in numerous volcano- or glacier- themed hotels, eat at the Lava Restaurant, and of course adorn themselves with volcano-stone jewellery. Icelandland?<sup>30</sup> Disneyization<sup>31</sup> (differentiated from disneyfication which refers to the distorting, cleansing or sterilizing of stories and images through a mass-market filter) is the orchestration of an immersive consumer experience within a visually themed environment supported by scripted interactions and with hosts, and reinforced with branded merchandise, in order to concentrate and capitalize on their spending potential. “self-conscious and reflexive, with a network of actors engaging in a fallacy that becomes a certain mediated reality.”<sup>32</sup> For the short-stay stopover visitor, Iceland presents a constructed, packaged, all-encompassing, experience where guests can buy in, and safely engage with the “exoticised Arctic North.”<sup>33</sup> However it also

---

28 MacCannell, *The Tourist*, 48.

29 *Ibid.*, 45.

30 Veniceland - 2018 Venice Biennial. Venetians were outraged over the metal segregation barriers installed on bridges throughout the city. Large protester banner read: “This is not Veniceland” and distributed satirical maps of the theme park, reminiscent of Banksy’s dystopian Dismaland from 2015.

31 Alan Bryman, “The Disneyization of Society,” *The Sociological Review* 47, no. 1 (1999): 30.

32 Lund et al., “More than a Stopover,” 149.

33 *Ibid.*, 144.

presents it, as Lund et al. argue, as a gateway,<sup>34</sup> a designation which alludes to the opportunities a visit can afford. "For contemporary tourists, the exoticization and the image of a remote yet accessible destination are precisely what the tourist gaze seeks to consume."<sup>35</sup>

"The Icelandic tourism industry's reaction to the Eyjafjallajökull eruption was swift. A digital media campaign, entitled Inspired by Iceland."<sup>36</sup> Semiotics, E-mediation and Gazing motifs,<sup>37</sup> Destination mobility, Actor Network Theory. Lund et al understand tourism destinations as "amorphous and constantly changing, emphasizing the contested nature of destination as a mobile actor itself."<sup>38</sup> Through this analysis, they propose that the spatialities of tourism should be understood relationally, rather than as fixed. They note Van der Duim's 'Tourismscapes' "as a way of apprehending the multiple, fluid and networked nature of destinations."<sup>39</sup> And compare Deleuze's rhizomic conception of the infinite potential for arrangements within networks.<sup>40</sup> Fluctuation in tourists' origins. Primary purpose for visits: pristine landscape.<sup>41</sup>

---

34 Ibid., 144.

35 Urry and Larsen, "Gazing and Performing," 20.

36 Lund et al., "More than a Stopover," 148.

37 Sean P. Smith, "Instagram Abroad: Performance, Consumption and Colonial Narrative in Tourism," *Postcolonial Studies* 21, no. 2 (2018): 172-19.

38 Lund et al., "More than a Stopover," 146.

39 Ibid., 146.

40 Ibid., 147.

41 Anna Dóra Sæþórsdóttir, "Planning Nature Tourism in Iceland based on Tourist Attitudes," *Tourism Geographies* 12, no. 1 (2010): 25-52, DOI: 10.1080/14616680903493639



Digital collages of modular architecture/vehicle/mobile homes.

### ***Tourism Imagery and Digital Flow***

Smith identifies three repeated visual themes (motifs) portrayed in the Instagram content of tourists. The colonial undertones of the images, which omit local place and identity, and portray destinations as products.<sup>42</sup> He refers to them as tropical Exotic: Empty, Undiscovered. Promontory Gaze: Imperialism, Power. Fantasized Assimilation: Consumption, belittlement, erasure. Colonization by tourists. New colonization, new invasion of territory. Tourists are the new “colonies” (leisure class) and will have an impact the culture and the environment, will likely get their way. Ownership by occupation, not by legal ownership:

Representations of places manifested as a result of tourism are thus inextricably linked to a putative geography of post-colonialism whereby the actors who have the most power in shaping destination image are those who have the power to disseminate their opinions broadly.<sup>43</sup>

---

<sup>42</sup> Smith, “Instagram abroad,” 176.

<sup>43</sup> Lund et al., “More than a stopover,” 146.

According to Smith's motifs, the Tropical Exotic image "fetishizes an identity's most marketable features while effacing its hardships."<sup>44</sup> He explains, "local residents, when pictured, are configured as genericized icons of exoticism that serve to imbue the tourist's experience with authenticity."<sup>45</sup> He highlights the homogenization or decontextualization at play. The diminishment of a group by use of homogenous stereotypical images, "which leads to such errant conceptualizations as the pictured region hosting one group of people, instead of noting a region's diversity and unique groups." By framing images which depict traditional practices in a way that crops out any indications of the period during which the photograph was taken, the tourist abstracts the image, "'reducing' people to the exoticism of their crafts and traditional dances."<sup>46</sup> The proliferation of digital image sharing apps has allowed for unprecedented speed and volume of tourist imagery to be repeated and disseminated at a global scale. The concurrence between Iceland's increased digital marketing effort, and the popularization of Instagram has undoubtedly guided the flow of visitors and shaped the image of the nation. As Smith describes, in using Instagram, "tourists' right to consume a destination and their privileged position within it may be more deeply inscribed."<sup>47</sup>

### **Ecological Concerns**

2008 through the 2010s brought a period of unprecedented expansion of in Iceland's tourism industry, however, it had been continuously

---

44 Smith, "Instagram abroad," 177.

45 Ibid., 177.

46 Ibid., 178.

47 Ibid.



developing, at a more moderate pace, prior to the recession; in fact, number of tourists in Iceland first surpassed the local population in the year 2000.<sup>48</sup> Since then, as the rate of expansion has increased exponentially, the visitor tally now more than doubles that of Icelanders on any given day.<sup>49</sup> This deluge of visitors has caused significant damage to many of the country's popular locations by overuse, misuse and neglect; it has impacted vegetation (moss), lakes, ecosystems, soil, biodiversity, as well as human-made structures.<sup>50</sup>



Natural thermal pool in a cave along a land fissure near Grjotagja has now been fenced off. Right photo by Ólöf Hallgrímsdóttir for Iceland Magazine, July 11, 2018.



After increased damage to the vegetation along the path by "off-road" hikers, the Jardarglhufur walking trail is closed indefinitely to let the ground recover. The delicate moss that grows on the volcanic lava fields can take up to 80 years to regenerate.

<sup>48</sup> Lund et al., "More than a stopover," 148.

<sup>49</sup> Harald Schaller, "The Footprint of Tourism : Ecological sensitivity and hiking trail assessment at selected protected areas in Iceland and Hokkaido," PhD Dissertation, Icelandic Tourism Research Centre, December 2014, 9.

<sup>50</sup> Ibid., 10.



An over-used hiking trail in Thorsmork has been and partially deteriorated leaving a dangerous stretches of sliding land where there was formerly a navigable path. The trail must be repaired and reinforced before it can be re-opened to the public.

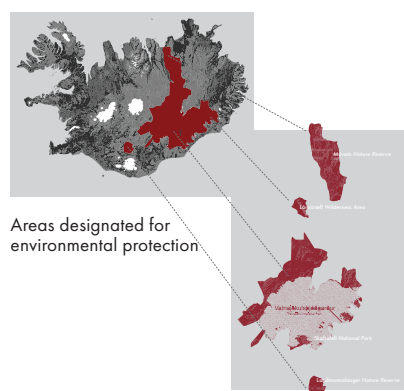
The Environment Agency of Iceland has indicated severe damage at Geysir, Skógafoss waterfall, Dyrhólaey, Dverghamrar basalt columns, Gullfoss, Reykjadalur Valley hike, Landmannalaugar, Lónsöraefi, Friðland að Fjallbaki Natural Reserve, Lakagígar craters, and Lake Mývatn. Þórdís Kolbrún Reykfjörð Gylfadóttir, Minister of Tourism, Industry and Innovation helps define National Parks, Conservation Areas, and Protected Locations. Gunnar Thor Jóhannesson, Professor in Tourism and Geography at the University of Iceland specializes in tourism development, policy & planning, destination development. He suggests that the leaders' priorities should be to invest in knowledge, road systems, and infrastructure. In Norway, a growing concern for the impact of tourists on the nature and ecosystem, combined with a strong desire to support the growing industry, led to the design and implementation of the Norway Tourist Routes, which established points of interest where architecture was developed intended to celebrate and establish permanence at certain tourist nodes in and to sustain the life of the terrain.

Studies by the National Tourism Board found that Icelandic "unspoiled"

nature is the most important segment of the tourist industry, as the majority of foreign visitors surveyed stated this as the reason for their visit.<sup>51</sup> Ironically, the presence of the visitors depletes the very thing they value. The research concluded that to continue to exploit this resource sustainably, it is essential to evaluate the carrying capacity, which is analyzed in five categories: physical, ecological, economic, perceptual, and social/political.<sup>52</sup>

### ***Sustainable Tourism Strategies***

Housing shortage in cities. Housing tourists along the ring road - multiple levels of access, types of accommodation as well as means of travel are all important factors: Driving, Hotel/Hostel/Guest House/Homestay/Campsite Cycling/Hiking-Hotel/Hostel/Guest House/Airbnb/Homestay/Campsite/Wild Camping (leave no trace). Eco & Slow Tourism. Tourist-Centred Architecture.



Geo-tagging encourages traffic in previously lesser known, seldom accessed locations.

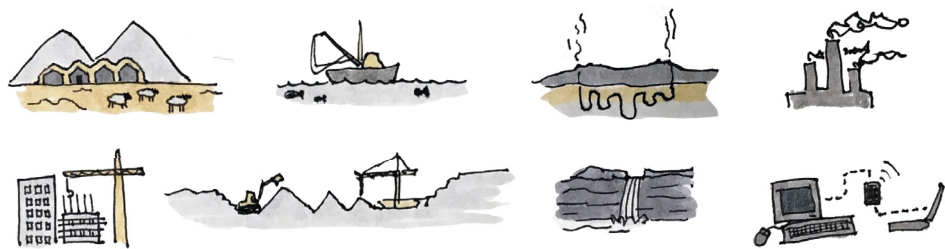
<sup>51</sup> Sæþórsdóttir, "Planning Nature Tourism," 31.

<sup>52</sup> Ibid. 33.

## CHAPTER 2: ANALYSIS

### Icelandic Landscape, Architecture and Culture

Prior to the 2008 financial crisis, Iceland's primary industries included silica mining, aluminium smelting, geo- and hydro-thermal energy, fishing, farming. Following the recession, a push to increase the tourism sector, began to benefit citizens engaged in the travel market and incentivized others to enter the hospitality, construction, and retail workforce.



Industry in Iceland will diversify and evolve with the shifts to align with flow.

As the industry continues to evolve and blossom and its requisite architecture proliferates in both rural and urban settings, new buildings designs should to react to flows, address unpredictable, monumental transformation. This work seeks to determine how Icelanders can build in a way that accommodates tourists, while retaining a sense of who they are. Grounded, aware, and agile. How can buildings anticipate future inhabitations, adapt, mutate, shed component parts? Can they demonstrate temporary permanence?

Architectural strategies draw from the spirit of the Icelandic highway infrastructure that protects the integrity of bridges in the event of glacial outburst flooding by breaking at strategic weak points, conceding and washing away, avalanche and landslide barriers in the Fjords which divert streaming land, communication warning systems which disperse

citizens in anticipation of catastrophic flows, and planned and improvised human techniques used to cohere or collect flowing landscape matter.

When Katla erupts, as it has twice a century, it creates a vast chamber of water under the ice. When the water reaches a critical volume, it lifts the ice cap, and one or two cubic miles bursts out as a violent flood - a blurt of water twenty times the discharge of the amazon river. The outwash plains these floods have left behind are as desolate as the maria of the moon. A town, villages and farms lie between Katla and the sea.<sup>53</sup>

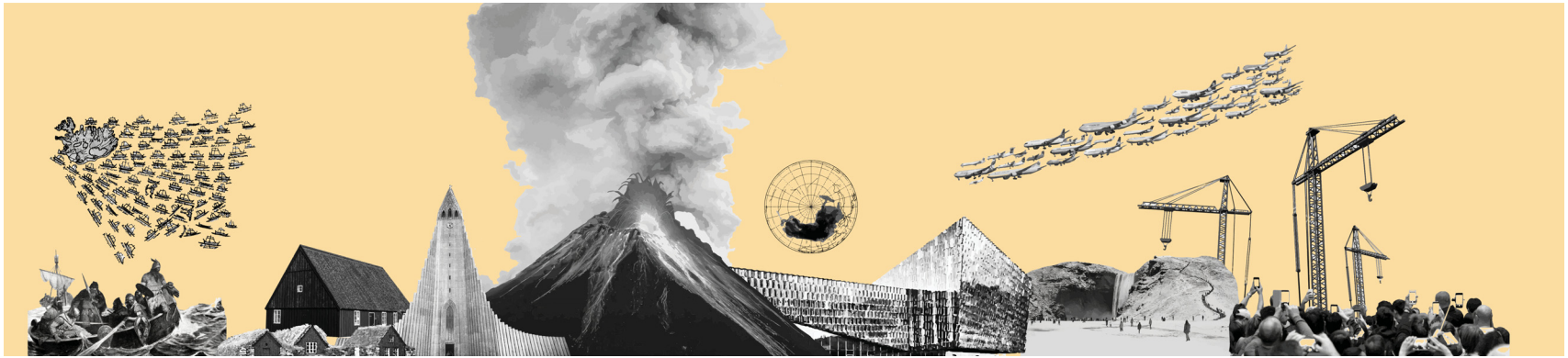
Streaming landscapes demand responsive, adaptable architecture. Earthquakes, tremors, landslides, avalanches, glacial flooding, weather events, torrential rain are of constant concern. The coastal areas are primarily threatened by storm surges, winter storms and flooding; the alpine-areas are threatened by avalanches, landslides and floods; river valleys are threatened by river floods; and areas that are located above tectonic active zones are threatened by volcanic eruptions and earthquakes, tsunamis and landslides. Some areas receive 5 min-30 minute evacuation warnings, alerts by text.<sup>54</sup> A major avalanche in Flateyri in the Westfjords in 1995<sup>55</sup> resulted in the large-scale development of rescue and evacuation plans for major environmental events. In some regions, warnings can come trough text, which allow five to thirty minutes to prepare and vacate. These streaming landscapes also offer opportunities to exploit geologic resources, harness geothermal energy, and produce hydroelectricity.

---

53 McPhee, *Control of Nature*, 114.

54 Guðmundur Halldórsson et al., "Ecosystem Restoration for Mitigation of Natural Disasters" (2017): 7.

55 Gunnþorunn Guðmundsdóttir, "Truth and Testimonies : The Year in Iceland," *Biography: An Interdisciplinary Quarterly* 39, no. 4 (2016): 629-34.



Digital collage depicting key moments in the development of Iceland over time, spanning from Norse settlement in 874 to present day.

### ***Influence of Instability on Culture and Politics***

In account of the 1973 eruption in *Control of Nature*, McPhee describes the people of Vestmannaeyjar “emblematic of the people of Iceland” for having “lived since the year of settlement in endless presence of disaster.”<sup>56</sup> Overcoming adversity is a perpetual theme in Icelandic history; Icelanders have experienced many instances of significant population decline throughout history due to illness, climate variation, natural disasters, shipwrecks and financial hardship. Austrian traveller, Ida Pfeiffer, after visiting in 1845, described Iceland as a place “peculiarly unblest by nature, to which nothing similar is to be found on earth.”<sup>57</sup> She made meticulous observations of the life, culture and the buildings of the towns that she visited. She later referred to the country as a “fearfully beautiful picture of desolation.”<sup>58</sup> Iceland’s combination of danger, nostalgia and mysticism helps form a tradition of storytelling infused with “fictionalized, idealized, or exaggerated models of social life that are in public domain, in film, in fiction, political rhetoric, small talk, comic strips, expositions, etiquette and spectacles.”<sup>59</sup> Satire, sarcasm, irony, and cynicism are vital to endure harsh conditions. Icelanders’ bleak Gálghúmor (gallows humour) resonates Dagsson - cynical comics , spills into politics. “Dreamland - A Self-Help Manual for a Frightened

---

56 McPhee, *Control of Nature*, 126.

57 Ida Pfeiffer, *Journey to Iceland: And Travels in Sweden and Norway*, translated from German by Charlotte Fenimore Cooper (London, 1852), 13.

58 Pfeiffer, *Journey to Iceland*, 61.

59 MacCannell, *The Tourist*, 23.



Nation”<sup>60</sup> Best Party” Satirical centre-left party that won municipal election. Jón Gnarr (identifies as anarchist) - mayor of Reykjavík, after financial crisis, from 2010-2014.<sup>61</sup> Filmmaker Grímur Hákonarson “we have to make fun out of our own misery or we wouldn’t survive.”<sup>62</sup>

Iceland has an exceptionally high literacy rate (99%); the prolific writing community continues to employ the interpretive fiction of folktale and sagas to illustrate their beliefs and surroundings. Stories are mediated through “texts that constantly negotiate the borderline between autobiography and fiction, stretching the form, with reality beyond the text as a constant reference and aim.”<sup>63</sup> While authenticity denotes the genuine or original<sup>64</sup>, it equally characterizes the ‘true to original’<sup>65</sup>

Tourism enterprises commodify and ‘exotify’ Icelandic culture, land leave “authentic” Icelandic experiences difficult to define or distinguish from contrived interpretations. Reality, however, is changing and dynamic. To contend with the elements is perhaps the most ingrained, quintessential Icelandic experience. To nurture a relationship with the landscape. Citizens who populate vulnerable areas, where the sub-glacial volcano Katla generates flash floods, refer to Katla’s temperament, ‘her’ moods.

---

60 Andri Snær Magnason, *Dreamland : A Self-Help Manual for a Frightened Nation*, translated from Icelandic by Nicholas Jones (Reykjavik: Citizen Press, 2008), 3.

61 Dennis Jóhannesson, *A Guide to Icelandic Architecture* (Reykjavik: Association of Icelandic Architects, 2000), 9.

62 Emma Jones, “Is Nordic Humour too Dark for the Rest of the World?” BBC (October 2015), <http://www.bbc.com/culture/story/20151012-is-nordic-humour-too-dark-for-the-rest-of-the-world>.

63 Guðmundsdóttir, “Truth and Testimonies,” 631.

64 OED, “authenticity, n.,” *OED Online*, (Oxford University Press, 2018): <https://www.oed.com/view/Entry/13325?redirectedFrom=authenticity>

65 Ibid.



Following Norse settlement in 874 and the establishment of a parliament in 930, Iceland reluctantly adopted Christianity under Norwegian rule in year 1000<sup>66</sup>, and it continued to be the most widely practiced religion under Danish rule until 1918, and as an independent republic from 1944. In recent decades, an influential modern revival of polytheistic Neo-Paganism<sup>67</sup> has grown in popularity, which sees nature as divine, and feminine as sacred.<sup>68</sup>

Values relating self-care and care for the environment are woven together in day-to day practices. The protective gloves at Petrol stations, the thorough diligence with which bathers clean their bodies before entering entering naturally fed, untreated public pools and hot pots. Soaking in geothermal municipal pool is for many a daily routine.

---

<sup>66</sup> McPhee, *Control of Nature*, 130.

<sup>67</sup> Magnús Jensson, "Tour of Pagan Temple Site." Lecture, Pagan Temple Project, Reykjavík, Iceland, June 25, 2016.

<sup>68</sup> Prudence Jones and Nigel Pennick, *A History of Pagan Europe*, (London: Routledge, 1995), 12.



Viking Longhouse



Icelandic Fish Drying Hut



Icelandic Sod Farmstead



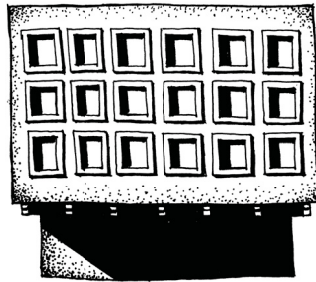
Icelandic Fish Drying Rack



Danish-Inspired Norwegian Kit House



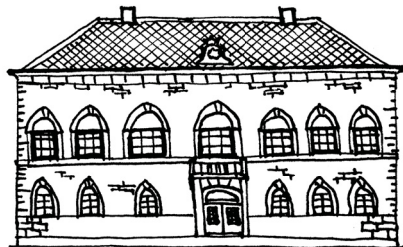
Icelandic Country Style



Japanese Brutalist



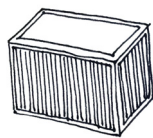
Icelandic Classicism



Renaissance Revival



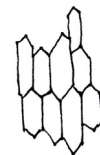
Icelandic Romantic Nationalist



Emergency Housing



Scandinavian Expressionism



Contemporary Organicism

Civic buildings, domestic houses and rural working buildings

### ***Icelandic Buildings***

Iceland was the last European country to be settled, during the Viking Age. The majority of the Norse settlers came from the west coast of Norway with Gaelic slaves, and brought with them their own building traditions.<sup>69</sup> The country's architectural time line has foreign origins, as the history of inhabitation consists completely of settlers. It encompasses influences of Vikings, Picts, Norwegian, Danish and later Modern and International styles.<sup>70</sup> The first buildings constructed in Iceland demonstrated a sensitive relationship with Icelandic landscape. Ruins of these first habitations, sod house dwellings similar to those of the Picts and Celts, still existing today<sup>71</sup>. Deforestation by early Norsemen eventually necessitated imported 'kit housing'. Stone, wood- imported from Norway,<sup>72</sup> 'Swiss Chalet' style by way of Norwegian wood buildings, Norwegian Kit houses - Pre-fabricated components. 1918 marked Iceland's independence from Denmark. Due to the limitations of resources, the training of craftspeople and builders, as well as environmental, social and political conditions, these traditions and technologies were adapted over time, and as a result became distinctly Icelandic. Traditional Sod Houses that return to the Earth, landscape-inspired form-making. Samúelsson (Hallgrimskirkja and Akureyri church) form-making influenced by the structure of basalt columns.

---

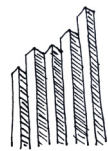
69 Dennis Jóhannesson, *A Guide to Icelandic Architecture* (Reykjavík: Association of Icelandic Architects, 2000), 9.

70 Ibid., 9.

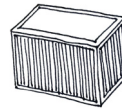
71 Joost Van Hoof, and Froukje Van Dijken, "The Historical Turf Farms of Iceland: Architecture, Building Technology and the Indoor Environment." *Building and Environment* 43, no. 6 (2008): 1025. doi:10.1016/j.buildenv.2007.03.004.

72 Scherman, *Daughter of Fire*, 51.

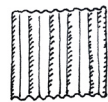
Olafur Eliasson & Henning Larsen - Harpa - glass inspires basalt formations. Vernacular working buildings, fish-drying structures. tacked sod, later stacked stone. corrugated iron, glass, geothermal heating, landscape informs program. Högná Sigurðardóttir, Iceland's first female architect defines concrete as a regional material. Her Bakkaföt house, relationship to landscape.



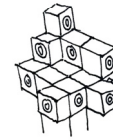
Scandi / Nordic expressionist  
ex. Hallgrímskirkja (concrete)  
Grundvíg (brick)  
Basalt columns



Shipping container  
"Reefer" box (insulated)



Corrugated Steel siding  
pitched roof  
← pitched roof  
often also  
corrugated



Metabolists



Danish-ins  
Norwayia  
"Kit" hou



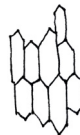
Freezer Sandwich panels



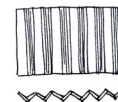
6" or



Shipping container stacks  
+ requires crane



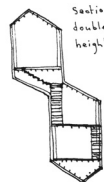
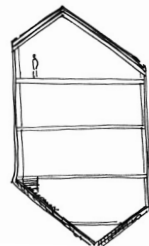
Harpa  
Glass expression of Basalt



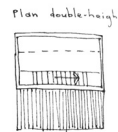
integrated  
rain/water  
run-off



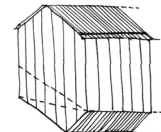
Form



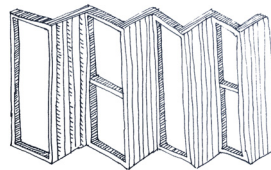
Section  
double-  
height



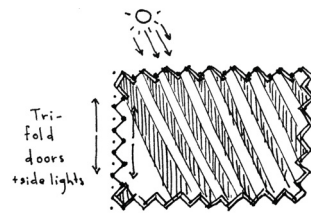
Plan double-height



"hotel" room  
Service area

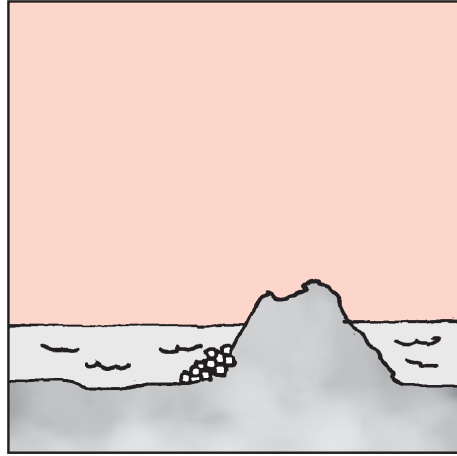


Faceted Façade: freezer panels & glazing

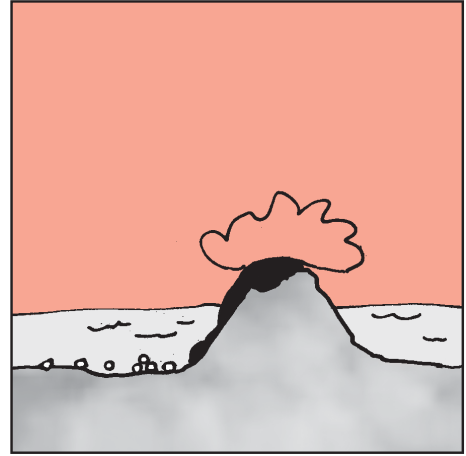


Plan  
Sunlight

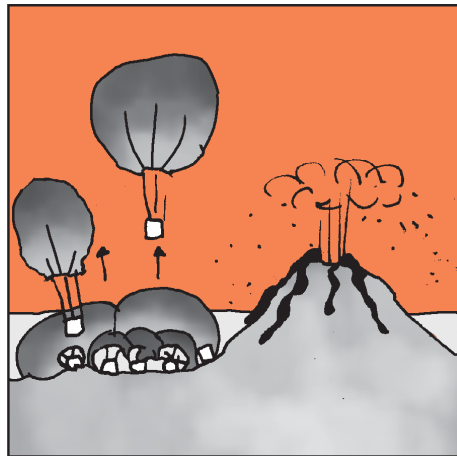
Testing through drawing



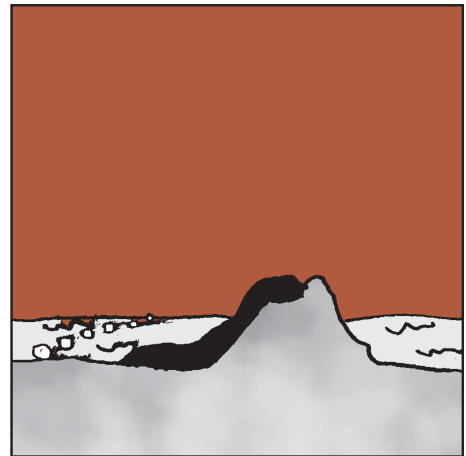
Building cluster



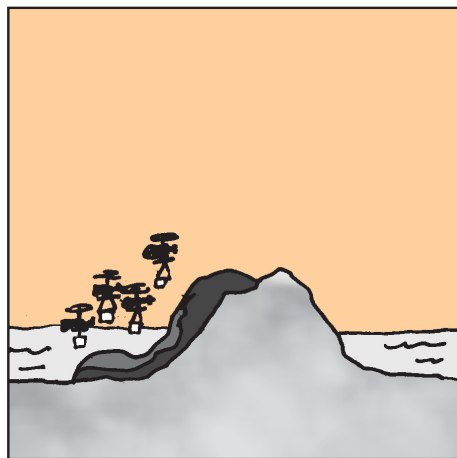
Transport of buildings



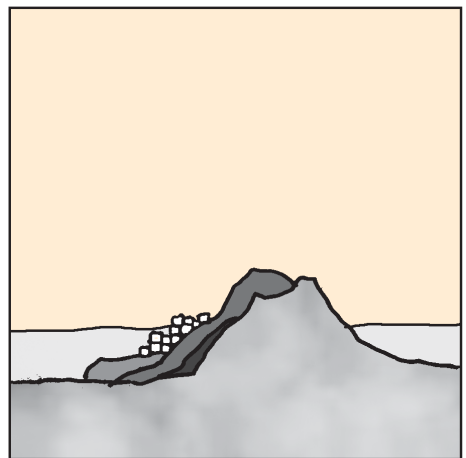
Evacuation by air



Evacuation by sea

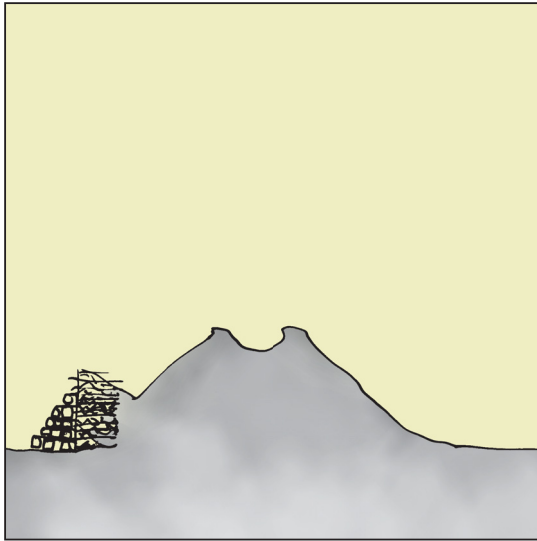


Returning Home

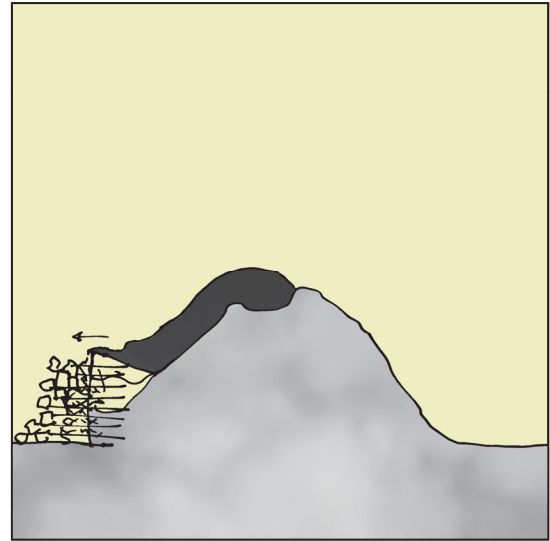


Inhabiting new land

Speculative deployable structures.



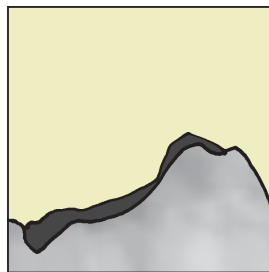
Gabion wall armature for modules



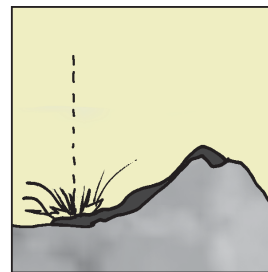
Volcanic material collects above armature



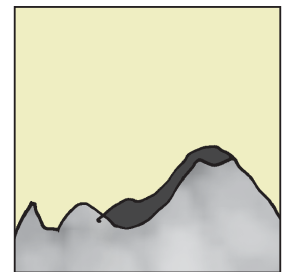
Solidify with water



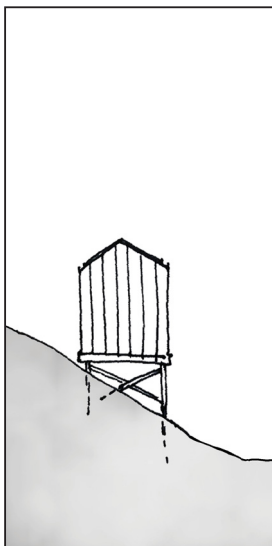
Redirect with trenches



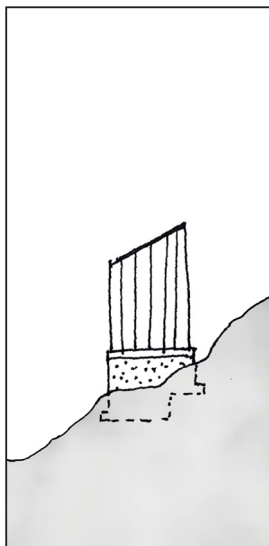
Divert with bombs



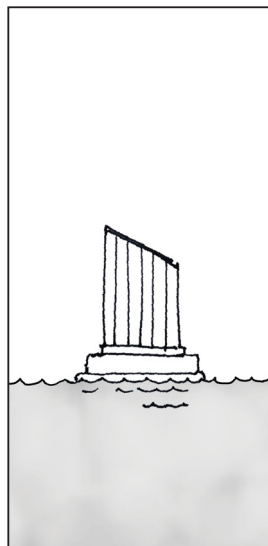
Block with barriers



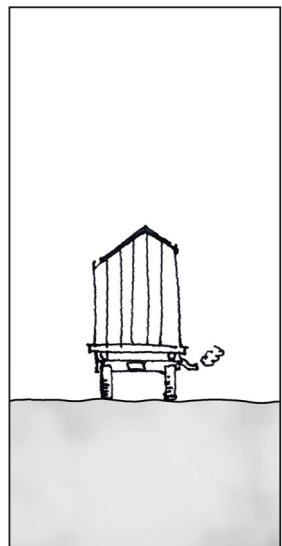
Post foundation. Removable. Quick assembly. Helical piles can be hand-driven.



Concrete foundation which remains in the ground when the building is removed.

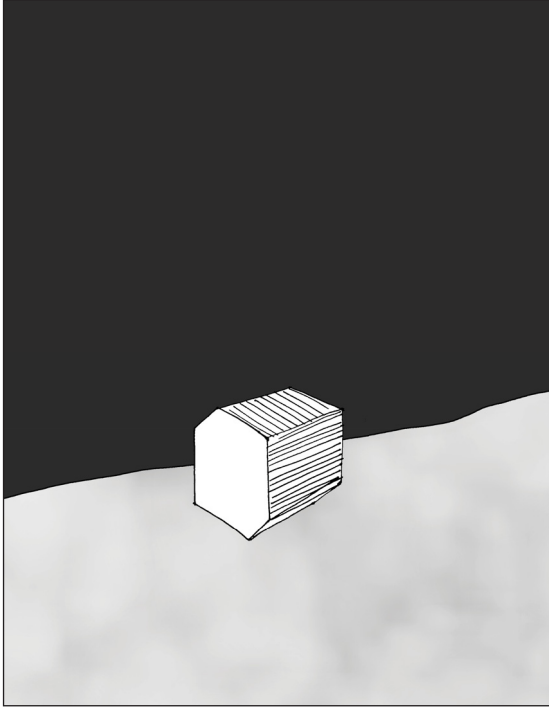


Building becomes house boat/ self propelled amphibious vehicle or towable/ placed on buoyant base.

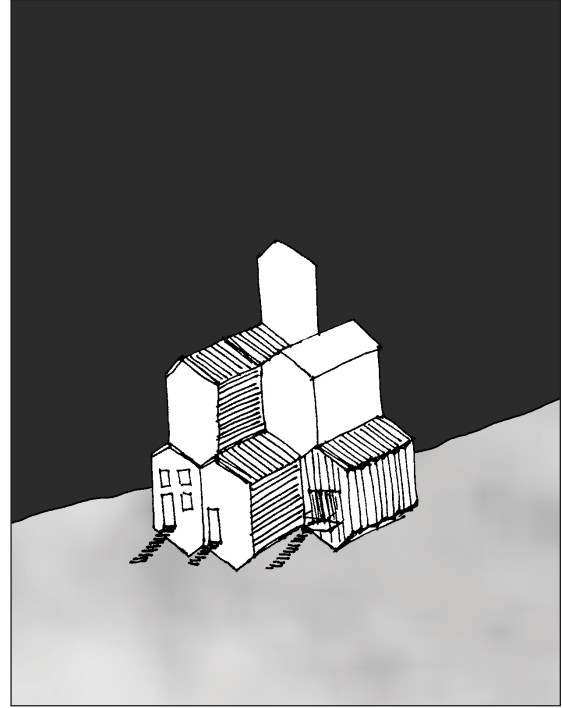


Mobile home/ self propelled vehicle or towable.

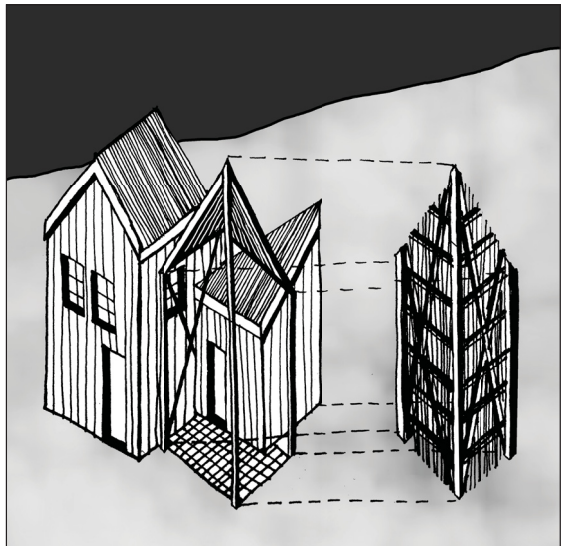
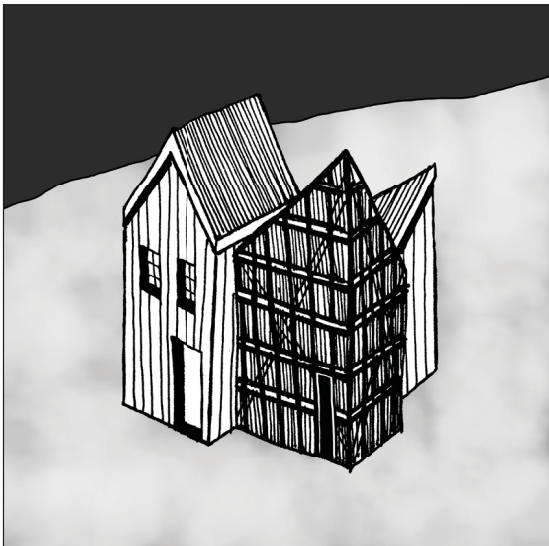
Sketches of possible unit foundations



Simple cottage modules for Islanders to inhabit or rent to travellers.



Collection of modules forms small community block of semi-detached units/one mansion/public building/semi-private, adaptable to needs and changes.



Building cluster includes two removable facades. Capacity for disassembly to meet programmatic requirements or climatic changes. Mediates and reconfigures public/private space.



### ***Infrastructure Strategies for a Flowing Landscape***

In this digital phase of the Anthropocene, the material and flows of landscape and humans coalesce with flows of information streaming in digital space, the Space of Flows. This complex network of intangible embodied flows incites physical movement of people through the Space of Places; the increased mobility is inextricably linked to modification of landscape<sup>73</sup> Ellsworth and Kruse of Smudge Studio suggest to design for these streaming conditions, with “humans as infrastructure, and infrastructure as human.”<sup>74</sup>



Flowing Landscapes vary in velocity, frequency, speed, density and threat. Over time, Icelanders have adopted and developed infrastructure strategies to manage, endure and exploit these flows.

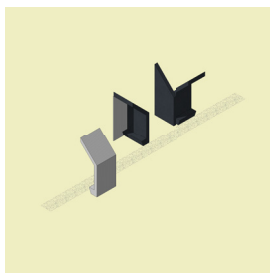
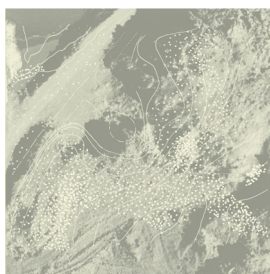
Icelandic infrastructure is designed to respond to the physical flows of the landscape. The infrastructure harmonizes with its surroundings by

<sup>73</sup> Castells, “Grassrooting the Space of Flows,” 294.

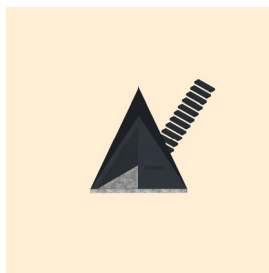
<sup>74</sup> Elizabeth Ellsworth and Jamie Kruse “Inhabiting Change and Turning at the Limits of the World” in *Future North: The Changing Arctic Landscape*, edited by Janike Larsen Kampevold and Peter Hemmersam (New York: Routledge, 2018), 206.



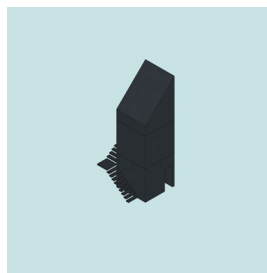
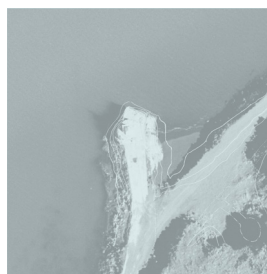
dancing along the threshold between resistance and concession. For instance, southern stretches of the number one highway, the “ring road”, which traverse an area known for frequent flash flooding caused by sub-glacial eruptions or “Jokulhalop”, are strategically constructed to give way under the stress of inundation, so that entire sections of the gravel and asphalt can wash away. These ruptures release pressure in the landscape and guide the flow of flood waters, to prioritize the integrity of adjacent bridges. Materials are kept close by to repair the washed out, permeable patches of roadway. Design contends with natural flows throughout the country, it mediates the fluidity and stability of the natural landscape and the manufactured environment. Systems such as this, as well as the avalanche barriers in northern fjords employ impermanence as an architectural tool.



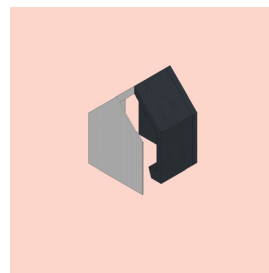
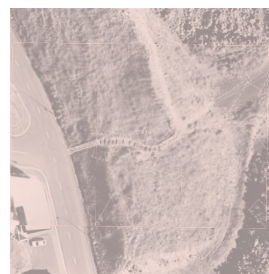
Channel



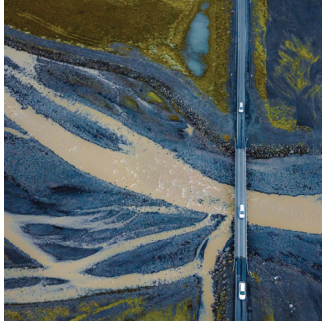
Collect



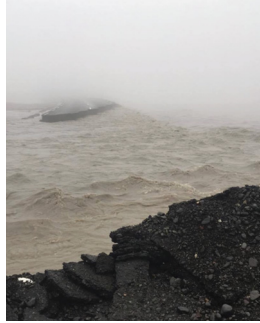
Divert



Disperse



Ring road traverses flood zone.



Flash floods wash away 'weak points' of road.



Washed out roads divert the flow of flood water to alleviate pressure on bridges to protect the infrastructure.



Towns situated in close proximity to active volcanos.



Volcanic ash is swept from submerged buildings.



Sea water sprayed on encroaching lava flows to collect the material, cooling and solidifying.



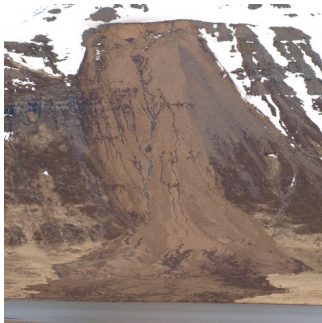
Steam escapes through vents in the earth.



Pseudo-craters left at dormant hydrogeological sites.



Naturally super-heated groundwater is channelled to provide heat and power.



Steep slopes on deforested mountains are prone to erosion and landslides.



Vulnerability to rockfalls, slope failure and ground flows.



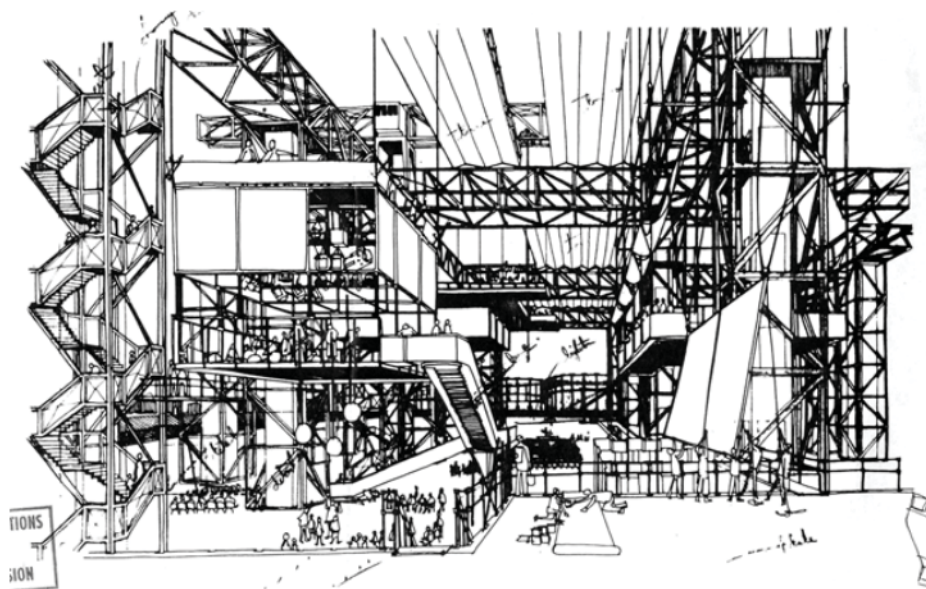
Avalanche dams and barriers disperse flowing earth and snow.

Four infrastructure strategies which inform the design: Divert, Collect, Channel, and Disperse.

## Variation, Change and Speculation in Architecture

Cedric Price was interested in anticipatory architecture, that could adapt and move with the user's desires. In Price's Fun Palace, the architecture offers an opportunity to re-imagine the relationship of stage and observer, where all could be participants in a performance.

Indeterminacy and responsiveness of installation were explored in Price's 1965 Potteries Thinkbelt and 1976 Interaction "where accommodation was setup in a serviced matrix on a marginal rail corridor sidings constructed directly for changing needs."<sup>75</sup>



Cedric Price's Fun Palace. (Cedric Price, Montreal: CCA, 2016)

---

<sup>75</sup> Cedric Price and Samantha Hardingham, *Cedric Price Works 1952-2003: A Forward-minded Retrospective*, (London: Architectural Association ; Montreal: Canadian Centre for Architecture, 2016), 287.





Vestmannaeyjar Harbour, Shipping vessels as seen from the steep cliffs that flank Heimaey. Perhaps building modules could be similarly transported to site and unloaded.

### Heimaey Site Description

Valdimar Jonsson, professor of thermal fluids described “the water had the effect of putting up a solid rock wall.”<sup>76</sup> Heimaey is a “place of mysterious attraction” invested with “an aura of adventure”<sup>77</sup> The Vestmannaeyjar archipelago, known in English as The Westman Islands, is made up of 15 volcanic islands and approximately 30 rock columns. Settlements have existed on Heimaey, the only inhabited Island, since Iceland was first settled. It is named for the escaped Irish slaves who killed their Viking masters and fled to Vestmannaeyjar, though they were subsequently captured and killed, the Islands kept their name. The south-most island Surtsey is geologically the “newest” place on Earth.<sup>78</sup>

---

<sup>76</sup> McPhee, *Control of Nature*, 131.

<sup>77</sup> *Ibid.*, 168.

<sup>78</sup> Sherman, *Daughter of Fire*, 75.



Site map of Heimaey Island, Vestmannaeyjar indicating the site of the thesis design proposal. The tephra and lava produced from the Eldfell eruption, which decimated the buildings in the North-West corner of the town of Heimaey and ultimately produced a square kilometre of additional land. The volcanic material is shaded chronologically to illustrate the development of the new land, ranging from January to June, 1973. (Data from ArcGIS)

### ***Tourism on Heimaey***

Puffins, boating tours, and outdoor summer music festivals draw large numbers of tourists to the islands in the summer, but Heimaey has yet to develop an engagement strategy for the winter months. The construction of the Eldheimar Volcano Museum has shifted the focus to the area's unique geology, and the volcanos that have become equally emblematic of the island.



Fissure in Heimaey which sprayed one hundred feet of flames and molten rock into the air. (Porleifur Einarsson, *Heimaey Utbruddet*, 1973)

The volatile flowing landscape is visceral in the Vestmannaeyjar archipelago. at 1 o'clock am on January 23rd of 1973, the ground rumbled and the land split open and magma sprayed hundreds of feet in the air from fissures that stretched 1.6 kilometres into the sea.<sup>79</sup> This was the beginning of what would be the six-month volcanic eruption

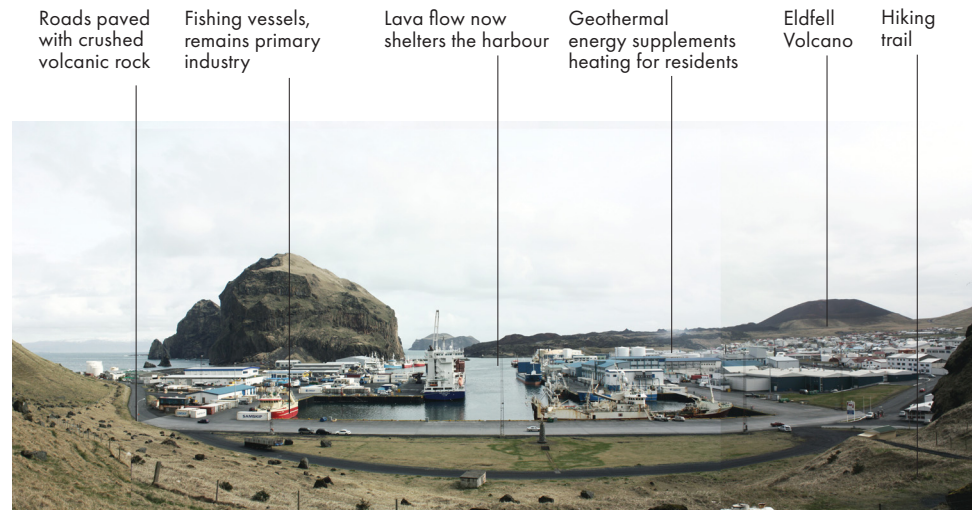
---

<sup>79</sup> McPhee, *Control of Nature*, 115.

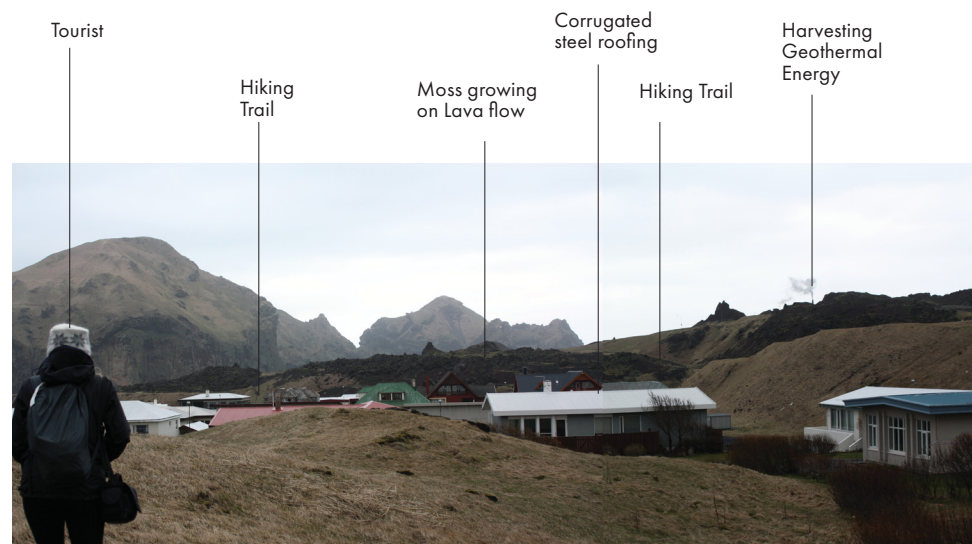


that would centralize and form the 200 metre Eldfell (Fire Mountain).<sup>80</sup>

During the eruption, only two inches of crust was enough support and insulation for a person to walk on, though if they stood still their boots would ignite.<sup>81</sup>



Eldfell is visible in the distance on the right, and the lava flow extends to the centre of the image. Vestmannaeyjar Harbour, Heimaey, 2011.



View from Eldfell over houses which sit at the edge of the lava flow. Heimaey, Vestmannaeyjar, 2011.

<sup>80</sup> Ibid., 119.

<sup>81</sup> Ibid., 99.

In his chapter about the Eldfell eruption, *Cooling the Lava*, John McPhee chronicles of the eruption, assembled from lengthy interviews with depicts the streaming landscape: "slow and viscous, magisterial lava - dark-shelled by day and a craquelure of red and black by night - began to move not only towards sections of the town but more important, toward the entrance of the harbour."<sup>82</sup> McPhee describes:

It was astonishing to see what an essentially liquid body of rock would carry on its surface. As lava moves, under the air, it develops a spinoff glass that is broken and rebroken by the motion of the liquid below, so that it clinks and tinkles, and crackles like a campfire, which, in a fantastic sense, it resembles."<sup>83</sup>

Fifteen years after the eruption, the ground was still hot under the surface, and below, there was still molten lava.<sup>84</sup> The evacuation was remarkably well executed. "In three hours, four thousand people left the island."<sup>85</sup> Former mayor, Magnus Magnusson, recalls photographing the eruption like tourists.<sup>86</sup>

---

82 Ibid., 98.

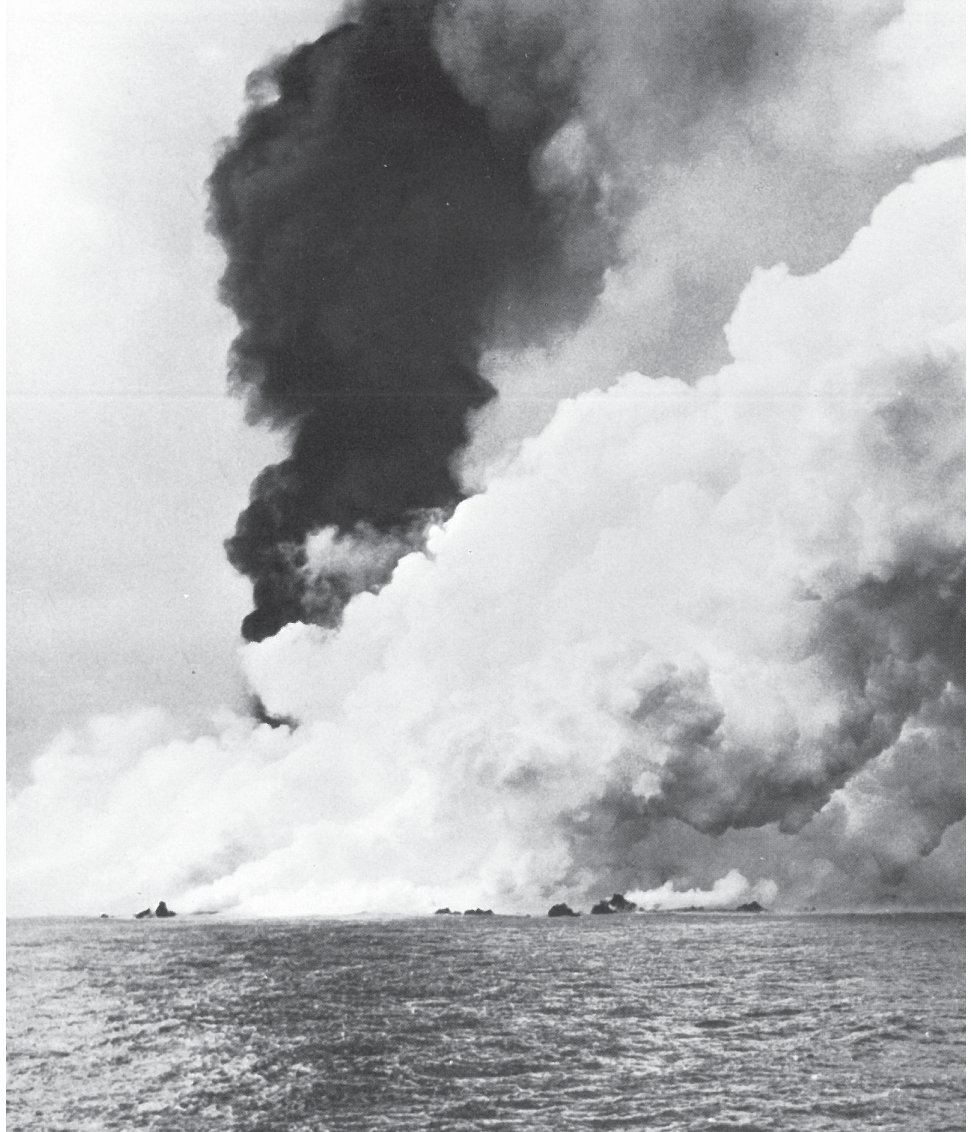
83 Ibid.

84 Ibid.

85 Ibid., 116.

86 Ibid.





Eruption observed from sea. (Porleifur Einarsson, Heimaey Utbruddet, 1973)



Evacuating Heimaey. Porleifur Einarsson, (*Heimaey Utbruddet*, 1973)

Volcanic ash was blown to sea. Later, the situation deteriorated. When the fissures closed, the eruption converted to a concentrated lava flow that headed toward the harbour. The winds changed, and half a million cubic metres of ash blew on the town. During the night, the 5,000 inhabitants of the island were evacuated, mostly by fishing boats, as almost the entire fishing fleet was in dock. The encroaching lava flow threatened to destroy the harbour. The eruption lasted until 3 July. Townspeople constantly sprayed the lava with cold seawater, causing some to solidify and much to be diverted, thus saving the harbour. The people were elated that their livelihoods remained intact, even though much of their town was destroyed. During the eruption, half of the town was crushed and the island expanded in length. The eruption increased the area of Heimaey from 11.2 km<sup>2</sup> (4.3 sq mi) to 13.44 km<sup>2</sup> (5.19 sq mi).<sup>87</sup>

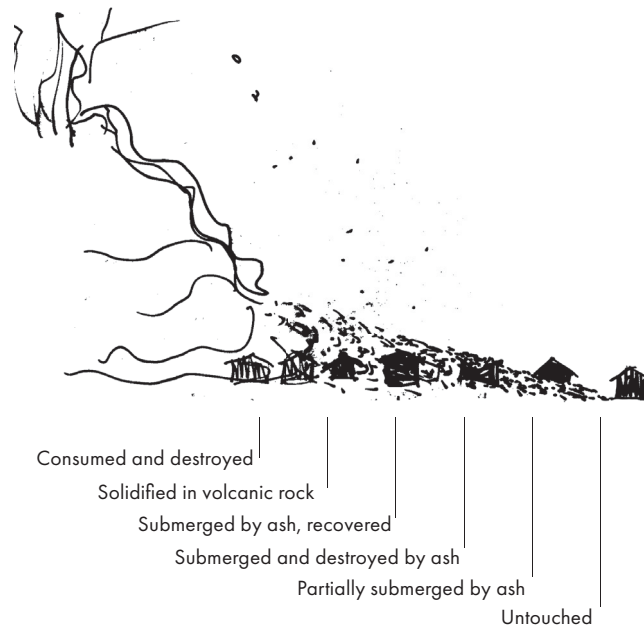
---

87 Alan V. Morgan, "The Eldfell Eruption, Heimaey, Iceland: A 25-year Retrospective," *Geoscience Canada* 27, no. 1 (2000): 12.





Streets filled with volcanic ash, Eldfell can be seen erupting in the background.  
(Porleifur Einarsson, Heimaeý Utbruddet, 1973)





Project site, mid-eruption. The water tank used for the municipal pool, now a modern ruin, can be seen partially covered by lava. (Porleifur Einarsson, Heimaey Utbruddet, 1973)



Ash-lined street in Heimaey. (Porleifur Einarsson, Heimaey Utbruddet, 1973)





Ash-lined street in Heimaey. Many homes succumbed to the heat and weight of the falling tephra. Þorleifur Einarsson, (*Heimaey Utbruddet*, 1973)



Water sprayed in efforts to solidify the lava flow and protect the town and harbour. Þorleifur Einarsson, (*Heimaey Utbruddet*, 1973)



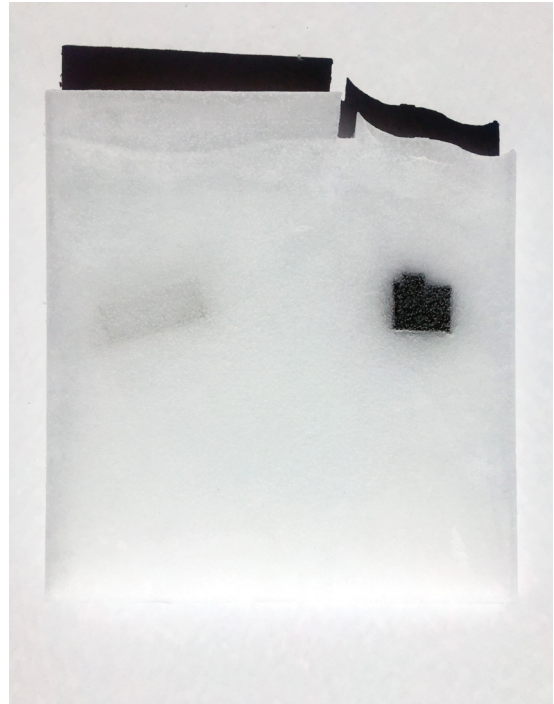
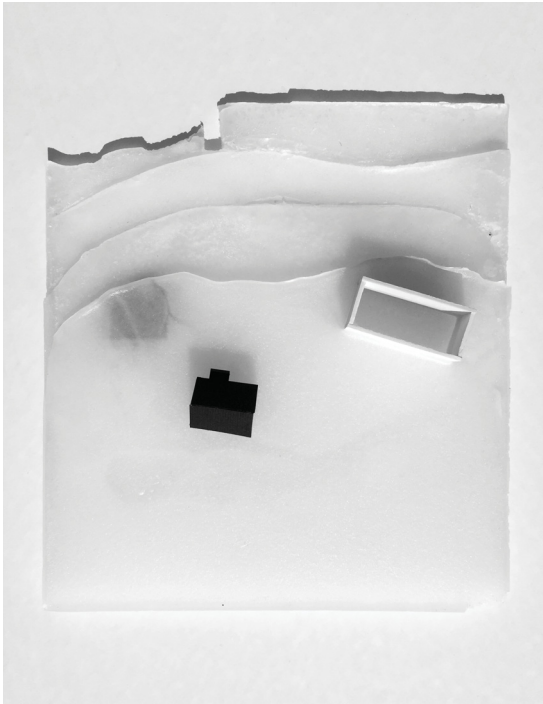
Project site, mid-eruption, approaching lava is sprayed with seawater in efforts to solidify, collect and divert the flow. The stave church, a gift from Norway for the 1000th year of Christianity in Iceland, was consumed by the lava and was later reconstructed on the new volcanic land. (Porleifur Einarsson, *Heimaey Utbruddet*, 1973)

When the eruption occurred, there were only two of the now forty seismometers installed throughout the country.<sup>88</sup>

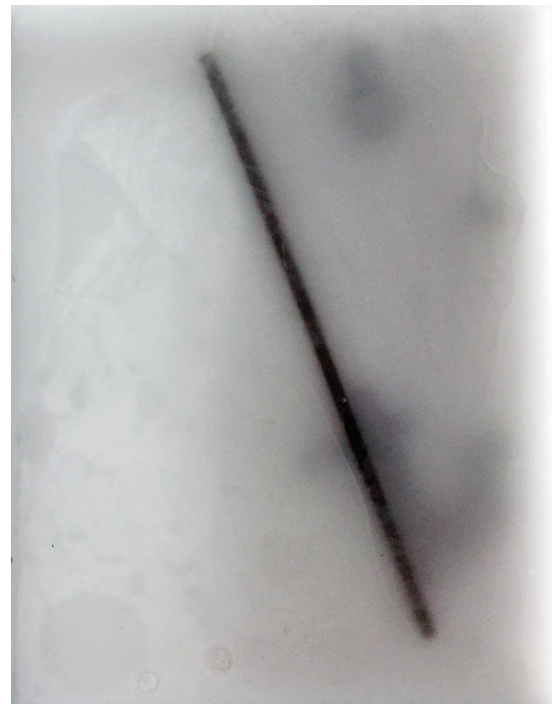
---

<sup>88</sup> McPhee, *Control of Nature*, 114.





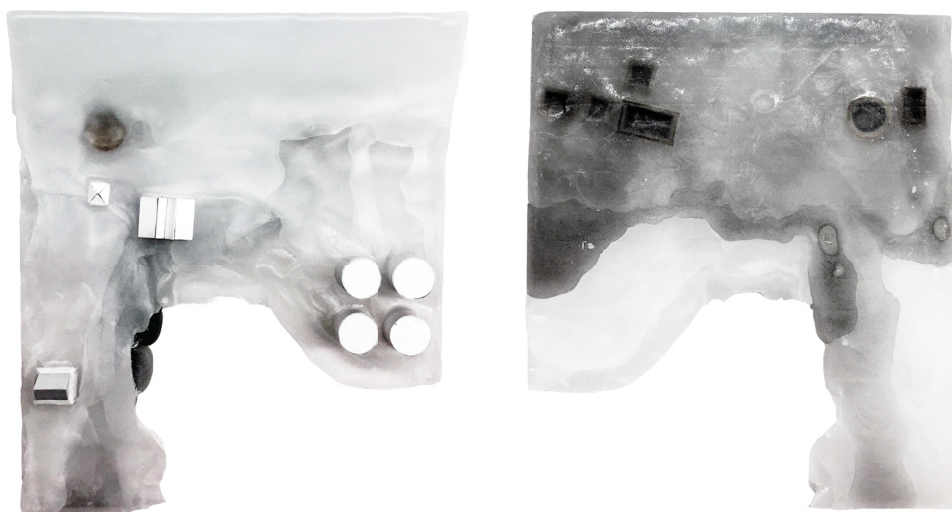
Material transparency test, four 4 mm layers of cast wax, buildings in card.



Material transparency test, two 8 mm layers of cast wax, building footprints in graphite-saturated wax for pigment, road in wood.

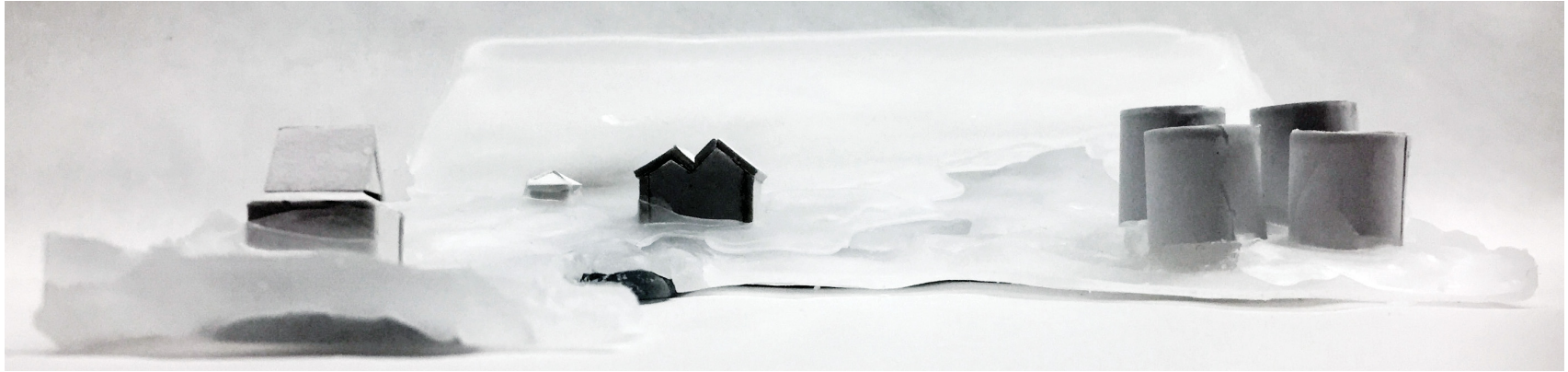


Layering process of poured wax to create solidified landscape sketch site model

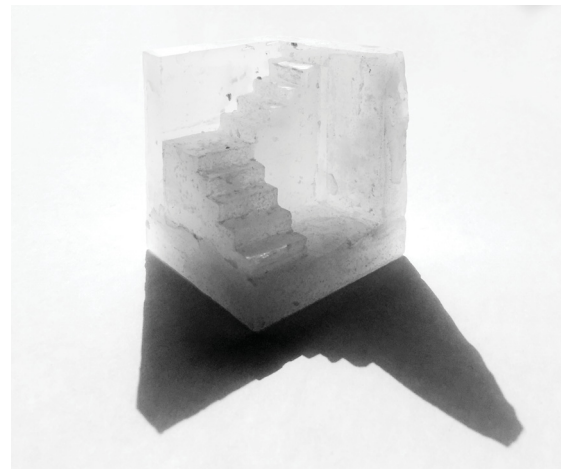
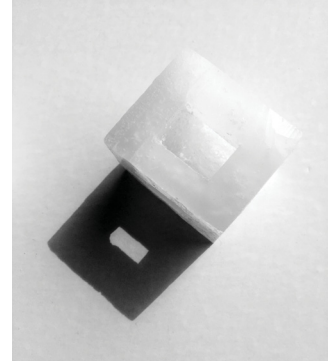


Sketch model of site using wax as flowing medium for landscape, embedded buildings represent those that were previously on the site and were consumed by lava.

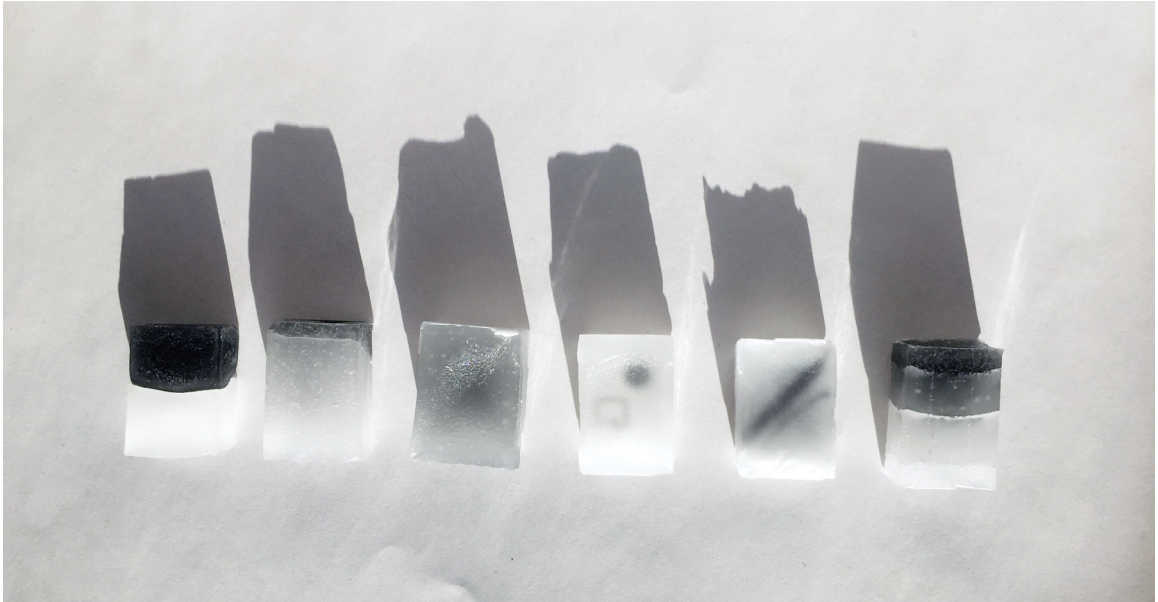




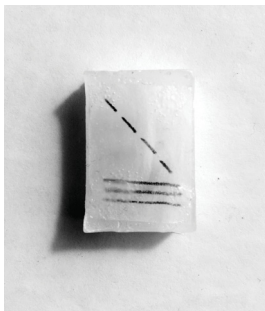
Sketch model of site using wax as flowing medium for landscape, embedded buildings represent those that were previously on the site and were consumed by lava.



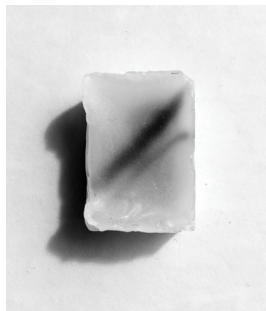
Material testing, single formwork volumes, wax cast positives.



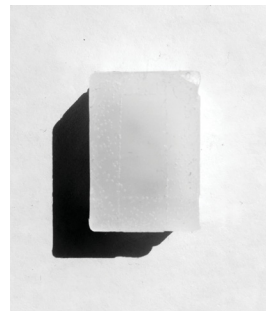
Experiments to examine clarity and light penetration and diffraction through wax samples, embedded with drawings and saturated with graphite pigment.



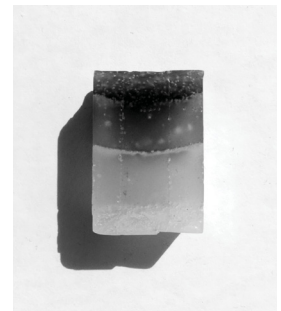
transparency and lamination



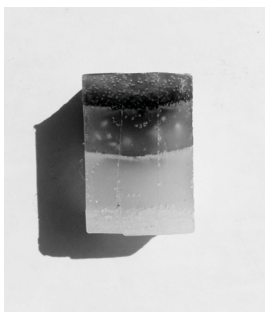
translucency and tracings



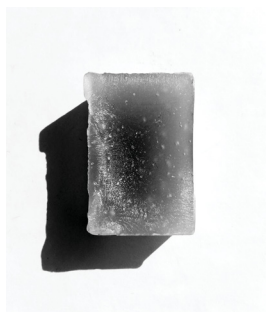
sublimation and condensation



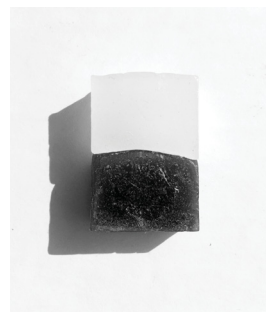
Striation and stratification



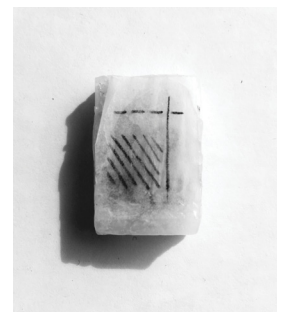
gradation and accumulation



opacity and impenetrability

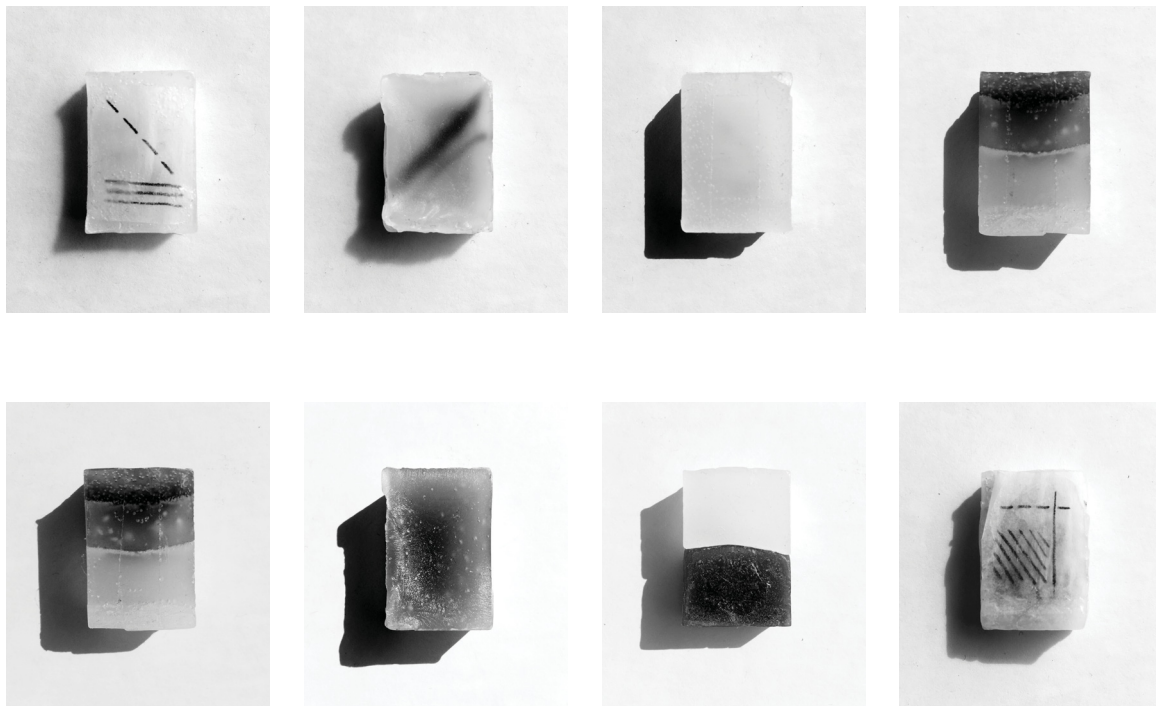


distinction and saturation



embedding and overlay

Model material tests helped develop techniques that employ the static and fluid properties of wax for subtractive and additive construction processes (carving and casting), later used in design and site development.



Model material tests helped develop techniques that employ the static and fluid properties of wax for subtractive and additive construction processes (carving and casting), later used in design and site development.

### ***Hardships and Resilience***

McPhee observed, “the islanders’ self-control seemed to grow in proportion to the menace of the spectacle before them.”<sup>89</sup> The island lost 50 men in one day, twice, when the population was under 300. Magnus Magnusson, former mayor of Heimaey “In a hundred years, the island has lost five-hundred lives into the ocean”<sup>90</sup>

---

<sup>89</sup> Ibid., 116.

<sup>90</sup> McPhee, *Control of Nature*, 126.



"1.5 feet of 'apalhraun' (aa) - crust, supported bulldozers. Two people on either side and one driver. One bulldozer caught fire, drove into nearby water, continued to work." <sup>91</sup>

"Leather boots shrank under the heat - Icelandic leather boots with lambskin, made for extreme cold. People carried water bottles to pour water into their shoes. We wore ski goggles, plastic goggles. Often, we could not see. You could not see an arm length. You found your way by the noise of the volcano, by the shape of the lava, by the pipelines. The pipelines guided us backward and forward." -Sigurdur Jonson<sup>92</sup> The intersection of the space of flows and the space of places in Iceland is explicit in Heimaey (Home Island), in the Vestmannaeyjar archipelago off the south coast of the mainland. Here, a flow manifests in the volcanic ash of the beach, the natural breakwater that shelters the harbour, and the lingering crater Eldfell (Fire Mountain). As Alan Morgan described, the Island made a "remarkably rapid recovery, largely due to their own persistence and tenacity in the face of what must be one of the most frightening natural phenomena on Earth"<sup>93</sup> "Pirates from morocco terrorized the island in 1627"<sup>94</sup> the "turks" killed 34 men and women and took more than two-hundred as slaves. Children grew up fearing Helgafell-Sursey and the turks.

### **Architecture Lessons from Eruption**

"...people of Heimaey shielded themselves from tephra with pieces of

---

<sup>91</sup> Ibid., 100.

<sup>92</sup> Ibid.

<sup>93</sup> Alan V. V. Morgan, "The Eldfell Eruption, Heimaey, Iceland: A 25-year Retrospective," *Geoscience Canada* 27, no. 1 (2000): 15.

<sup>94</sup> McPhee, *Control of Nature*, 124.

corrugated iron.”<sup>95</sup> Multi-family houses on Heimaey resembled hotels, and small hotels resembled houses.<sup>96</sup> Heimaey, All evacuated, even livestock. “I saw no one crying. Everyone was still and calm. I think the Surtsey eruption prepared us for the next one. We knew it could happen.”<sup>97</sup>

### **Case Study: Carmen and Elin Corneil**

Social and architectural significance of Þingvellir and Alþingi, initial parliamentary proceedings in 930 A.D. - Sound projection offered but the acoustics of the natural site. Comparable to Elin and Manuel Castells’ reading of a town “floor” and “wall” Heimaey. Following the eruption at Heimaey, The Corneils won a Nordic competition to redevelop the town which was partially realized in the late 1970s.<sup>98</sup> They interpreted the street-scape as a town floor, and the steep cliffs as walls, enclosing, sheltering the town’s the existing and proposed buildings. Working with the small scale of the site, they proposed distinctive paving and lighting to emphasise the re-organized intersection of main streets, and treated them as an “armature of public space”,<sup>99</sup> to act as anchors as the town we as re-built and re-inhabited. “Landscape as architecture: an Icelandic thing.” Noting the islanders’ “spirit of defiant self sufficiency”, they worked with them to produce the pavers and lighting locally. The peculiar landscape conditions was already attracting an increased

<sup>95</sup> Ibid., 120.

<sup>96</sup> Ibid.

<sup>97</sup> Ibid., 117.

<sup>98</sup> P.M. Milojevic, “Accessing industrial landscapes: the arctic projects of Elin and Carmen Corneil,” *WIT Transactions on Ecology and the Environment* 117 (2008): 285.

<sup>99</sup> Elin Corneil, and Carmen Corneil, *Architecture E+C : Work of Elin Carmen Corneil, 1958 to 2008* (Halifax, NS: TUNS Press, 2009), 12.

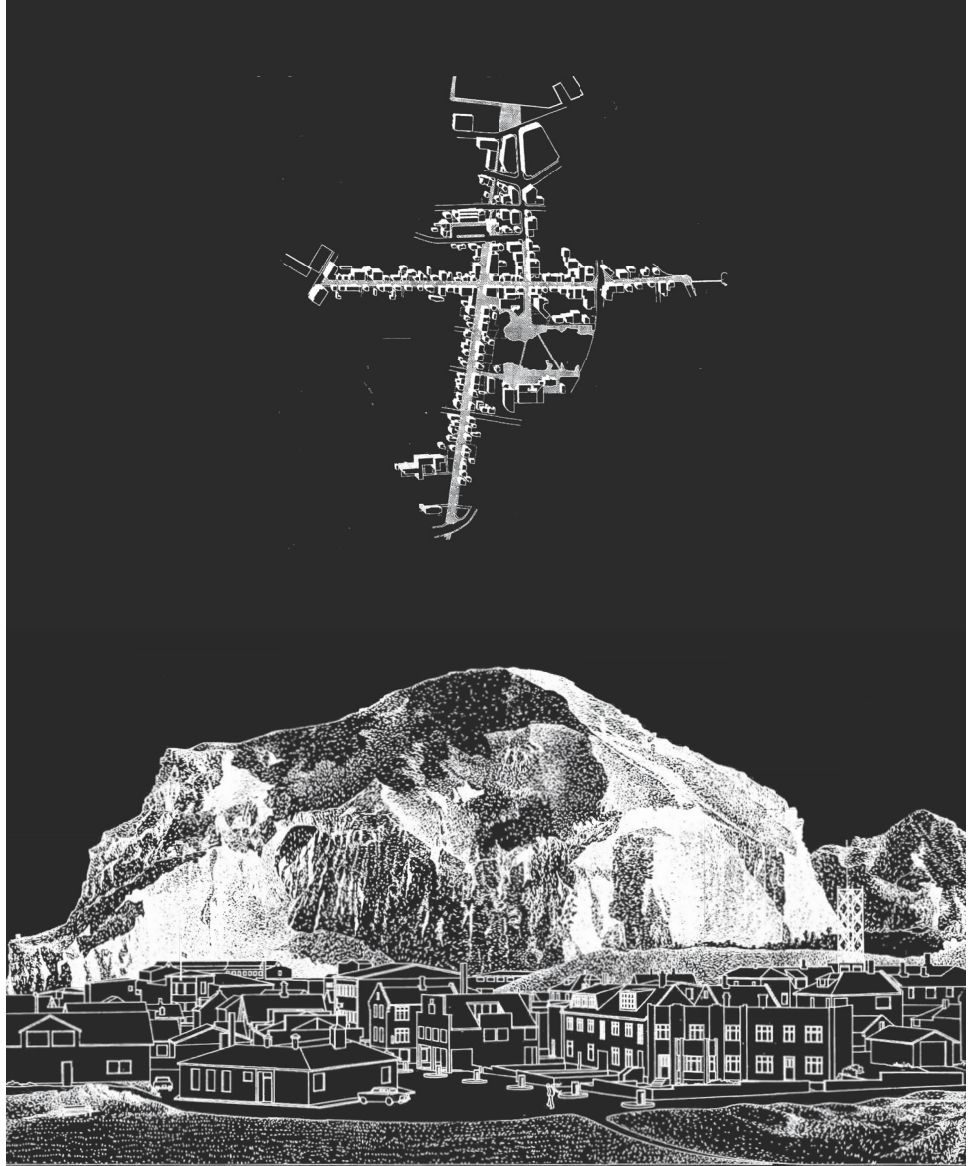
number of tourists, and these public spaces were intended to characterize the town, and bolster the resilient community.

The Corneils articulated strategies for cultural projects which propose the engagement of the larger frame of the industrial landscape as well as its particular places and vantage points as a means to a didactic end. Seeking to reveal the spatial, formal and historic coherence of these ports through robust and direct interventions their proposals seek to point out the often abrupt, though symbiotic, sometimes violent and destructive adjacencies in the quasi-urban fabric of the industrial town landscape. By proposing infill, physical connections, public access, and visual links they intend to reveal cultural histories through authentic experiences. They have shown how, by the invention of new places and structures within physically or socially devastated urban areas but still having recognisable cultural value one might move towards the regeneration of whole communities returning the place in some way to that recognisable to those who once knew the site as a viable workplace and social centre. In these projects the architects engage and connect the existing traces of urban structure, including residential fabric, with experiences of normally inaccessible sites of heavy industry while pointing out the grandeur and fragility of the natural setting.<sup>100</sup>

---

100 Milojevic, "Accessing industrial landscapes," 290.





Proposed new main routes through town following the 1973 eruption, intended to connect important sites and become a public Town Floor. Elin and Carmen Corneil, 1975. (Architecture E+C, 2009)



Sketched map of project site indicating former and existing roads and buildings as well as current hiking paths and potential intervention sites.



View of the town from Eldfell



Entering Vestmannaeyjar Harbour by boat, the new mountain, Eldfell Volcano (left) which nearly dammed the harbour during its eruption, and the old mountain, the dormant Helgafell Volcano (centre) can be seen in the background.



View from ferry, approaching Vestmannaeyjar Harbour

## CHAPTER 3: SYNTHESIS

### Proposal Concept and Strategies

The design method adopts Manuel Castells' evolving concept of a space of flows, which represents "the material arrangements that allow for simultaneity of social practices without territorial contiguity".<sup>101</sup> He describes the spacial implications of our current Information Age. He differentiates the centralization of activities from territorial agglomeration, or "territorial sprawl and locational concentration" because functioning and interaction can join locations by means of technology (telecommunications, transport, nodes, hubs). It can also separate, decentralize (call centres, remote offices...). He describes how a business can cluster and decentralize while also concentrate and network.<sup>102</sup> Further, the architecture addresses spacial questions of confluence, saturation, permeability, fluidity, absorption. "interface between places and flows and between cultures and social interests, both in the space of flows and the space of places"<sup>103</sup>

The conceptual framework identifies underlying infrastructural design strategies which address material flows in the Icelandic landscape in order to speculate how the derived strategies may be transposed architecturally to interface with flows of humans and information over time. Trenches and canals channel, while dykes, barriers, dams and locks divert, perforated thresholds disperse and, as was in the case of Heimaey, changes of state will or pool, solidify, collect.

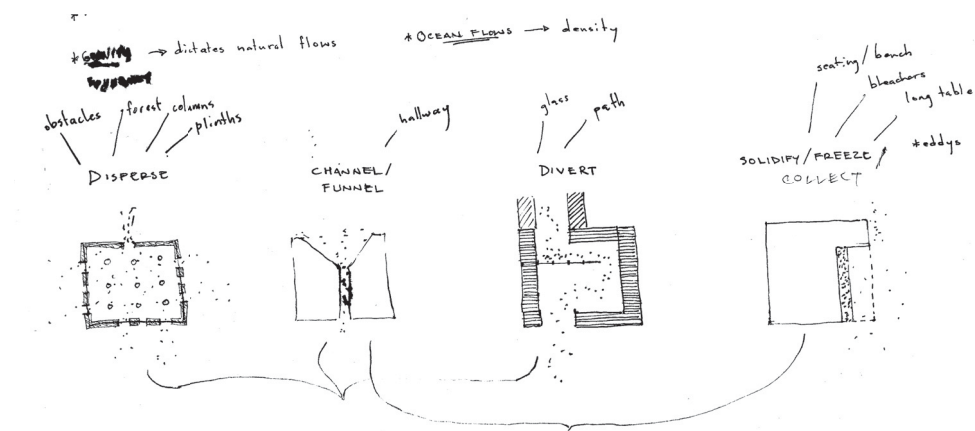
---

<sup>101</sup>Manuel Castells, "Grassrooting the Space of Flows," *Urban Geography* 20, no. 4 (1999): 294.

<sup>102</sup>ibid., 295.

<sup>103</sup>ibid., 294.

Through the application of sociologist Manuel Castell's theory of the Space of Flows alongside an analysis of contemporary tourism theories stemming from John Urry and Dean MacCannell's understanding of power and mobility, the thesis speculates architecture which behaves as a network rather than a linear hierarchy. In response to an influx of tourists, this project proposes a system of buildings in the volcanic island town Heimaey, which can physically adapt in order to accommodate changing programmatic requirements, and can anticipate and sustain future inhabitations in response to flows. Four dominant strategies emerge, assigned to verbs as motifs that carry through the analysis and design: Divert, Channel, Collect, and Disperse.



Architectural language/strategies.

### Case Study: Chipperfield

Chipperfield's Hepworth Wakefield gallery serves as an important precedent; the scale, siting, and construction all resonate with the Heimaey Host Building project and the proposed surrounding infrastructure and landscape interventions.

The orientation of the bridge approach sets a pace for the experience by gradually introducing visitors to the architecture as they advance along the bridge towards the entrance. The multi-faceted cluster of volumes harmonizes with the scale of the surrounding low-rise urban buildings and the historic light-industrial area. The segmented facade breaches the riverbank, and addresses all of the site's surroundings.

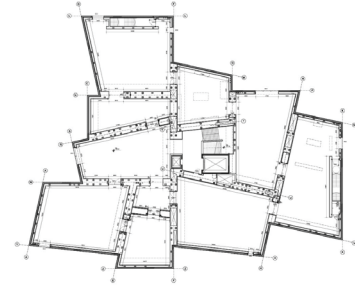
The exaggerated inhabited walls express permanence, procession and formality, while they conceal service spaces and clear the floor plan and allow for programme flexibility. The choreography of the plan give pace to the circulation; intimate, constricted thresholds delay the reveal of bright, generous gallery spaces. Typical narrow partitions supplement the primary structure diversify the programmatic scope. This harmony in the hierarchy and permanence of building elements evokes Icelandic traditional sod farmsteads, where dense stratified walls enclosed variable program arrangements.

The Hepworth's externally applied fenestration celebrates the cast-in-place concrete by allowing users to inhabit the full depth of the exterior walls while they seamlessly observe the framed views of the town, river and opposite bank.





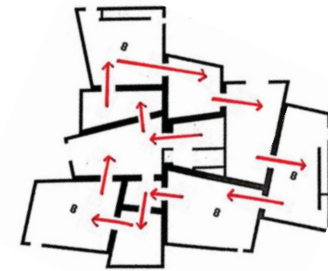
Site Plan



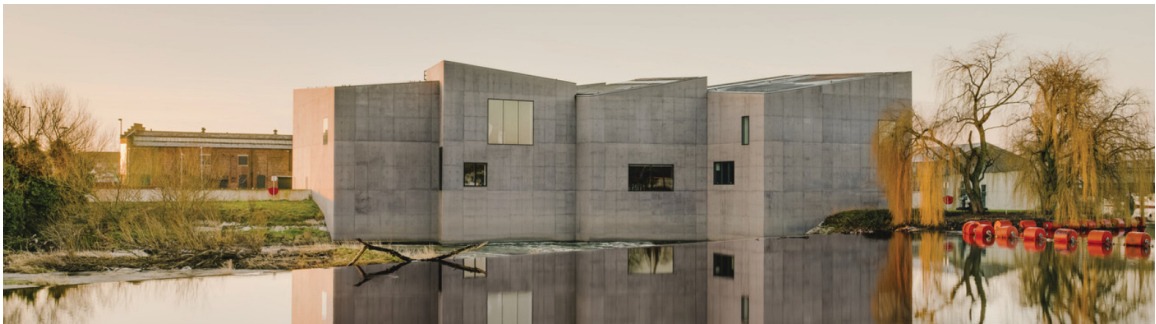
Upper Level Plan



Entrance Level Plan



Circulation



External cast-in-place concrete facade

The Hepworth Wakefield, Purpose-built art gallery, located in waterfront area of Wakefield, UK. (Photographs by Simon Menges and drawings by David Chipperfield Architects in David Chipperfield Architects, 2015)



## Site Description

The project will establish a new civic cultural centre at the north east corner of central Heimaey, where the townscape meets its former coast line and where the lava flow meets the harbour. This cultural quarter will be a gateway from the town to the lava field park. A collection of markers and shelter huts will guide the flow of visitors throughout the landscape, across to the lava museum, and beyond to Eldfell volcano hike and the "line of fire".

The markers will define a path from to Eldheimar, the volcano museum, and the volcanos beyond. They will be visible from both sites, and will act as a datum across the landscape. They are permanent components of the scheme. They will provide lighting, seating and partial shelter from wind and rain. They are both a way-finding device and a record of the landscape.

Urban repository, hybrids, a shape-shifting, adaptive collection of architecture, resource in the form of a building. Acknowledging history while responding to immediate and future needs. Time based (temporal), events, flows. Partially returns to the landscape, partially breaks away, partially remains. How does building develop over time? Is there a permanent core that the units plug into? Tourist accommodation, housing, social spaces, privacy, views...



Sketched map locating tourist destinations on Heimaey in relation to the landscape.



Sketched map locating Helgafell, Eldfell, the fissure site, the original pre-eruption coastline and the portions of the current city affected by ash.



Sketched map displays tourist accommodations, travel routes and land use

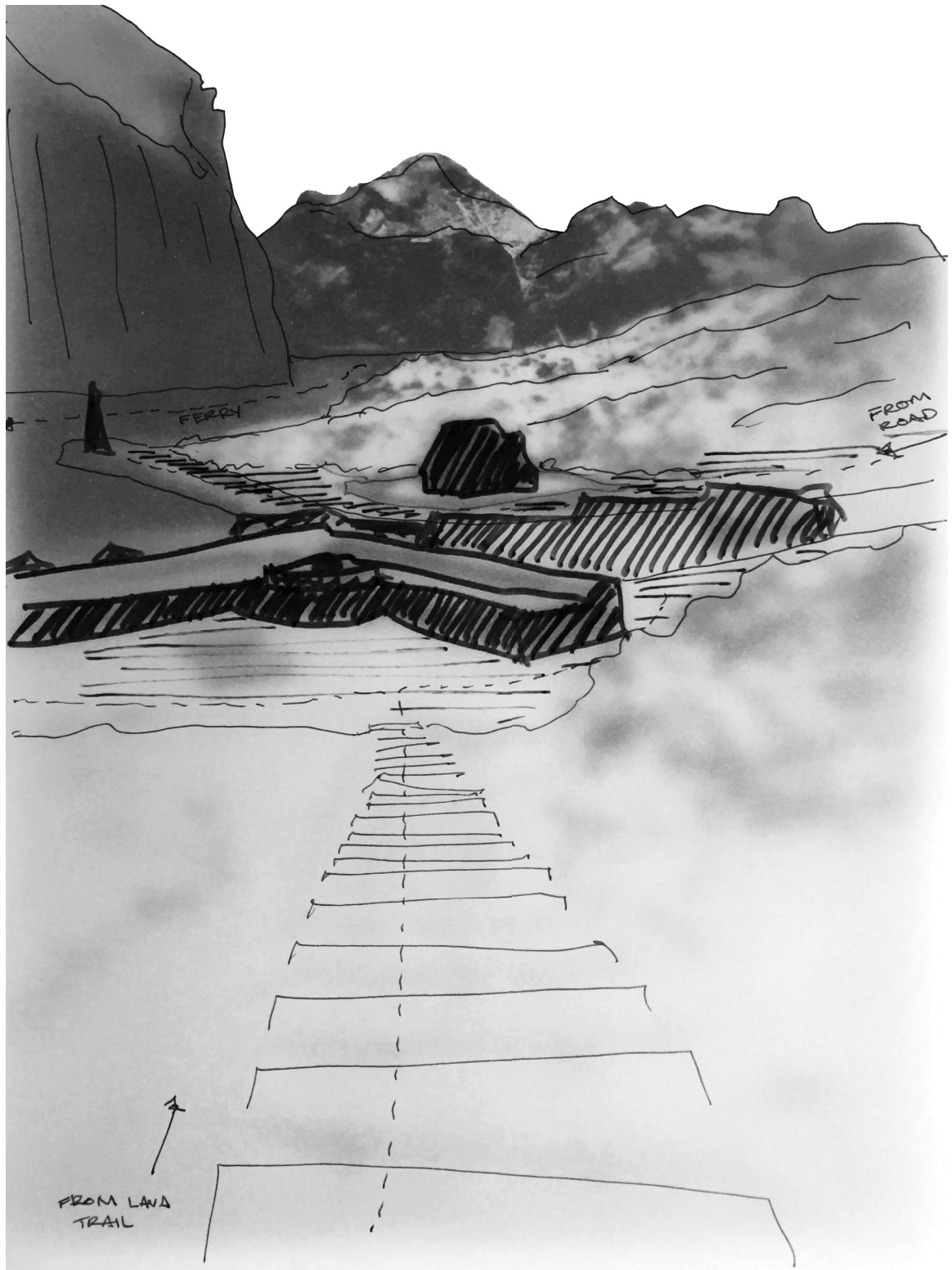
The cabins are semi-permanent. In addition to architectural elements of the permanent markers, the cabins will provide temporary lodging for festival-goers, tourists, and researchers. They can also provide basic emergency housing in the event of another extreme landscape event.

The anchor of the proposal is the cultural quarter. Landscape interventions will define the approach from both land and sea, relate to the adjacent existing museums, monuments and ruins on the site, and strengthen the site's connection to the harbour, the town and the lava field. The landscape scheme comprises a public stair, a sunken plaza, a ramped access bridge and a waterfront walkway which unite the existing ruins, historical stave church, and the heritage museum with the new mixed use auditorium and lookout tower. The tower will be first visible marker of the town as the ferry, cruise ships, tour boats and working vessels enter the harbour. In the Host Building, a flexible auditorium, gallery, event space, and cafe offer quintessential views of the archetypal cliffs that frame the entrance to the Heimaey harbour.

### ***Mapping and Siting***

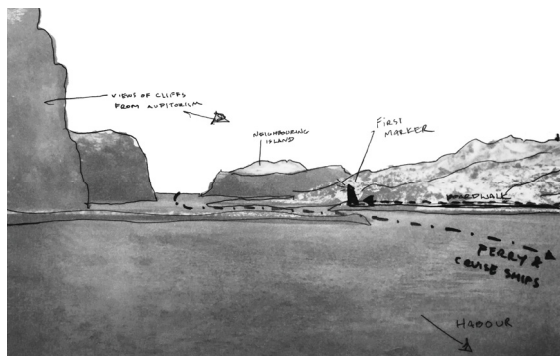
To understand the context of the proposed architecture, I consult Eisenmann's method, as "he seeks to establish a strategic text or narrative related in some way to the subject at hand. This relationship has no concern with the performance of the physical characteristics of the building. Rather, it searches in the circumstances of a specific place for patterns of order unique to that place."



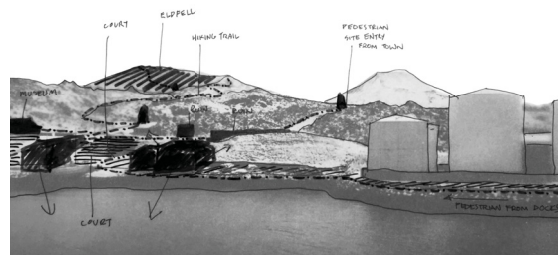


Siting sketch for design proposal

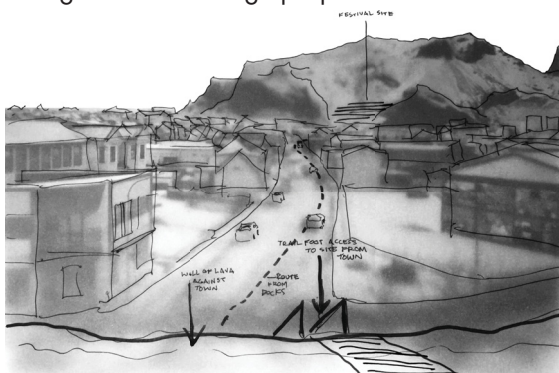




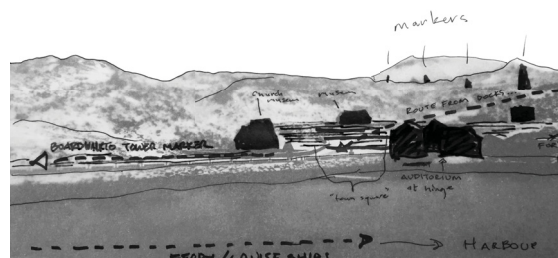
Siting sketch for design proposal



Siting sketch for design proposal



Siting sketch for design proposal



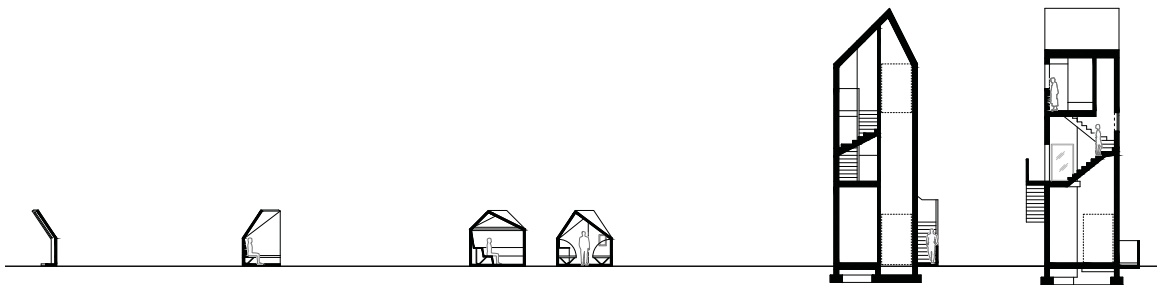
Siting sketch for design proposal

## Program and Building Description

The three main users-types of the cultural quarter will be The Islander, The Icelandic Tourist, and the Foreign Tourist. Each will have unique but overlapping relationships with the proposed scheme. The proposed buildings and infrastructure seek to demonstrate a shared civic, cultural identity, and retain Heimaeý's sense of place. For the Islanders, it will be a community event space, a cinema, gallery, and an urban park. For the Icelandic tourist, it will be an introduction to the landscape and the culture.

High sloping roof (shedding snow/ash loads), Corrugated Steel (regional material) Lightweight, high insulation. Form - How does it support intention? How modules connect. Accessibility of materials and trades. Efficiency of construction/Deconstruction. Freezer (SIP) panels. Volcanic basalt fiber: "Proponents claim that concrete made with volcanic ash can cost up to 60% less because it requires less cement, and that it has a smaller environmental footprint due to its lower cooking temperature and much longer lifespan.<sup>104</sup> Usable examples of Roman concrete exposed to harsh marine environments have been found to be 2000 years old with little or no wear.<sup>105</sup>"

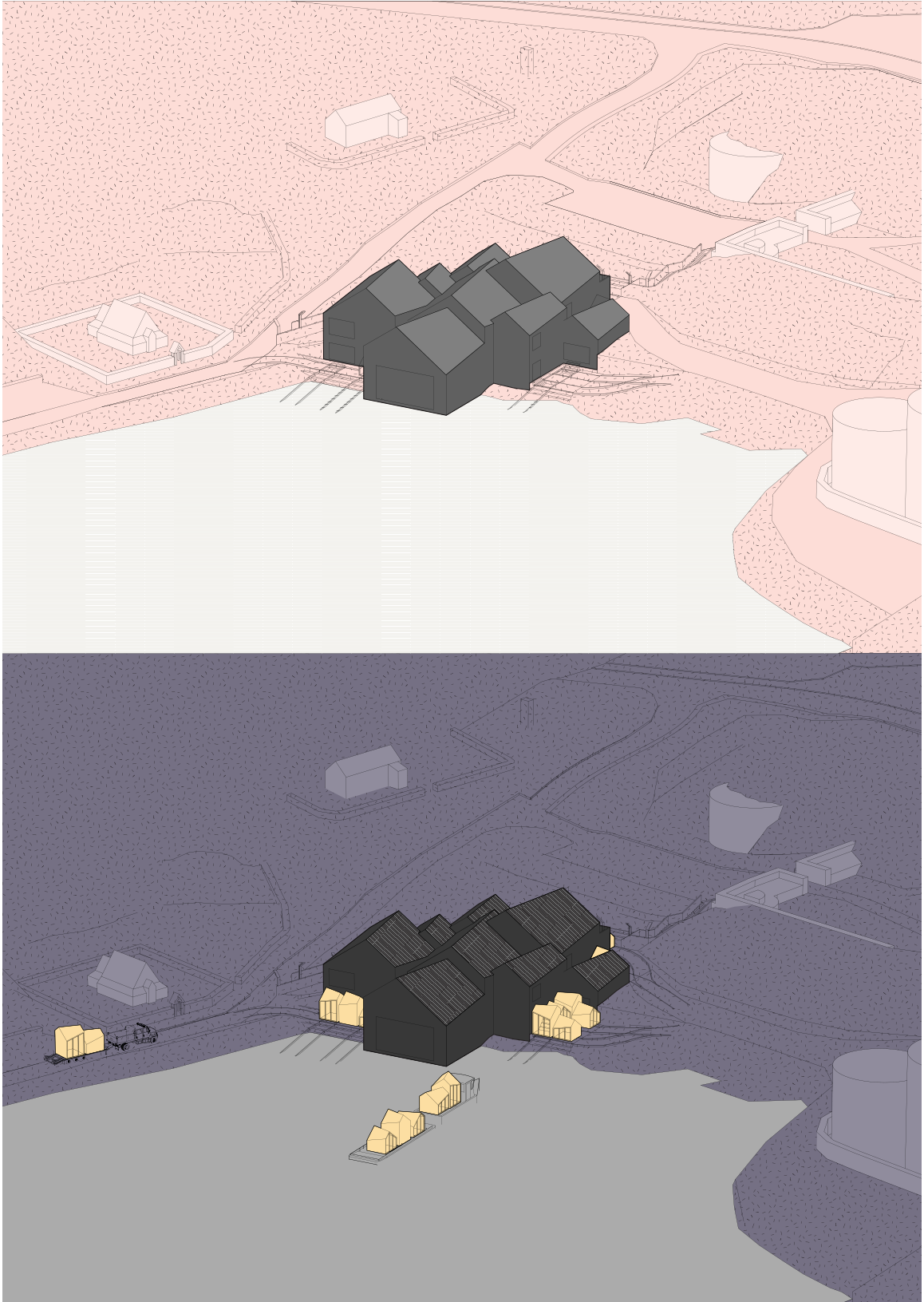
Concrete foundations. Black volcanic concrete walls. Corrugated aluminium/steel roofs and siding. Steel truss roof structure. Minimal wood finishes. Wool sound and thermal insulation.



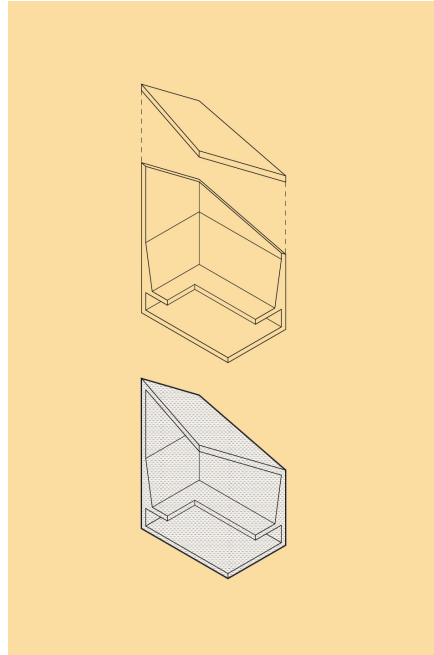
Pavilion types ordered by size and permanence: Night Light, Windy Bench, Cozy/Hot Hut, and Tower.

<sup>104</sup>Sezen Soyer-Uzun et al., "Compositional Evolution of Calcium Silicate Hydrate (C-S-H) Structures by Total X-Ray Scattering," *Journal of the American Ceramic Society* 95, no. 2 (2012), 793.

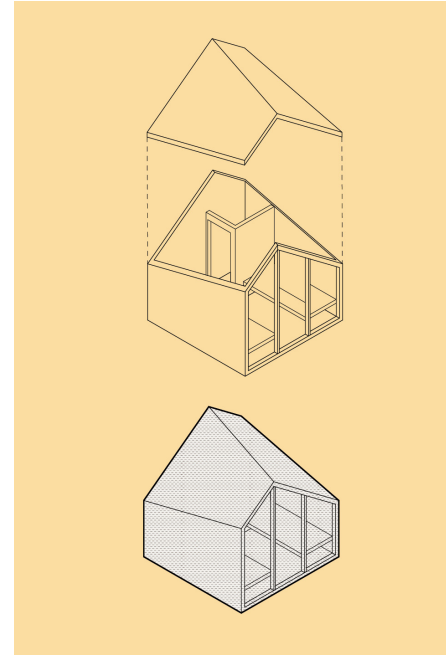
<sup>105</sup> M. D. Jackson et al., "Unlocking the secrets of Al-tobermorite in Roman seawater concrete," *American Mineralogist* 98 (2013): 1675.



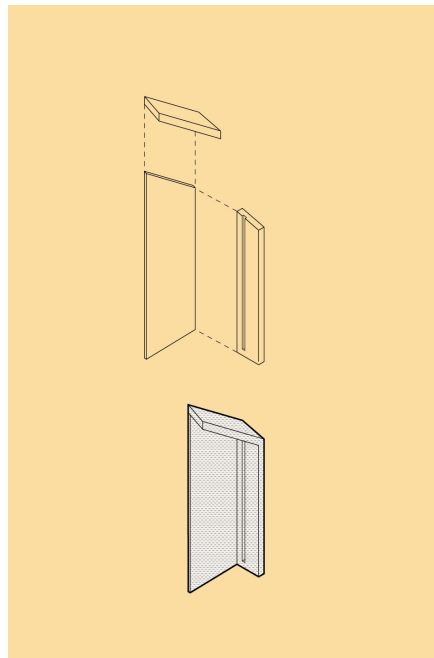
Host Building, summer condition (above) and winter condition (below).



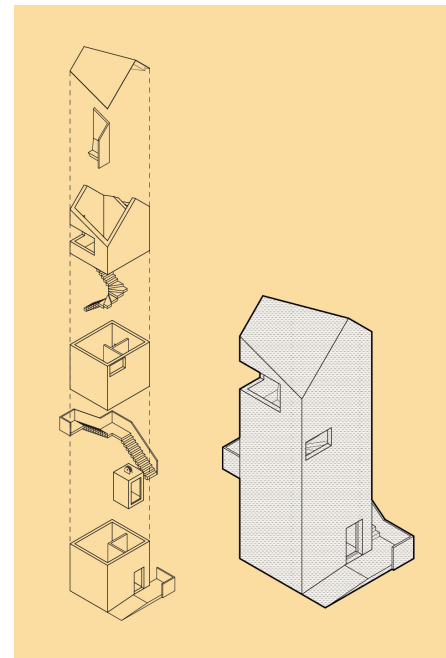
Collect: Benches gather visitors and sediment as they become increasingly embedded in the landscape.



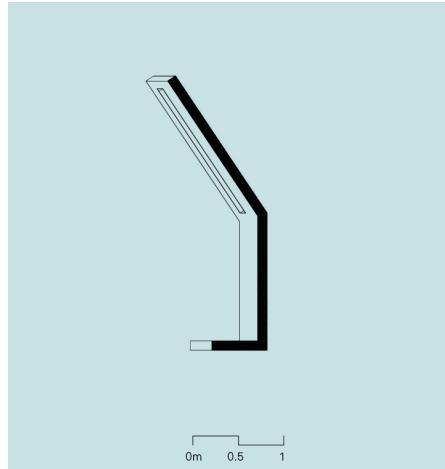
Disperse: Huts spread the visitors throughout the landscape, and as more are built, they will impact groundwater run off, erosion and wind.



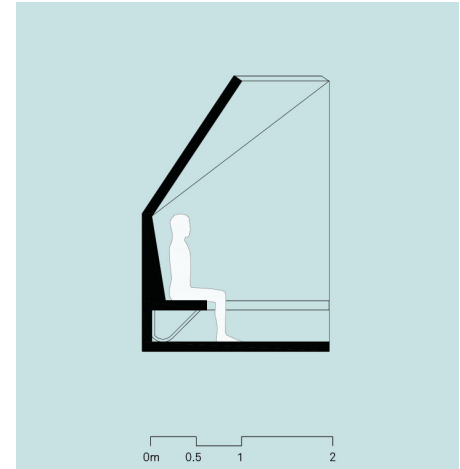
Channel: Night Lights guide visitors across the volcanic landscape



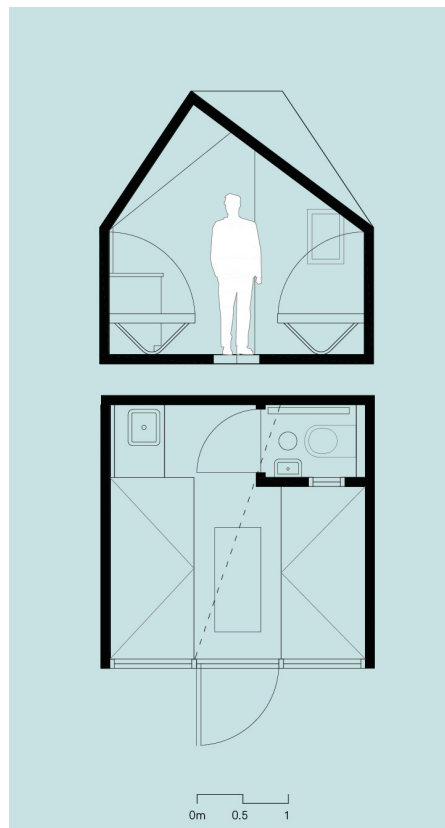
Divert: The Tower



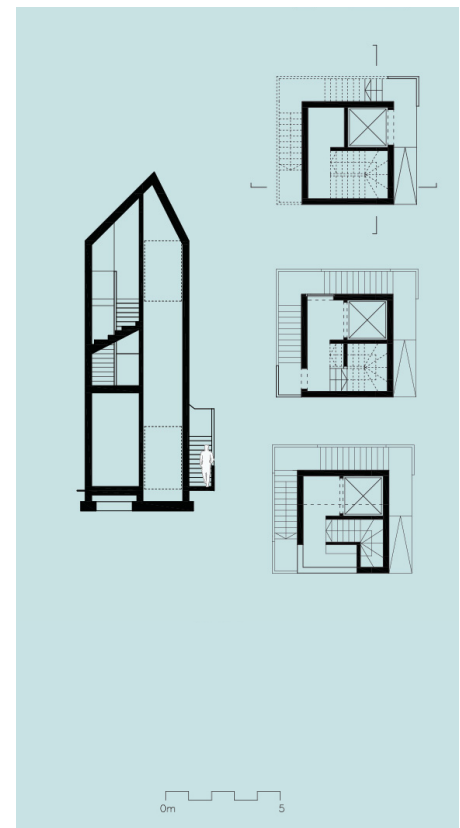
Channel: "Night Light" markers.  
Display panels and path lighting.



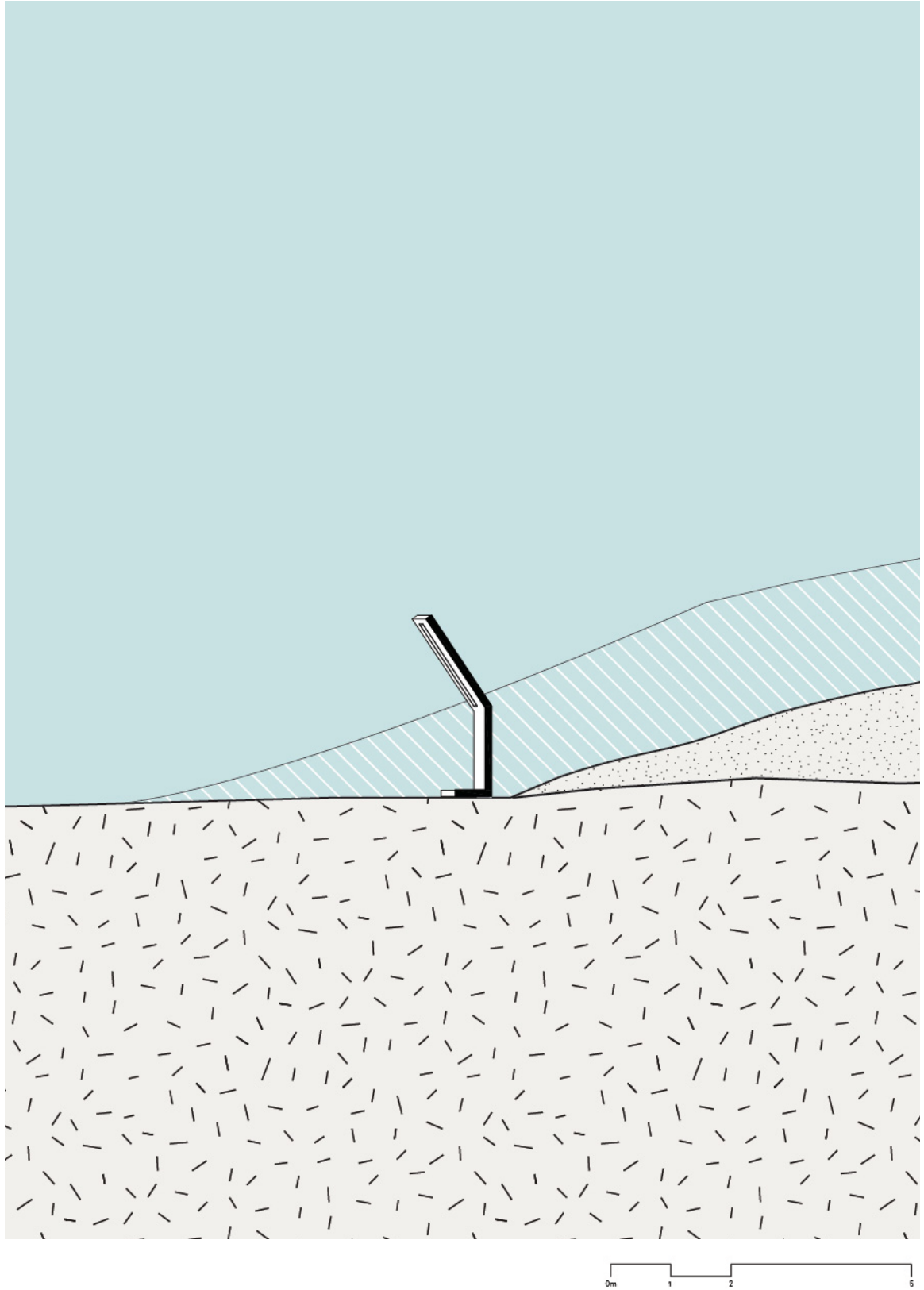
Collect: "Windy Bench" rest and  
lookout stops. Collects people and  
wind and sediment.



Disperse: Huts. "Hot Hut" and "Cozy  
Hut."

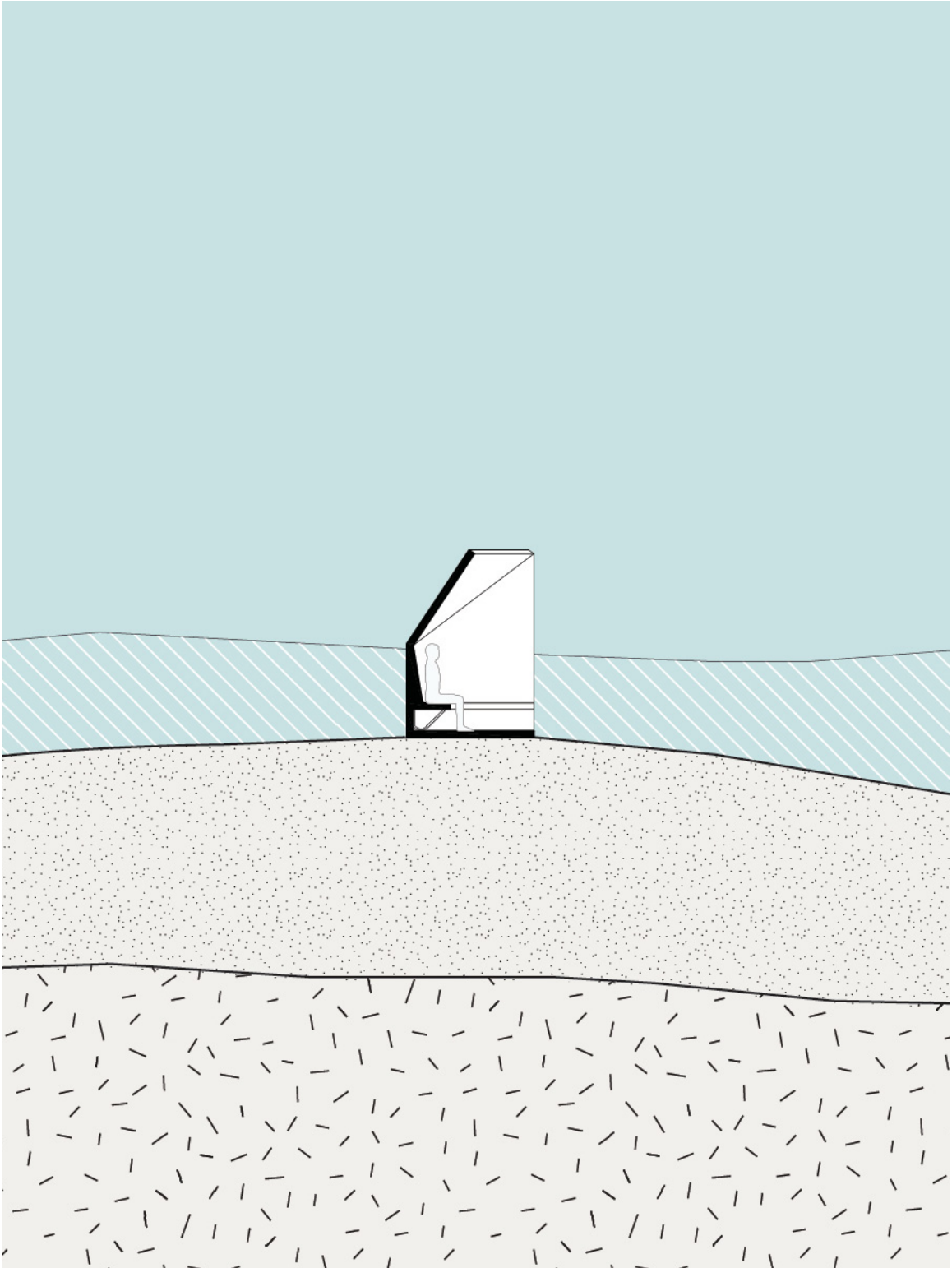


Divert: Tower. Lookout as well as  
beacon to approaching ships and  
ferries.

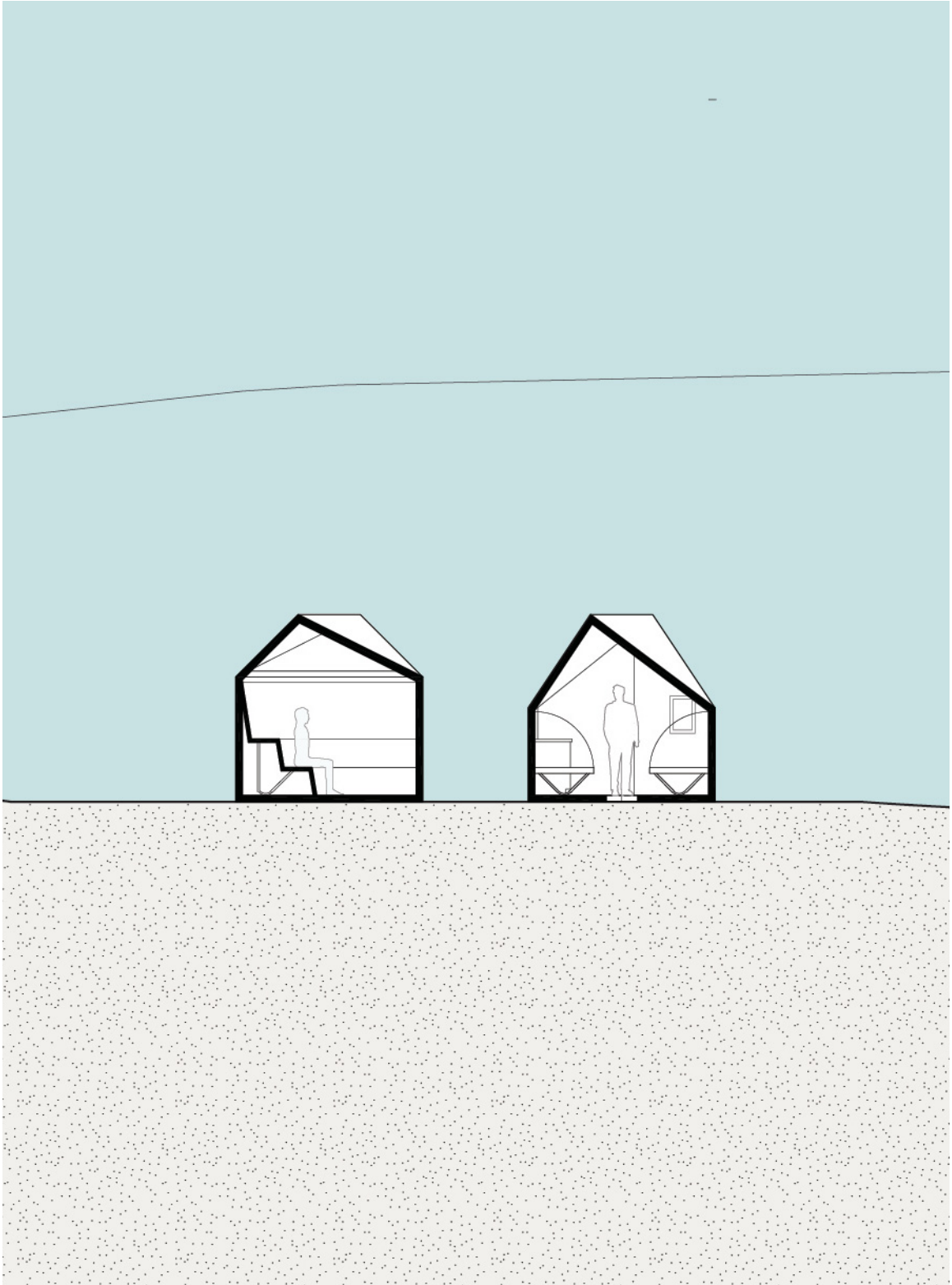


Channel: "Night Light" markers. Display panels and path lighting. 1:100 at 8.5x11

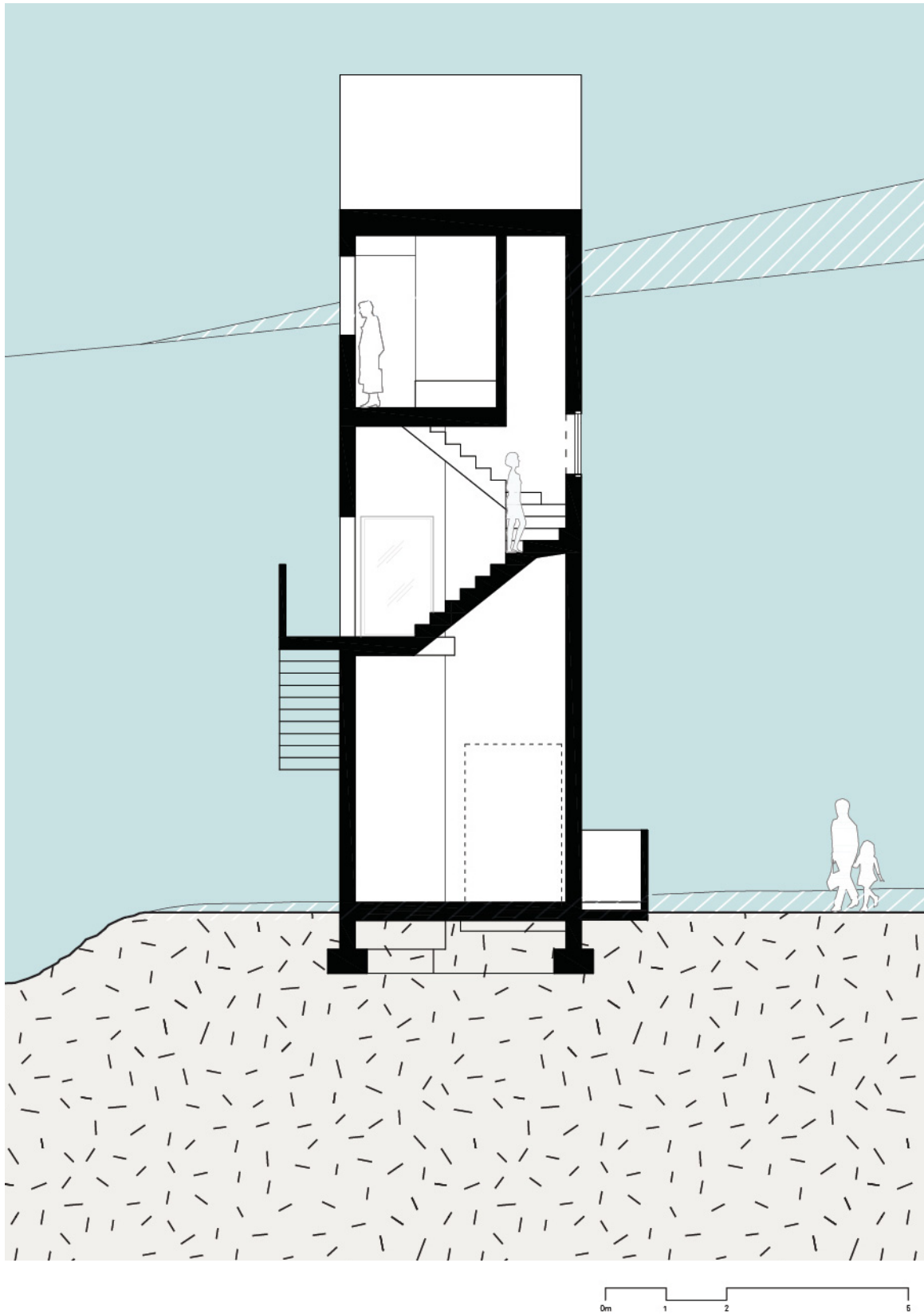




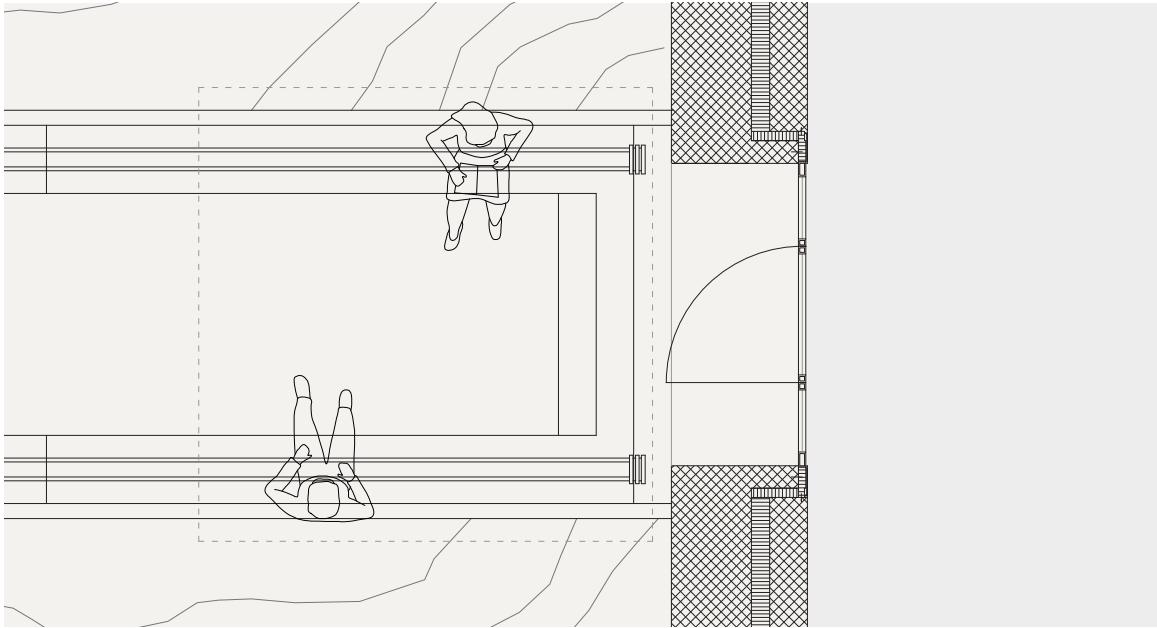
Collect: "Windy Bench" rest and lookout stops. Collects people and wind & sediment, gradually embeds. 1:100 at 8.5x11



Disperse: Huts. "Hot Hut" left and "Windy Hut" right. 1:100 at 8.5x11

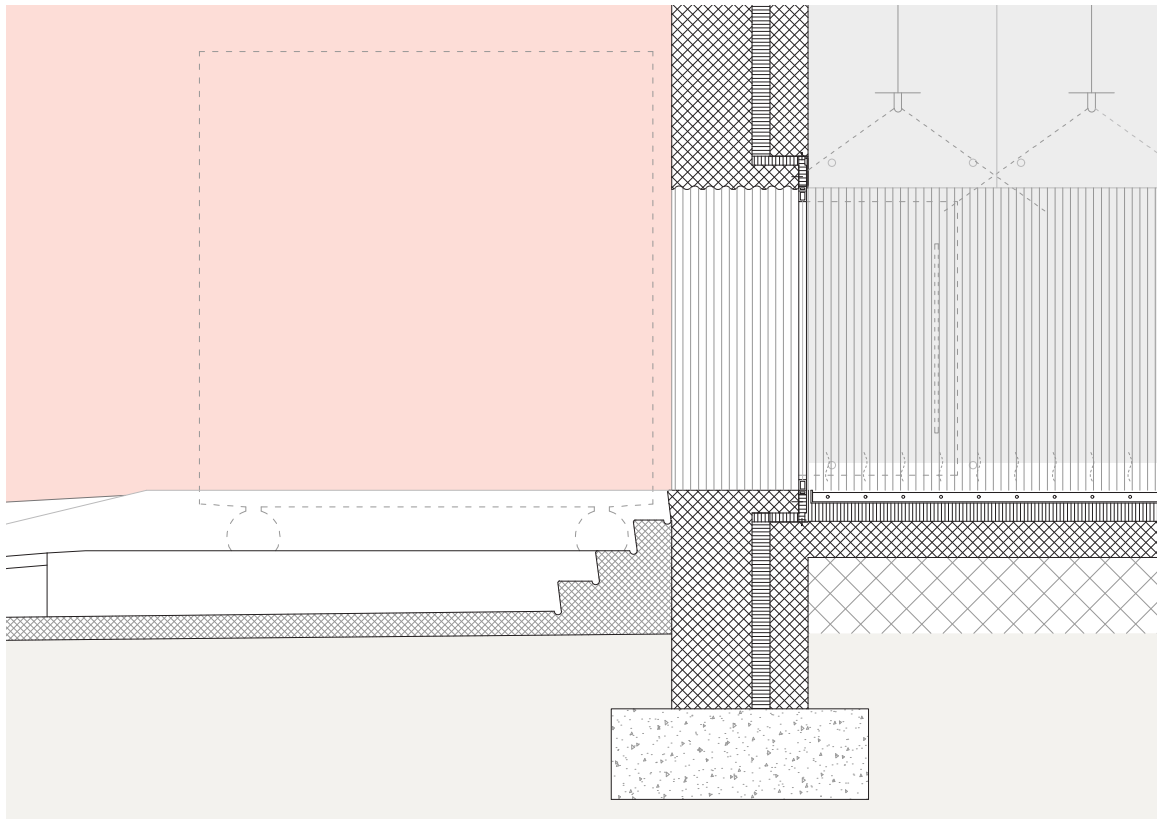


Divert: Tower. Lookout as well as beacon to approaching ships and ferries. 1:100 at 8.5x11



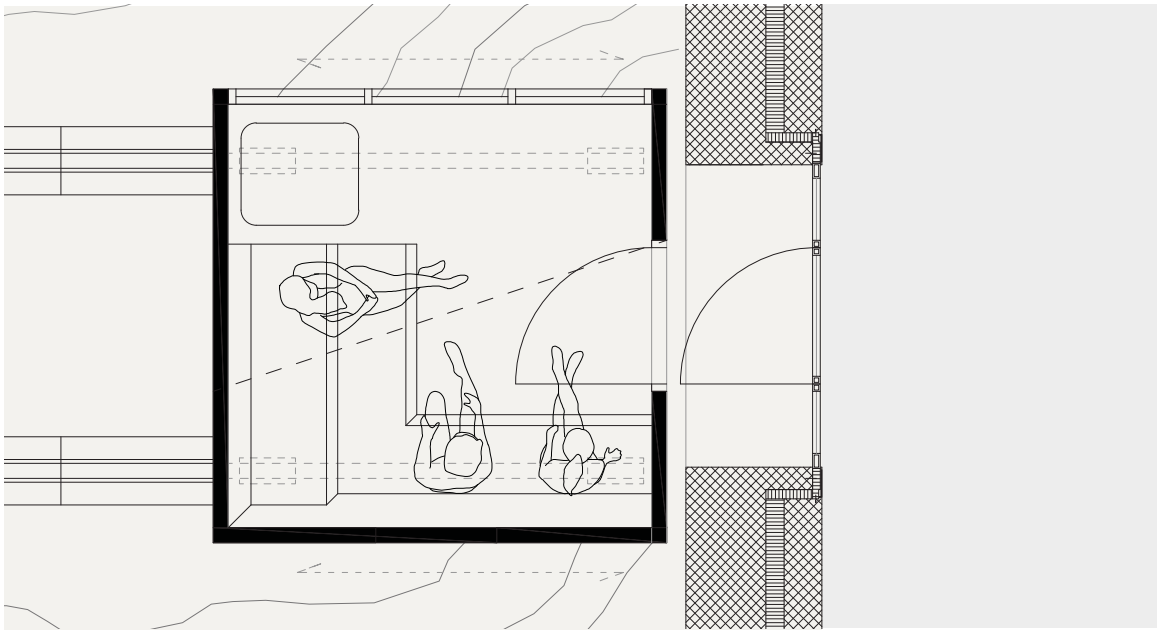
Condition, Hot Hut deployed. Detail plan 1:50 at 8.5x11.

0m 0.5 1 2



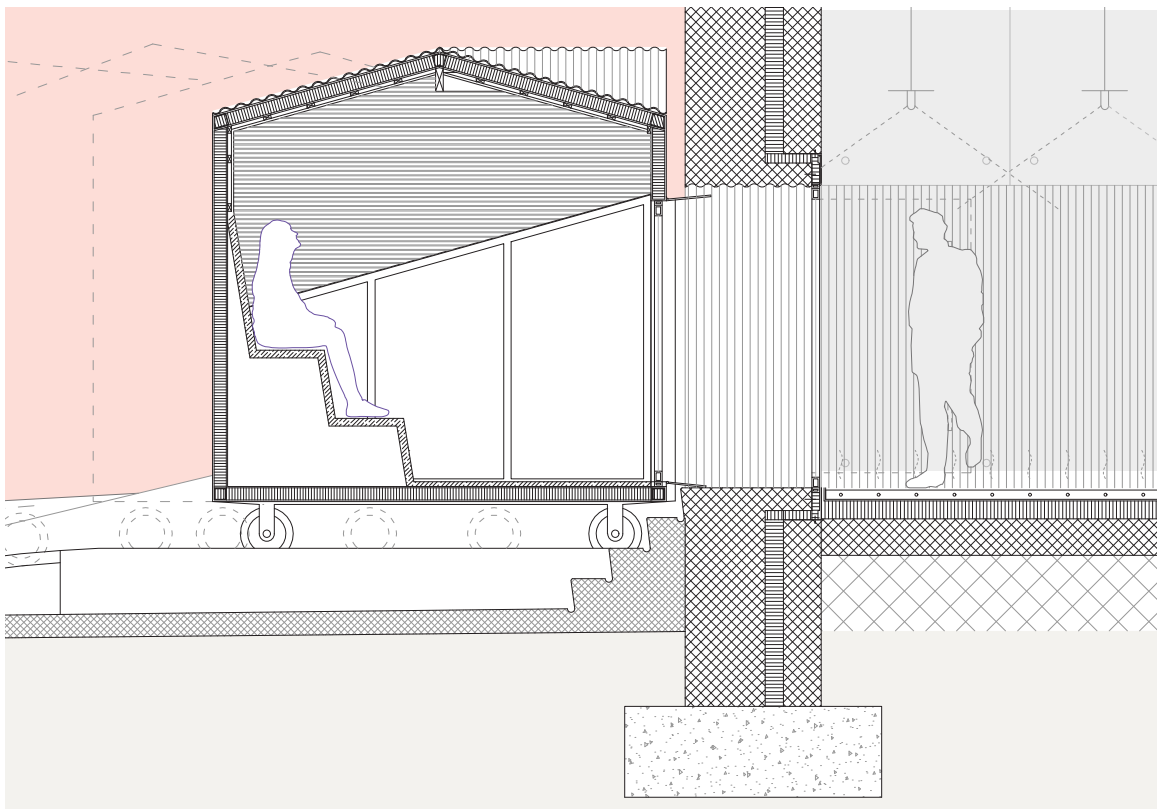
Condition, Hot Hut deployed. Detail section 1:50 at 8.5x11.

0m 0.5 1 2



Winter, Hot Hut docked at Host. Detail plan 1:50 at 8.5x11.

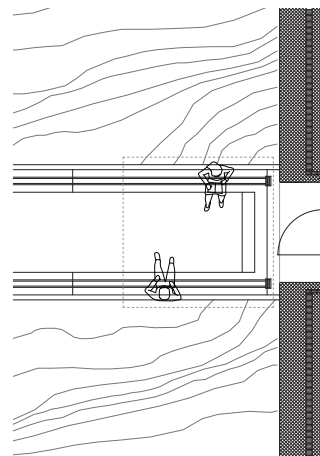
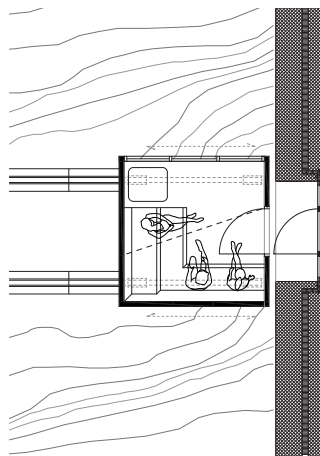
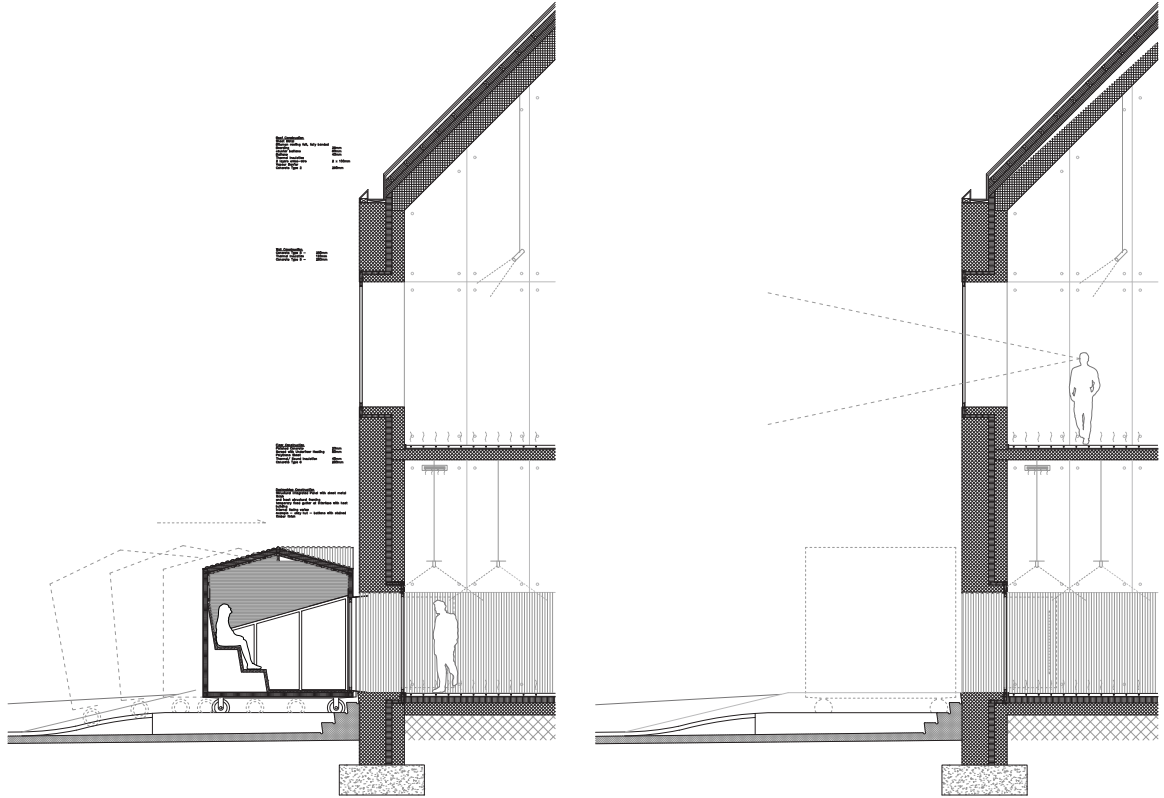
0m 0.5 1 2



Winter, Hot Hut docked at Host. Detail section 1:50 at 8.5x11.

0m 0.5 1 2

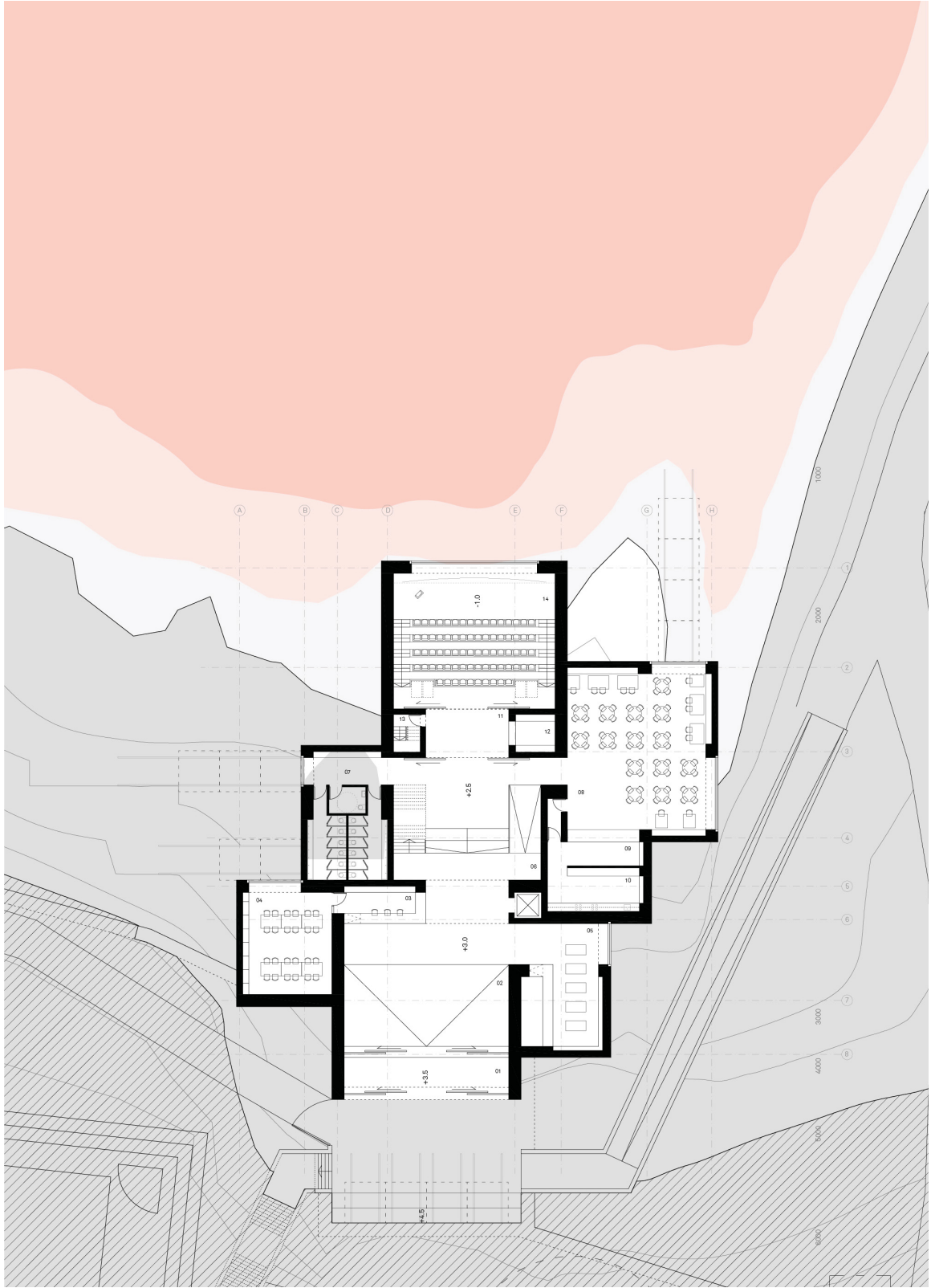




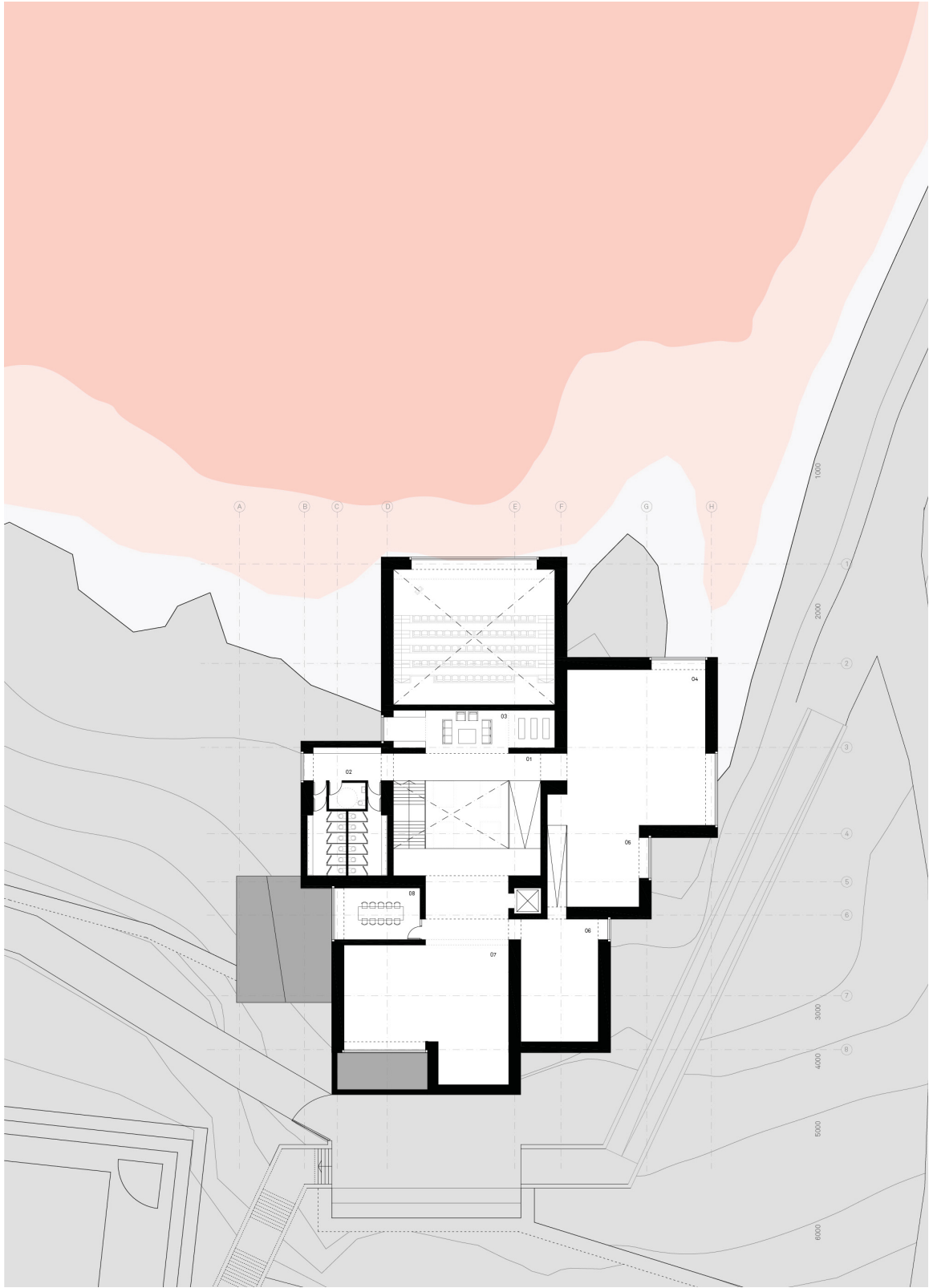
Deployable docking condition details.



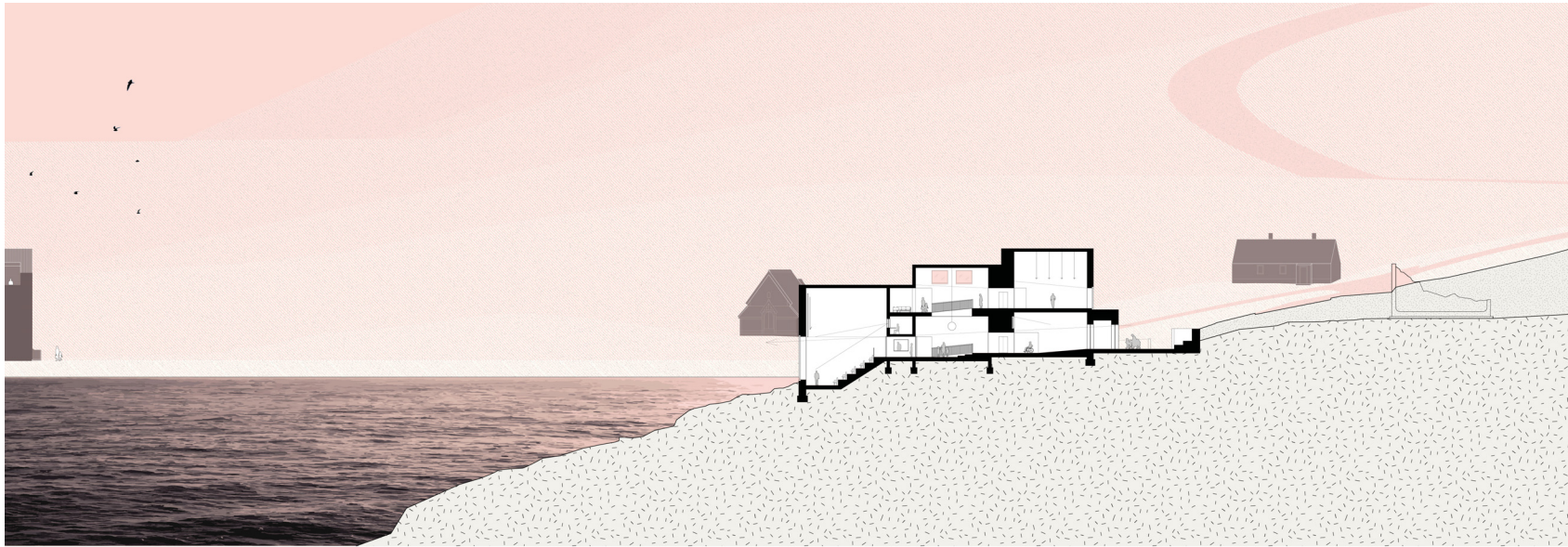
Site Plan



Entrance Floor Plan



Upper Floor Plan



Site Section





View into North-East Gallery with the opening to the harbour visible in the background.



Approach to the Host Building via the pedestrian bridge walkway.



Descending the ramped foyer to the reception hall of the Host Building via the pedestrian bridge walkway.

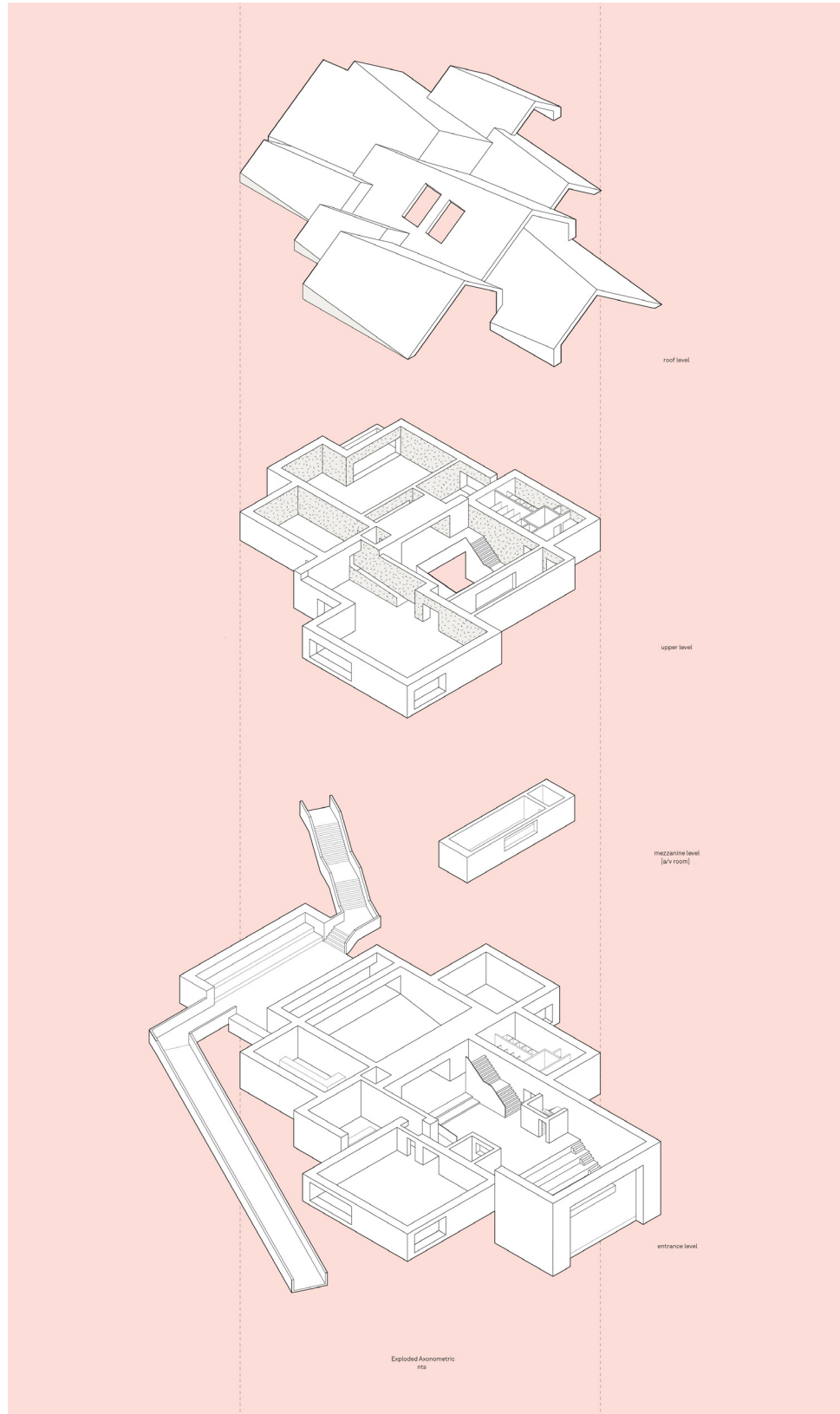




Looking out on the Harbour, adjacent cliffs and edge of the Host Building.

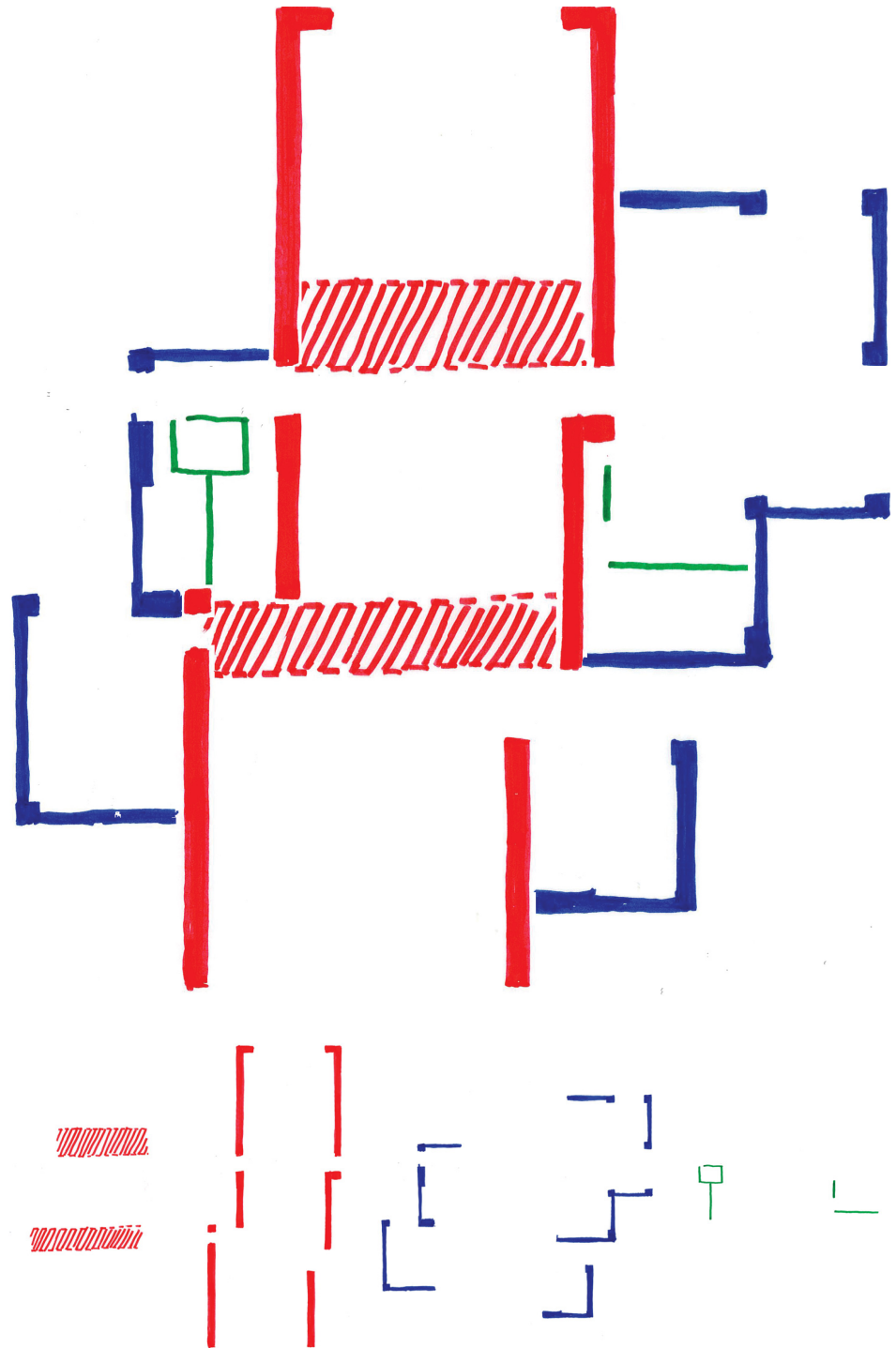


Tower is visible on the left, and a deployable unit is towed and transferred to the host building on the right.

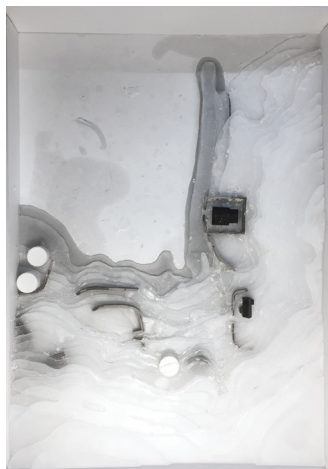


Exploded Axonometric of Host Building

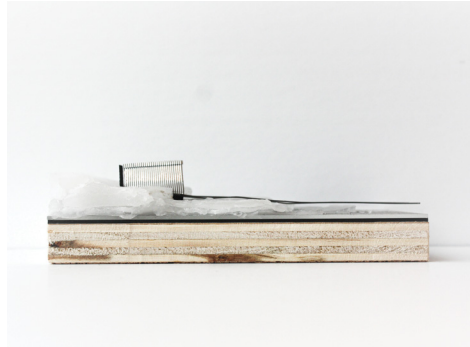
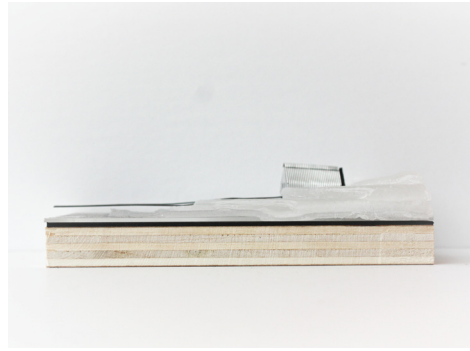




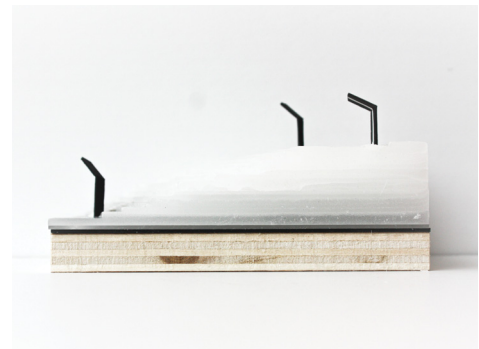
Wall types in Host Building, ranging from thickest to thinnest. Hatched red indicated hollow, exaggerated concrete walls which contain programs and services and emphasize thresholds in the flow of the spaces. Solid red lines indicate primary structural concrete walls which contain some built-in cabinetry. Blue lines indicate secondary concrete walls. Green lines indicate internal non-structural partitions.



Host Building site, wax layers act as the layers of lava and engulf former buildings.



Hut Model wax layers



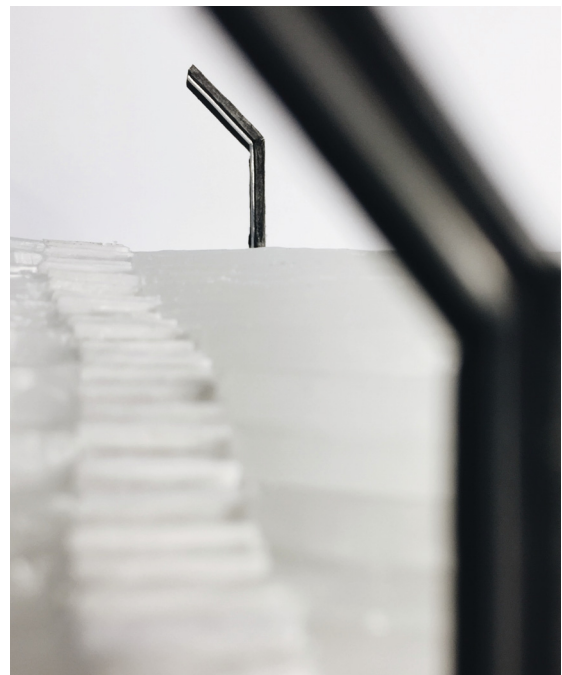
Light Model wax layers



Light Model

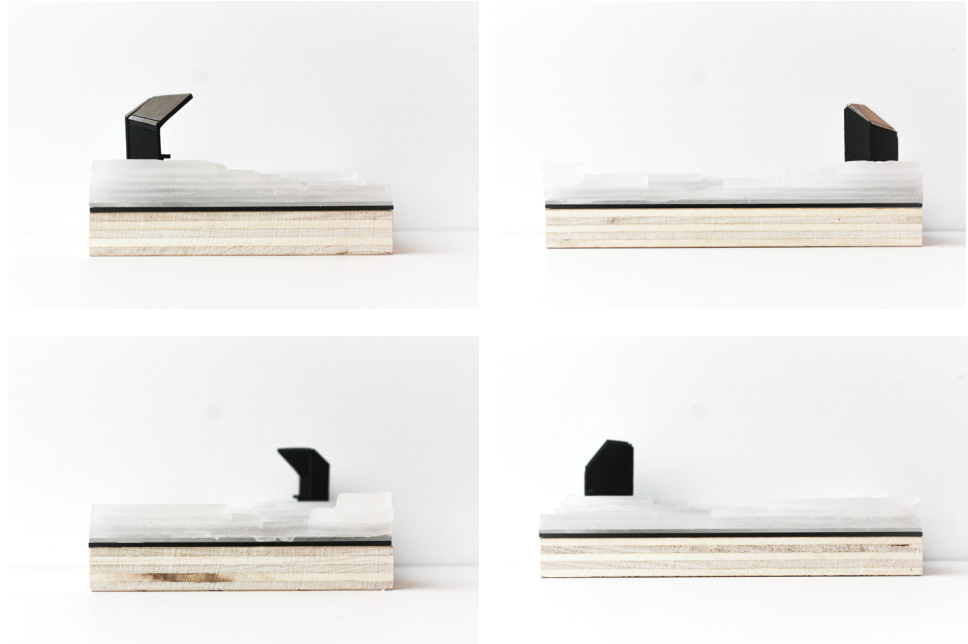


Light Model



Light Model



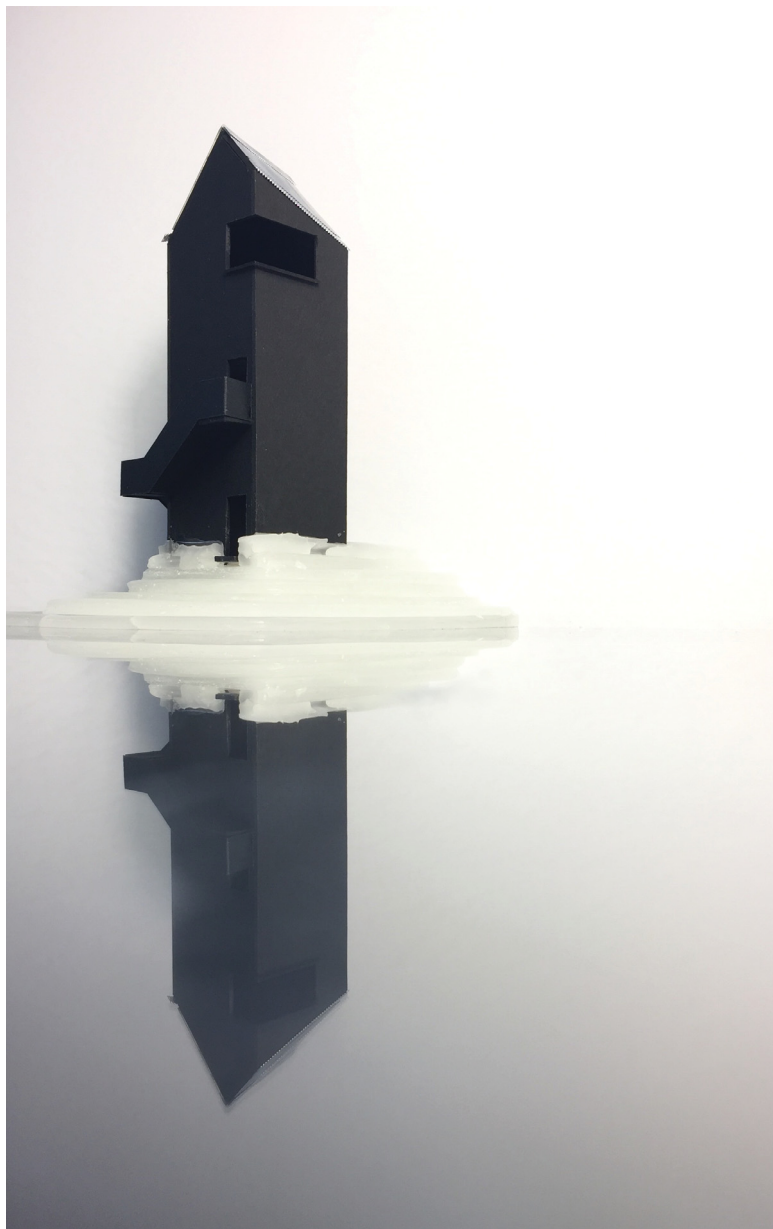


Bench Model

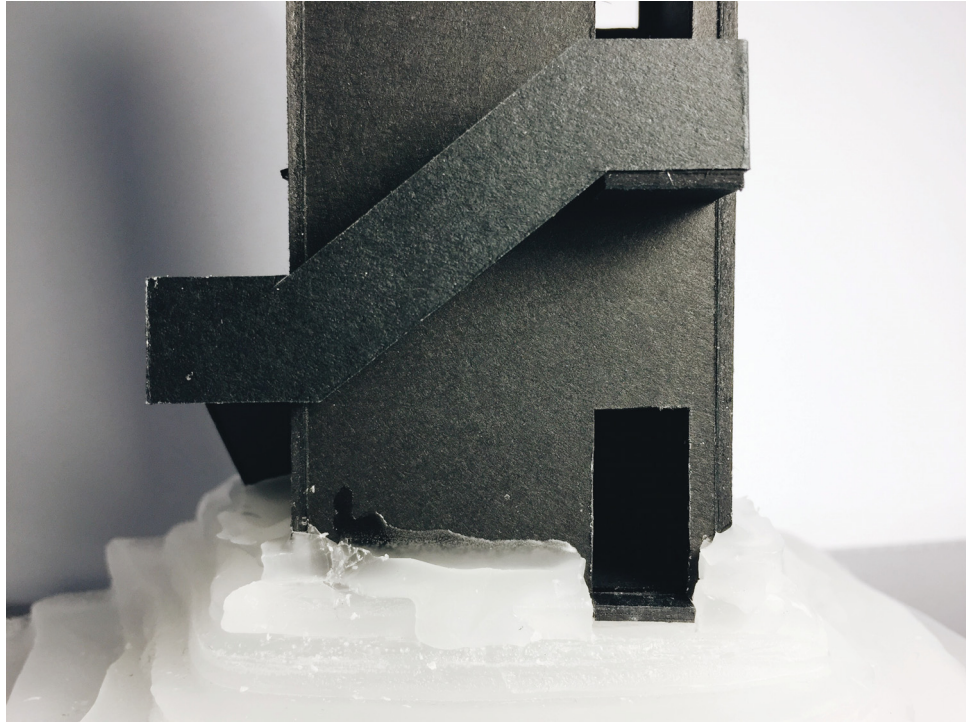


"Windy Bench" roof and wall drainage details visible in foreground with deployable in the background.





Tower model



Tower rear entry - summer.



Tower look-out point.

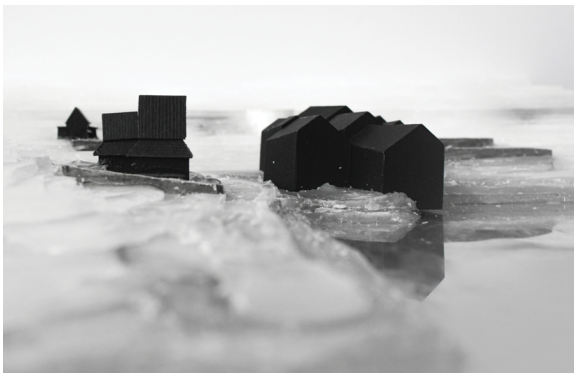


Host Building

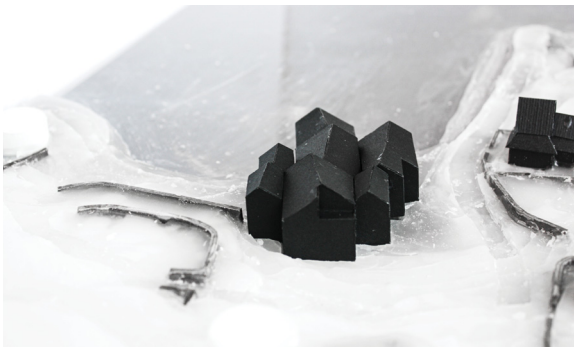




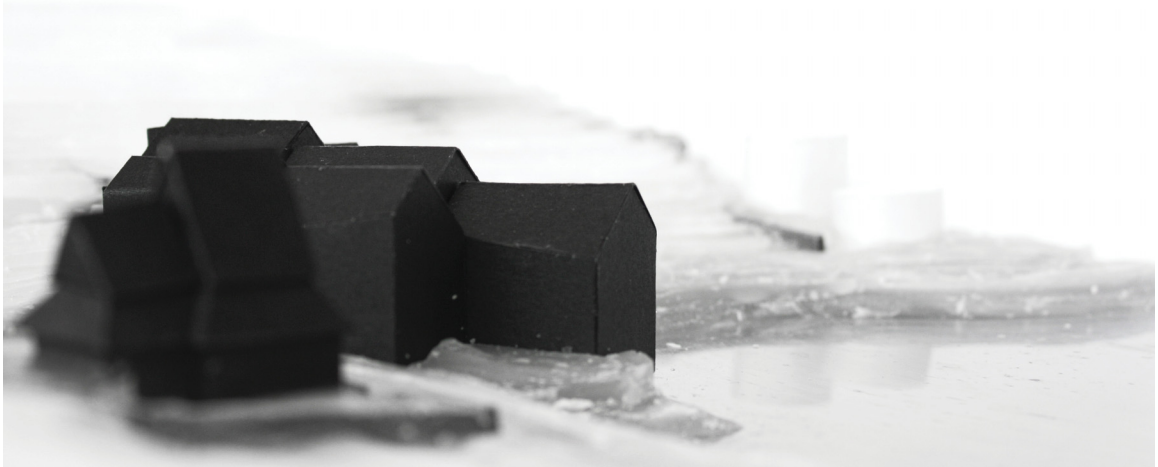
Host Building model approach from hiking trail steps



Host Building model approach from tower



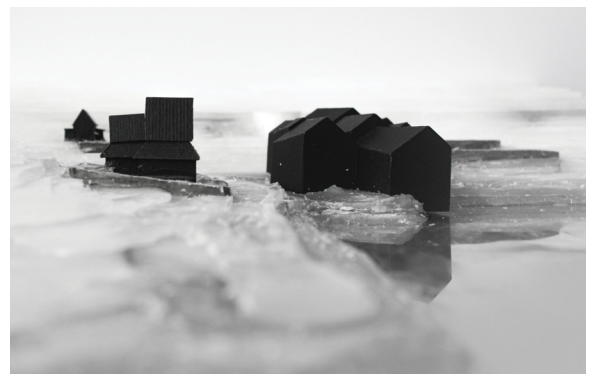
Host Building model approach from road



Host Building



Host Building model approach from sea



Host Building model approach from tower



## CHAPTER 4: CONCLUSION

### Recap of Findings

- **Semi-Permanent:** Degrees of permanence and impermanence are architectural tools which recognize human limits in respect to the volatile, interminably flowing landscape.
- **Incremental components:** Additive/subtractive versions of the architecture in response to flows, and their resulting program requirements.
- **Adaptability:** Buildings physically influence and are influenced by velocity, intensity, and trajectory of the spatial-temporal flows of humans and landscape.
- **Programme flexibility and diversity:** The project will reinforce cultural resilience by mediating the experience and use of the site by islanders, Icelandic visitors and foreign visitors.
- **Site specificity:** Acknowledge the current dynamics at play. Tourism is an escalating forceful flow. The primary site is a node, the confluence of human access by water and town with the existing human-made culturally and historically significant attractions and the manifestation of an extensive, powerful flowing landscape
- **Urban scale:** The site extends beyond this central node, along historical, geological, and cultural pathways. Provides way-finding and shelter.

This work investigates the resilience that comes from the acceptance of impermanence. Architecture operates on multiple spatial-temporal scales, and can fluctuate. This thesis seeks to examine how planned obsolescence, or rather, adaptation, can serve to evolve with an evolving landscape and society. Tourists outnumber Icelanders on any given day, (add source) and exponential increase in the rate of flow of tourists incited rapid development of infrastructure to support the flourishing industry. Iceland, has become a node within a global network and therefore as Castells describes, must “rely on multidimensional infrastructure of connectivity: multimodal transport on air land and sea; telecommunications networks; computer networks; advanced information systems; and the whole infrastructure of ancillary services (from accounting and security to hotels and entertainment) required for the functioning of a node.”<sup>106</sup> An alternative approach to building for tourists will seek to develop a capacity to respond to flows by learning from resilient local cultural identities with an inherent ability to inhabit change.

### **Reflections on Potential**

Canadian context: “Ideas of traditional culture or primitive wilderness were invoked in an effort to construct sources of regional authenticity, which could in turn ground an image of Canadian national identity.”<sup>107</sup>

---

<sup>106</sup>Castells, “Globalization, Networking, Urbanization,” *Urban Studies* 47, no. 13 (2012): 2741.

<sup>107</sup>E. Lam, “Wilderness Nation: The Myth of Nature in Canadian architecture,” *Journal of the Society for the Study of Architecture in Canada* 33, no. 2 (2008): 11-20.



Thesis "zine" sample pages

## BIBLIOGRAPHY

- Alessio, Dominic, and Anna Lisa Jóhannsdóttir. "Geysers and Girls : Gender, Power and Colonialism in Icelandic Tourist Imagery." *European Journal of Women's Studies* 18, no. 1 (February 2011): 35-50.
- Andersen, Michael Asgaard, ed. *Nordic Architects Write: A Documentary Anthology*. Abingdon ; New York: Routledge, 2008.
- Ármannsdóttir, Sigbrúdur, Kristín S. Vogfjörð, Einar Kjartansson, Ragnar Slunga, Páll Halldórsson, Sigurlaug Hjaltadóttir, Gunnar B. Gudmundsson, Hjörleifur Sveinbjörnsson, Bergþóra Thorbjarnardóttir, and Steinunn S. Jakobsdóttir. "Development and Implementation of Seismic Early Warning Processes in South-West Iceland." Reykjavik: Icelandic Meteorological Office, 2012.
- Ballantyne, Andrew, and Chris Smith, ed. *Architecture in the Space of Flows*. Abingdon; New York, NY: Routledge, 2012.
- Benjamin, Walter. *Illuminations*. Edited by Hannah Arendt. New York: Schocken Books, 1988.
- Bennett, Tony. "The Exhibitionary Complex." In *Culture/Power/History*, 123-54, New York: Princeton University Press, 1998.
- Bergen, H. "# Authentic At All Costs." *Briarpatch* 45, no. 1 (2016): 8-11.
- Bertella, Giovanna B. "Photography and Northern Lights Tourism in Tromsø, Norway." *Northern Review* 37 (2013): 167-186.
- Blundell-Jones, Peter. *Architecture and Participation*. London : Taylor & Francis, 2009.
- Boyer, Dominic. "Simply the Best: Parody and Political Sincerity in Iceland." *American Ethnologist* 40, no. 2 (2013): 276-87.
- Brunskill, Ronald William. *Houses and Cottages of Britain: Origins and Development of Traditional Buildings*. New Haven : Yale University Press, 2008.
- Bryman, Alan. "The Disneyization of Society." *The Sociological Review* 47, no. 1 (1999): 25-47.
- Butler, Richard. "The Tourist Experience: Can Destinations Maintain Authenticity?" *Worldwide Hospitality and Tourism Themes* 9, no. 6 (2017): 617-26.
- Caseldine, C., A. Russell, J. Harðardóttir, and Ó. Knudsen. *Developments in Quaternary Science 5: Iceland – Modern Processes and Past Environments*. Amsterdam: Elsevier, 2005.

- Castells, Manuel, "Grassrooting the Space of Flows." *Urban Geography* 20, no. 4 (1999): 294-302.
- Castells, Manuel. "Globalisation, Networking, Urbanisation: Reflections on the Spatial Dynamics of the Information Age." *Urban Studies* 47, no. 13 (2010): 2737-274.
- Certeau, Michel De. *The Practice of Everyday Life*. Berkeley: University of California Press, 1984.
- Chartier, Daniel, and Sumarliði R. Ísleifsson. *Iceland and Images of the North*. Québec: Presses De L'Université Du Québec, 2011.
- Chipperfield, David, and Rik Nys, ed. *David Chipperfield Architects*. London: Thames & Hudson, 2015.
- Christer, Steve and Margrét Hardardóttir "Studio Granda." *Architecture and Urbanism* 93, no. 4 (1993): 22-40.
- Colomina, Beatriz. "On Adolf Loos and Josef Hoffman: Architecture in the Age of Mechanical Reproduction." *9H 6* (1983): 65-77.
- Conway, Rebecca. "The Westman Islands Are Alive (Even In The Wintertime)." *The Reykjavik Grapevine*, February 19, 2016. <https://grapevine.is/travel/travel-featured/2016/02/19/the-westman-islands-are-alive-even-in-the-wintertime/>
- Davis, Howard. *The Culture of Building*. New York: Oxford University Press, 2006.
- Edensor, Tim. "Performing Tourism, Staging Tourism: (Re)producing Tourist Space and Practice." *Tourist Studies* 1, no. 1 (2001): 59-81.
- Edensor, Tim. *Industrial Ruins, Space Aesthetics and Materiality*. Oxford: Berg Publishers, 2005.
- Ellsworth, Elizabeth, and Jamie Kruse. "Inhabiting Change and Turning at the Limits of the World." in *Future North: The Changing Arctic Landscape*, edited by Janike Larsen Kampevold and Peter Hemmersam," 204-226. New York, Routledge, 2018.
- Fatanti, Megasari Noer, and I. Wayan Suyadnya. "Beyond User Gaze: How Instagram Creates Tourism Destination Brand." *Social and Behavioral Sciences* 211 (2015): 1089-1095.
- Fernandez, John. *Architectural Materials, Emergent Materials for Innovative Buildings and Ecological Construction*. Amsterdam: Architectural Press, 2006.



- Ford, Edward. *The Architectural Detail*. New York: Princeton Architectural Press, 2011.
- Frampton, Kenneth. "Towards a Critical Regionalism – Six Points for an Architecture Resistance." In *The Anti-Aesthetic: Essays on Postmodern Culture* Port Townsend, edited by Hal Foster, 16-30. Seattle: Bay Press, 1983.
- Fredman, Peter, and Lisa Tyrväinen. *Frontiers in Nature-based Tourism: Lessons from Finland, Iceland, Norway and Sweden*. London; New York: Routledge, 2011.
- Glassie, Henry. *Passing the Time in Ballymeone: Culture and History of an Ulster Community*. Philadelphia: University of Pennsylvania Press, 1982.
- Glassie, Henry. *Folk Housing in Middle Virginia: A Structural Analysis of Historic Artifacts*. Knoxville, Tennessee: University of Tennessee Press, 1975.
- Glassie, Henry. "Tradition." *Journal of American Folklore* 108 (1995): 395 – 412.
- Graham, Conor. "Iceland Tectonic Geology Geological Map of Iceland: Tectonics." Accessed through ArcGIS, Centre for GIS and Geomatics, Queen's University Belfast, 2017.
- Greenlaw, Lavinia. *Questions of Travel: William Morris in Iceland*. New York: Review Books, 2017.
- Gudjonsson, Hlynur. "Nation branding." *Place Branding* 1, no. 3 (2005): 283-298.
- Guðmundsdóttir, Gunnþorunn. "Truth and Testimonies: The Year in Iceland." *Biography: An Interdisciplinary Quarterly* 39, no. 4 (2016): 629-34.
- Guiver, Jo, and Peter Mcgrath. "Slow Tourism: Exploring the discourses." *Dos Algarves: A Multidisciplinary E-Journal* 27 (2016): 11-34. DOI: 10.18089/DAMeJ.2016.27.1
- Hale, Brack. "Mapping Potential Environmental Impacts from Tourists Using Data from Social Media: A Case Study in the Westfjords of Iceland." *Environmental Management* 62, no. 3 (2018): 446-57.
- Hall, Þorbjörg Daphne. "Nostalgic Ideology in the Film Heima by the Icelandic 'Krutt' Band Sigur Ros." *Social Alternatives* 33 no. 1 (2014): 39-43.

- Halldórsson, Guðmundur, Anna Agustsdóttir, Ása Aradóttir, Olafur Arnalds, Dagmar Hagen, Lis Mortensen, Christer Nilsson, Hreinn Óskarsson, Emmanuel Pagneux, Karoliina Pilli-Sihvola, Karsten Raulund-Rasmussen, Kristín Svavarsdóttir, and Anne Tolvanen. "Ecosystem Restoration for Mitigation of Natural Disasters." Report. Denmark: Nordic Council of Ministers, 2017.
- Hauksdóttir, Guja Dögg. "The Search for Meaning through Concrete: Matter and Mind in the Work of Högná Sigurðardóttir Architect." *The Journal of Architecture* 20, no. 3 (2015): 1-21.
- Helgadóttir, Gudrun. (2011). "Nation in a Sheep's Coat: The Icelandic Sweater." *FORMakademisk* 4, no. 2 (December 2011): 59-68.
- Hemmersam, Peter. "Arctic Architectures." *The Polar Record* 52, no. 4 (2016): 412-22.
- Hofmeister, Sandra, and David Chipperfield. *David Chipperfield Architects: Architektur und Baudetails: Architecture and Construction Details*. München: Detail, 2018.
- Hoof, Joost Van, and Froukje Van Dijken. "The Historical Turf Farms of Iceland: Architecture, Building Technology and the Indoor Environment." *Building and Environment* 43, no. 6 (2008): 1023-030.
- Hsiao, Teng-Yuan, and Chung-Ming Chuang. "The Cooperation Model between Tourism Development and Traditional Culture: New Perspectives on Regional Context." *Journal of Tourism and Cultural Change* 14, no. 2 (2015): 1-16.
- Hughes, Francesca. *The Architect : Reconstructing Her Practice*. Cambridge, Mass.: MIT Press, 1996.
- Iceland Magazine Staff. "Hidden geothermal pool closed due to disrespectful and littering tourists." *Iceland Magazine*, July 11, 2018. <https://icelandmag.is/article/hidden-geothermal-pool-closed-due-to-disrespectful-and-littering-tourists>
- Ingebritsen, Christine. "Europeanization and Cultural Identity: Two Worlds of Eco-capitalism." *Scandinavian Studies* 73, no. 1 (2001): 63-76.
- Jackson, M. D., S. R. Chae, R. Taylor, C. Meral, J. Moon, S. Yoon, P. Li, A. M. Emwas, G. Vola, H.-R. Wenk, and P. J. M. Monteiro. "Unlocking the secrets of Al-tobermorite in Roman seawater concrete." *American Mineralogist* 8 (2013): 1669–1687.
- Jansson, André. "Rethinking Post-Tourism in the Age of Social Media". *Annals of Tourism Research* 69 (2018): 101-110.

- Jensson, Magnús. "Tour of Pagan Temple Site." Lecture, *Pagan Temple Project*. Reykjavík, June 25, 2016.
- Jones, Emma. "Is Nordic Humour too Dark for the Rest of the World?" *BBC*. October 2015. <http://www.bbc.com/culture/story/20151012-is-nordic-humour-too-dark-for-the-rest-of-the-world>.
- Jones, Prudence and Nigel Pennick. *A History of Pagan Europe*. New York: Routledge, 1995.
- Jóhannesdóttir, G. and G. Gísladóttir. "People Living Under Threat of Volcanic Hazard in Southern Iceland: Vulnerability and Risk Perception" *Natural Hazards Earth Systems Science* 10, (2010): 407-420.
- Jóhannesson, Dennis. *A Guide to Icelandic Architecture*. Reykjavík: Association of Icelandic Architects, 2000.
- Koester, David. "Gender Ideology and Nationalism in the Culture and Politics of Iceland." *American Ethnologist* 22, no. 3 (1995): 572-88.
- Lam, E. "Wilderness Nation: The Myth of Nature in Canadian Architecture." *Journal of the Society for the Study of Architecture in Canada* 33, no. 2 (2008): 11-20.
- Larsen, Jonas, & John Urry. "Gazing and Performing." *Environment and Planning D: Society and Space* 29, no. 6 (2011): 1110-1125.
- Lefebvre, Henri, Łukasz Stanek, and Robert Bononno. *Toward an Architecture of Enjoyment*. Minneapolis: University of Minnesota Press, 2014.
- Lipovšek, Emilija, & Smiljka Kesić. "Commodification of culture in fiction-induced tourism." *TIMS: Acta* 9, no. 2 (2015): 105-113.
- Lippard, Lucy R. *The Lure of the Local: Senses of Place in a Multicentered Society*. New York: New Press, 1997.
- Lobsinger, Mary Louise. "Cybernetic Theory and the Architecture of Performance: Cedric Price's Fun Palace." In *Anxious Modernisms: Experimentation in Postwar Architectural Culture*. Edited by Sarah Williams Goldhagen and Rejean Legault. *Library Journal* 126, no. 7 (2001): 119-137.
- Loftsdóttir, Kristín. "The Exotic North: Gender, Nation Branding and Post-colonialism in Iceland." *NORA - Nordic Journal of Feminist and Gender Research* 23, no. 4 (2015): 246-260.

- Loftsdóttir, Kristín. "Finding a Place in the World: Political Subjectivities and the Imagination of Iceland after the Economic Crash." *Focaal* 80, (2018): 63-76.
- Lund, Katrin Anna, Kristín Loftsdóttir, and Michael Leonard. "More than a Stopover: Analysing the Postcolonial Image of Iceland as a Gateway Destination." *Tourist Studies* 17, no. 2 (2017):144-163.
- Milojevic, P. M. "Accessing industrial landscapes : the arctic projects of Elin and Carmen Corneil." *Sustainable City* 117 (2008): 283-292. DOI:10.2495/SC080271.
- MacCannell, Dean. *The Tourist : A New Theory of the Leisure Class*. Berkeley: University of California Press, 1999.
- MacCarthy, Fiona. "William Morris in Iceland." *The Guardian*, 27 March 2010. <https://www.theguardian.com/artanddesign/2010/mar/27/william-morris-iceland-ian-mcqueen>.
- Andri Snær Magnason. *Dreamland : A Self-Help Manual for a Frightened Nation*. Translated from Icelandic by Nicholas Jones. Reykjavik: Citizen Press, 2008.
- Mathews, Stanley. "The Fun Palace as Virtual Architecture: Cedric Price and the Practices of Indeterminacy." *Journal of Architectural Education* 59, no. 3 (2006): 39-48.
- McPhee, John A. *The Control of Nature*. New York: Noonday Press, 1990.
- Mellin, Robert. *Tilting : House Launching, Slide Hauling, Potato Trenching, and Other Tales from a Newfoundland Fishing Village*. New York: Princeton Architectural Press, 2003.
- Moore, Steven A., and Andrew Karvonen. "Sustainable Architecture in Context : STS and Design Thinking." *Science Studies* 21, no. 1 (2008): 29-46.
- Morgan, Alan V. V. "The Eldfell Eruption, Heimaey, Iceland : A 25-year Retrospective." *Geoscience Canada* 27, no. 1 (2000): 11-18.
- Morris, William. *Icelandic Journals*. 1871. Hand-written notes digitized by William Morris Society. <http://morrisedition.lib.uiowa.edu/Images/BL-45319A/icelandicpageflip1-25.html>.
- Morris, William. *The Collected Works of William Morris, v. VIII*. London: Longman's Green and Company, 1911.

- Neri, Louise, Lynne Cooke, Roni Horn, and Thierry De Duve. *Roni Horn. Contemporary Artists*. London: Phaidon Press, 2000.
- Oxford English Dictionary. "Authenticity, n.," *OED Online*, Oxford University Press, 2018. <https://www.oed.com/view/Entry/13325?redirectedFrom=authenticity>.
- Peters, Tom. *Building the Nineteenth Century*. Cambridge: MIT Press, 1996.
- Pfeiffer, Ida. *Journey to Iceland: And Travels in Sweden and Norway*. Translated from German by Charlotte Fenimore Cooper. London, 1852.
- Pocius, Gerald. *A Place to Belong: Community Order and Everyday Space in Calvert, Newfoundland*. Athens: University of Georgia Press, 1991.
- Price, Cedric, and Samantha Hardingham. *Cedric Price Works 1952-2003: A Forward-minded Retrospective*. London: Architectural Association ; Montreal: Canadian Centre for Architecture, 2016.
- Price, Cedric. "The Built Environment — The Case against Conservation." *Environmentalist* 1, no. 1 (1981): 39-41.
- Prince, Solène, and Dimitri Ioannides. "Contextualizing the Complexities of Managing Alternative Tourism at the Community-Level: A Case Study of a Nordic Eco-Village." *Tourism Management* 60 (June 2017): 348-356.
- Prown, Jules. "Mind in Matter: An Introduction to Material Culture Theory and Method." In *Material Life in America 1600 - 1860*, edited by Robert Blair St. George, 17-38. Boston: Northeastern University Press, 1988.
- Purkis, John Arthur. *The Icelandic Jaunt : A Study of the Expeditions Made by Morris to Iceland in 1871 and 1873*. Kew, England: William Morris Society, 1962.
- Reijnders, Stijn. *Places of the Imagination : Media, Tourism, Culture*. Farnham, Surrey, England ; Burlington, VT: Ashgate, 2011.
- Robinson, Peter. "E-mediating the Tourist Gaze: Memory, Emotion and Choreography of the Digital Photograph." *Information Technology & Tourism* 14, no. 3 (2014): 177-196.
- S. Thorarinsson, S. Steinthórsson, Th. Einarsson, H. Kristmannsdóttir, and N. Oskarsson. "The Eruption on Heimaey, Iceland." *Nature* 241, no. 5389 (1973): 372-375.
- Sæþórsdóttir, Anna Dóra. "Planning Nature Tourism in Iceland based on Tourist Attitudes." *Tourism Geographies* 12, no. 1 (2010): 25-52. DOI: 10.1080/14616680903493639.



- Schaller, Harald. "The Footprint of Tourism : Ecological sensitivity and hiking trail assessment at selected protected areas in Iceland and Hokkaido." PhD Dissertation, Icelandic Tourism Research Centre, December 2014.
- Shepherd, Robert. "Commodification, Culture and Tourism." *Tourist Studies: An International Journal* 2, no. 2 (2002): 183-201.
- Scherman, Katharine. *Daughter of Fire: A Portrait of Iceland*. Boston: Little, Brown, 1976.
- Sigurjonsdottir, Sigríður Lara. "Send in the Clowns Performing a Political Campaign in Post-Collapse Iceland." *Nordic Theatre Studies* 25 (2013): 98-106.
- Smiljka Kesić. "Commodification of Culture in Fiction-Induced Tourism." *TIMS: Acta* 9, no. 2 (2015): 105-113.
- Smith, Sean P. "Instagram Abroad: Performance, Consumption and Colonial Narrative in Tourism." *Postcolonial Studies* 21, no. 2 (2018): 172-19.
- Smout, Mark, and Laura Allen. *Augmented Landscapes*. 1st ed. Pamphlet Architecture No. 28. New York: Princeton Architectural Press, 2007.
- Solstrand, Maria-Victoria. "Marine angling tourism in Norway and Iceland: Finding balance in management policy for sustainability." *Natural Resources Forum* 37, no. 2 (2013): 113-126.
- Soyer-Uzun, Sezen, Sejung Rosie Chae, Chris J. Benmore, Hans-Rudolf Wenk, and Paulo J. M. Monteiro. "Compositional Evolution of Calcium Silicate Hydrate (C-S-H) Structures by Total X-Ray Scattering." *Journal of the American Ceramic Society* 95, no. 2 (2012): 793-798.
- Spens, Michael. *Modern Landscape*. London: Phaidon Press, 2003.
- Stoddart, Mark C. J., and Elahe Nezhadhossein. "Is Nature-Oriented Tourism a Pro-Environmental Practice? : Examining Tourism-Environmentalism Alignments Through Discourse Networks and Intersectoral Relationships." *The Sociological Quarterly* 57, no. 3 (2016): 544-568.
- Tanizaki, Jun'ichirō. *In Praise of Shadows*. New Haven: Leete's Island Books, 1977. (Originally published In Japanese in 1933)
- Therkelsen, Anette, and Henrik Halkier. "Umbrella Place Branding. A Study of Friendly Exoticism and Exotic Friendliness in Coordinated National Tourism and Investment Promotion." *Aalborg: SPIRIT* (2004).

- Thoren, Roxi J. "The Deep Grain of the Inquiry: Landscape and Identity in Icelandic Art." *Journal of Landscape Architecture* 5, no. 1 (2010): 38-51.
- Thórarinsdóttir, Hallfrídur, and Rayna Rapp. "Purity and Power: The Policy of Purism in Icelandic Nationalism and National Identity." PhD Diss., The New School, 2003.
- Tiberghien, Guillaume, and Philip Feifan Xie. "The Life Cycle of Authenticity: Neo-nomadic Tourism Culture in Kazakhstan." *Journal of Tourism and Cultural Change* 16, no. 3 (2018): 234-247.
- Trausti Valsson. *City and Nature : An Integrated Whole*. Reykjavík: Háskólaútgáfan, 2000.
- Tribe, John. *Philosophical Issues in Tourism. Aspects of Tourism*. Bristol, UK ; Buffalo, NY: Channel View Publications, 2009.
- Tuan, Yi-Fu. *Space and Place : The Persepective of Experience*. Minneapolis: University of Minnesota, 1977.
- Upton, Dell. "Ethnicity, Authenticity, and Invented Traditions." *Historical Archaeology* 30, no. 2 (1996): 1-7.
- Urry, John, and Jonas Larsen. *The Tourist Gaze 3.0*. 3rd ed. London: Sage, 2011.
- Urry, John. *The Tourist Gaze: Leisure and Travel in Contemporary Societies*. London: Sage, 1990.
- Wachsmann, Konrad. *The Turning Point of Building: Structure and Design*. New York: Reinhold, 1961.
- Waldheim, Charles. *The Landscape Urbanism Reader*. 1st ed. New York, New York: Princeton Architectural Press, 2006.
- Weston, Richard. *Materials, Form and Architecture*. London: Laurence King, 2003.
- Wilson, Jason. "Dining out in Iceland." *The North American Review* 285, no. 1 (2000): 4-13.



Thesis Defence - July 3, 2019.