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contributi di
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A Landscape of Contradiction

The fragmented Apuan Alps, consolidated with a refuge constructed in Cava Piastramarina

A Landscape of Contradiction:

The fragmented territory of the Apuan Alps, consolidated with a refuge in Cava Piastramarina

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A Landscape of Contradiction:
The territory of the Apuan Alps, consolidated with a refuge constructed in Cava Piastramarina

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817. LES ALPES FRANÇAISES   Route du Mont-Blanc — Cabane-refuge des Grands-Mulets (3.057 m.)

Michaux, Edit. Bellegarde (Déposé)

Rhetorical figures of an Alpine hut

Ciò che è compiuto non può conoscere crescita o diminuzione.

The subject of this work is relevant to today yet also ancient, going back for over 12,000 years when man first started agriculture, or even two million when man first appeared on earth: the relationship between man and the environment, and more extensively in Robert Kane's words, "how can we appreciate, contemplate, and inhabit the new world that we are in the process of making?"

The object is also considerable: the design of a high altitude refuge located in an active quarry; according to the writings of Michael Heizer, in a place that could be considered the monument of our time.

Many questions are raised by these choices, some only enunciated or underlined: rhetorical figures that point to serious and deep reflections. In addition to the obvious symbolism of man's domination over nature within the Judeo-Christian tradition, and of cognoscere (meaning "thanks to science" from Sanskrit g'ñâna, science) as Baconian potential, in this work we find countless elements able to offer us opportunities for reflection:

• nature and how to live the world of technological contemporaneity;

• Identity of the places and the outward or peripheral existence from which it is possible to gather a redefinition of the so-called "non-places" and of being "whatever";

• the summit as a place of privileged perception of "seeing above" that puts us in that particular position to project, to see ahead, to design;

• renunciation of the material world in order to find oneself or to relocate oneself in the world beyond individualism and mass individualism;

• the limit as a threshold and region of multimodality through which the possibilities of non-belonging are opened;

• aesthetic perception and experience in general as background conditions to know place and as an unamendable clause of verification against the ineluctability of rational speech.

In short, we can say that Kane's work, for its many possible and even contradictory interpersonal views, can be seen as a practice of environ-mental hermeneutics. It is an opportunity and a device (made possible and symbolized by the refuge) to reflect on our relationship with the environment and to be in conversation with nature because "...there is no unmediated encounter with nature" and this mediation is represented by the unamendable reality of the quarry.

Considering that the "environment" has been given legal status, revealing an expansion of ethics as originally a question solely between humans now evolving into a question between humans and environment, Kane's design proposal is a kind of suspension of judgment, which is nevertheless productive. This suspension derives itself not so much from postmodern relativism as to the acknowledgment of the new physical dimension of the world which, from the Greek physis term, is generation and growth, but in our time beyond the limits of nature itself: a self-feeding beyond any sense horizon and hence an absolute, that is loose from every bond and judgment that is not the one of the instrumental rationality covered today by sustainability.

The resulting proposal is supported by an approach that mediates two apparently irreconcilable methodologies based on the aesthetic-perceptual experience and the objectification of reality. It is a perspective that I find interesting for its ability to overcome a vision that placed the world, nature, and landscape as objects in themselves, res extensa other than the subject, and has laid the foundations for scientific approaches to be entrusted to the knowledge of technicians and procedures of economic rationality.

The choice to not re-naturalize the quarry shows that technology is no longer simply a tool for transformation, but an environment capable of influencing man's ways of being, as well as biology, and can even at times anticipate it, as Emanuele Severino claims. This is a situation that we must accept for "what it is", to face it without fear and to reject nihilistic discouragement. Indeed, if people were once curious, surprised and puzzled by the products of technology, today their feelings have become fearful.

This fear, as Jean-Françoise Lyotard writes, is dictated by the invasion of technology on our ways of conducting our experiences, our memories, our work, and our ability to create. Today, technology is both imbedded in our lives and defines our existence so much we renounce our freedoms to have an orderly coexistence. Massive marble blocks and gigantic bulldozers are the tangible reification of how technology can overpass the human-to-nature scale. Even more disturbing can be the excavations that take place in the subsoil far from our perception of which we can only imagine as the daily torment upon the "flesh" of the world.

Despite this, we do not want to foster ideas of nostalgic attitudes of refusal nor exaltation. The proposal is rather an act of mediation. This is however different from the democratic compromise of safeguarding that is embedded in the "Piano di coltivazione" in which development is always justified through explanations, limitations and rational controls. Kane's proposal is to continue to fuel a dialectical critique under

countless points of view the contradictory condition of the place.

In the contemporary world in which to decide is a matter of mediation delegated to specialists, scientific experts or believers (including believers who become fanatics) his intent is instead to relocate the subject into the center of the conversation, even if the experience of this relocation is one of discomfort.

We can therefore say that, contrary to what Nietzsche has written and widely diffused by post modernity, for Kane there are also facts. There is also personal experience and not just interpretations. That is why we can talk about a new hermeneutics of the environment, beyond simple relativism, beyond the rational interpretation of technicians and specialists.

For this reason, Kane resists any temptation to structure experience, an approach that is typically used in natural-landscaping tourism projects, filled with 'informative clues' created by specialists for the benefit

of visitors. His project is not an act of imposition.

The project is instead neutral, and aiming to recover the original meaning of the technique that is the medium, in this case to favor an intimate and personal experience. The fundamental feature of the refuge supports this inclination. The refuge is a space of recollection, in which to gather in us the spirit that is dispersed in the world, bearing in mind the original meaning of the verb to understand, which is cum-prehendĕre, to keep together facts and meanings through different – and sometimes unexpected ¬– structures and forms. It is place of still silence in a place of dynamic noise coming from humans' productive activities. Therefore, in this case, comprehension brings the necessity to mediate some singular contradictions:

- how to both maintain an industrial factory and care for the landscape together?
- how humanity's work can become aesthetic and spiritual object/subject?

Or deeply, in Kane's words: "how a mountaintop marble quarry could really be a spiritual place for our times?"

* * *

As mentioned, Kane's work underlines other non-secondary issues such as the site or rather the identity conditions of spaces that make places. In the present case, the question of non-lieux (non-place), a category coined by anthropologist-ethnologist Marc Augé, is of interest. It is potentially applicable to a refuge, at least for being a temporary structure, and a place of rest and transit for the use and consumption of the tourist.

This question of non-lieux, like the suburbs, is highly contradictory particularly if you start defining the essence of being or substance of beings through negation. Definition by negation overturns the principle of Spinoza (Omnis determinatio est negatio) and reveals that "non-places" are the infinity of all the possible things that doesn't be-

long to "the places". This is, according to Parmenide, the impossibility of any knowledge or how, as Jean-Paul Sartre wrote, the result is that "non-places" do not exist. When saying "non-place" are simply saying nothing.

More importantly, we can also point out that in a definition through negation there is an equivalent "colonialist" judgment where "non-sites" are defined negatively and only through their relation to "sites" which are implicitly assumed as positive. It is therefore evident that for both reasons such a definition is unacceptable, and by consequence, the anonymity of their inhabitants is also inadmissible. The question is therefore to come up with new definitions of unexpected and emerging ways of being and where people, as Richard Ingersoll argues, may call themselves citizens even though they reside in the sprawl. People still have their own identity as exemplified by Sir Alfred, alias Merhan Nasseri, an Iranian refugee relegated to live for twenty years at a Charles de Gaulle terminal for the impossibility

of the system to identify him.

We can therefore say that "non-place" is located fundamentally in our inability to understand rather than its intrinsic deficiencies. It is from this awareness that Kane chooses the design of a refuge as an opportunity to know a peripheral site that is inaccessible for most of the year. Paraphrasing Yi-Fu Tuan, it is only through knowledge and recognition that an undiffe-rentiated space becomes place.

Extreme experience and the exploration of unknown spaces as opportunities to know the world are also ways to access ourselves from unprecedented views, in this case, far from the world. The refuge is, in fact, the continuation of the samnyasin practice of the Indian renunciant who elects his exile from the world. The renunciant chooses to go outside of things by abandoning social obligations in order to devote themselves to seek truth, to rejoin the world, and later, in the Judeo-Christian tradition, to rejoin God.
But if in this practice one sees the

emergence of the western individuality of a separate subject that "does not divide with others" to affirm its identity, what can today be the meaning of a refuge of contemporaneity in which technology continues to provide personal devices enabling the autonomy of the individual? What can be the meaning of retreating into solitude today when the loneliness of individuals is a matter of day-to-day essence of homologation?
Rather than the above absurdity, isolating ourselves from the isolation produced by technological contemporaneity is a necessity that Kane brilliantly addresses by placing the individual in a cave still in activity where the noise of technology is deafening.
In the shelter of Piastramarina, we are not isolated because we have everything we need to make us autonomous, but because we choose deprivation: denial of belonging or quolibet exodus as Agamben would say to be its pure existence, it's being such as it is.

* * *

At 1,642 meters above sea level, the Piastramarina quarry is the highest in the Alpi Apuane and Kane could not have chosen a better site to establish this exodus. The choice of a summit, in Kane's case, is relevant and paradigmatic. To summarize, the summit is a privileged point for observation, which enables the perception of distances and as such fosters an ability to look beyond. It is therefore a metaphor of rational knowledge: the fire that Prometheus, "the one that looks beyond", gives to humanity in order to dispel us from the natural constraints and animal conditions.

An even more significant detail is that the Piastramarina quarry is set in mountain pass: the Focolaccia pitch that we can assume as a further rhetorical figure of our discourse.

The mountain pass is not a place. It is rather an entity that can be defined as the point of a line, of a border, of a boundary, of that boundary through which a place takes shape and manifests itself: the point of an

entity that divides one place on the other.

It is therefore a threshold where the unexpected one is waiting for us, where the form of knowledge Husserl defines as adumbration takes shape, where there is anxiety about what we can find beyond that we cannot see but we can only presume. As Maurice Merleau-Ponty writes, the edge is also an occasion of possible violence and that is why we want the limit as a security condition bartered for the freedom of space. It is the same dismay produced by the technological development that, as a promise of wellbeing, has become a dark threat to our survival on earth: in advent, besides the reason, of the tragic Nietzschean superman who we want but we feel we can no longer bear within the limits of reasonableness.

Placing the dwelling in the Focolaia passage, at a point that is the eidos of transformation and overcoming limits, can be an hypothesis of extreme interest where hard edges are replaced with shaking boundaries and consequently create spaces that, in the definition used by Eugene Minkowski to frame schizophrenia, are of "soft geometry".

There are limits that move with the observer as those of the horizon line or there are limits like that of the Italian Limes, where our northern national boundaries are constantly moving due to glacial melting: where imperceptible transformations are carried out independently of us, but ultimately occur as a result of our catastrophic actions.

The refuge on the mountain pass of Focolaccia, a place that is in the process of transformation, is therefore a paradigm of changing boundaries, where to be or not to be are shaking and coexistant frames of the same picture. Where in an "isolated terrain vague at the fringe of civilization …" the noises of quarry activities are exchanged with the silent ones of a refuge. Indeterminate spaces because their boundaries are indeterminate which, as Kane writes, "are waiting for a meaning to be found for them."

The question is therefore to understand the nature of these boundaries as access to knowledge and the meaning of places. Indeed, as Agamben writes, "what is change is not the thing, but their limits" and what determines being is not belonging to certain qualities or manifestations of beings, but being confined within limits. Limits that you can choose to overcome to access the quolibet, "whichever you want", to that particular individuality that can choose its own indetermination, non-belonging.

In this perspective, the choice to place oneself out – including living in the suburbs- can be the hope for "La Comunità che viene" (The Coming Community) where singularity is exposed to the fraying of self through the indetermination of its limits. It is living in a locus confusionis where it is given the chance not to belong, not to be named, but "to be for what it is".

This is an eversive possibility because it is intolerable to The State that can recognize its antagonistic

identity, but will never recognize the "qualunquità" (whateverness). A concept more clearly expressed by Alain Badiou that The State is held together not so much by the social bond but by banning the dissolution of ties.

* * *

Consistently, Kane's methods of investigation, even before the final design proposal, are shaking and consistent. He refrains from scientific and/or naturalistic approaches inaugurated by René Descartes as well as rejects labeling, which is the cause of the opacity of knowledge. As Guy Debord wrote, it is an expropriation stratagem of speech. Kane "works with the idea that aesthetics are purely perceptual, and that the aesthetic experience can be evaluated alone, and then incorporated into the understanding of the site as a place." He revisits the original meaning of aesthesis coined by Alexander Gottlieb Baumgarten of scientia cognitionis sensitivae, the "science of sensitive knowledge".

In the contemporary condition in which the relationship with the world is dominated by the image, Kane also relies heavily on the perception of sound. Sound, despite the fact that it is an extreme aleatory element it is a factive clause as well. Like Gilles Deleuze and Pierre-Félix Guattari noted in ornithological observations, it is the way in which birds mark their territory.
Kane's project is therefore a work that plays on a variety of aleatory forms to be kept together and comprehensively. It identifies in the vagueness of perceptual experience, a mode of knowing, that does not replace that of the sciences but is its necessary completion.

In Kane's work, one does not pretend to know the world through the exclusive relationship of experience as would a sensist. Using the words of Mikel Dufrenne, the type of experience used is one that does not allow itself to be seduced by the imagination, which invites to wander around the present object, or from the intellect that reduces it to dominate it, to conceptual determinations.

Although perception may also be influenced by mental patterns of rationality and mediated by technological devices, the hypothesis that emerges here is that there is no privileged path to knowledge. The way of knowledge can be multiple and complementary including silence as, unlike the science that needs to talk to be transmitted, experience only demands to be lived.

While accepting the possibilities of deceit, perception is seen and used as a chance to know the world, which is beyond the established patterns of rationality, from which we can accept the necessity but not the unavoidable and totalizing outcomes. From this point of view, we can say that what matters is not fidelity as the adherence/truth of the cognitive model or how elegantly and effectively we describe the world because according to Science knowledge will always be more perfectible. The fidelity to observe is that of the feudal fidelitas, a fidelity that is embodied in the duty of assistance in the face of need: the unamendable necessity that experience, "as an act to which

nothing can be removed or added", comes to the aid of our knowing in order to gather (cum-prehendĕre) as many possible and differentiated elements. Above all it is the fidelity of experience, aesthetics and the common sense of humanity that stand as a benchmark and assist us in validating the transformations of our world.

As in Edmind Husserl's words, experience remains the original ground for nourishing the practices of science that returns us to the desirable and fundamental requirement of ethics. It is also Bruno Latour's hope that we can finally abandon the blind trust in experts to come up with forms of "collective experimentation" where "closed experiments" (inside the laboratory) and "outdoor experiments" (inside society) are mutually supported.

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Florence May 20th 2017

Rhetorical figures of an Alpine hut
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Part One-
Protection and Destruction:
The Marble Mountains

In this chapter we explore the underlying theme of the thesis; a meditation on architecture in relation to the natural or in this case, post-natural world. Then, the Apuan alps are presented as an appropriate location to explore this idea, and there is a brief discussion of the specific issues that characterize this area.

1.1.
A Modified World:

The Anthropocene Experience

The underlying concepts of this thesis are questions about humanity's relationship with the world. Specifically, it is an investigation into the rapport between man and nature when the very idea of what is natural has changed. Fifteen years ago, the climate scientist Paul Creutzer invented the term 'anthropocene' to describe the geologic age in which we are all living. The label implies that the defining characteristics of this age are the changes wrought by man, rather than the forces of tectonics, evolution, and so on. This proposed epoch starts 12000 years ago with the invention of agriculture and continues to this day. Some researchers have proposed alternative starting dates, for example the start of the nuclear era, but in any case the period is much shorter than any other geologic age, and has already begun. (Turpin, 2013.)

The implications of this simple idea on the world-view of those of us living in it are potentially dramatic. Maybe the closest comparison is with Darwin's 'discovery' of evolution: both are intuitive concepts, easily understood by the non-scientist, and have the potential to upend many dearly held beliefs.

The sweeping implications of the anthropocene theory are ones of connectedness, power, control, and especially responsibility. Whether you look at climate, pollution, radiation, or direct physical changes, the hand of man is observable on every inch of the planet. Even those areas that seem completely natural, the so called wildernesses- are here because we have chosen to protect or ignore them. The theory implies that thanks to his mastery of energy, man has gained a momentary power that is probably stronger than the gods of many cultures. In the past, we may have prayed in vain to deities to move mountains out of our way, or bring rain, or cure disease, etc; today we can often work these miracles ourselves.

The anthropocene idea and the impossibility of wildness has already been widely embraced and discussed, even in popular literature, so I will not pretend to be at the cutting edge as far as theory goes. Already in 1996, William Cronon wrote 'Uncommon ground'- a seminal work criticising the environmentalists' fixation with 'natural' landscapes. Yet the academic embrace of the anthropocene does not correspond to a change in the way most of us think of the world. We would rather apply clean labels to the world- wilderness, or industrial site, or industrial heritage site, or urban area, or suburb, and so on. Rarely do these labels describe the complexity of any given place, but once a label is applied, we often design around that simplified description.

A perfect example of one such labeling story is the American application of 'wilderness' to large swathes of not particularly wild areas. The 1964 Wilderness Act applied this term to many parts of the country, to rectify the loss of a condition that had been a defining part of the landscape. In order to create a landscape that is "untrammeled by man" the US government destroyed entire towns, removed roads, planted forests, and essentially disguised thousands of square kms(about 450.000 as of this writing) as pristine wilderness, when in reality much of the land is highly modified.

This research and design project is instead about embracing the changed landscape, and what it means to live there.

In doing so, we move towards an category of thought that borders on science fiction, specifically the story of a futuristic dystopia where the normal earth has been destroyed though some great folly. For this thesis, even if it is designed for the present day, I would mention the classic stories of J.G. Ballard over numerous others, for their realism and occasional optimism. For example, in "The Drowned World" of 1962, sea levels and temperatures have risen due to global warming, but instead of a tale of survival and war, we find the main characters captivated by the changes to the physical land-scape, and they soon adapt psychologically as dwellers in the 'drowned' city, eventually defending the new landscape against attempts to return it to the original state. In a similar way, this project looks at how we can appreciate, contemplate, and inhabit the new world that we are in the process of making.

Opposite: *The Fall (Borax 1)*, photo by David Maisel

Below Left: Plastiglomerate: A stone that contains a mixture of natural debris held together by hardened plastic. *(Wikipedia)*

Below Right: *Coolidge Dam, San Carlos, AZ,* photo by Toshio Shibata, 1997

Associare l'idea di industrializzazione a quella di paesaggio, e sopratutto quello di montagna, può apparire a prima vista improprio. In che modo infatti può essere possibile mettere in relazione la categoria del paesaggio con processi finalizzati alla produzione di beni? In che modo le trasformazioni territoriali in montagna ne modificano le configurazioni paesaggistiche?

...

In questo quadro va letto il turismo di montagna degli albori che ha una veste pevalentemente morale e salutista. La vacanza è concentrato attorno ai bagni termali, alle promendes, alle escursioni, alle prime ascensioni in compagnia di "fiere" guide di montagna fino ad arrivare ai sanatori per tubercolotici. La spinta ideologica ad accedere a una dimensione alpestre

ricondotta all'ordine è fornita dall'affermazione del pensiero romantico che vede nella montagna il luogo dell'incontaminazione rispetto alle conflittualità di una società in forte divenire sull'onda delle trasformazioni dei sistemi e dei rapporti di produzione. La relazione con il mondo di montagna, alle'epoca fortemente arretrato, fornisce l'impressione di re-

cuperare una semplità e un'austerità di vita che la crescente complessità europea ... fa fatica a elaborare.

(Thomas Demetz, Callegari, 44)
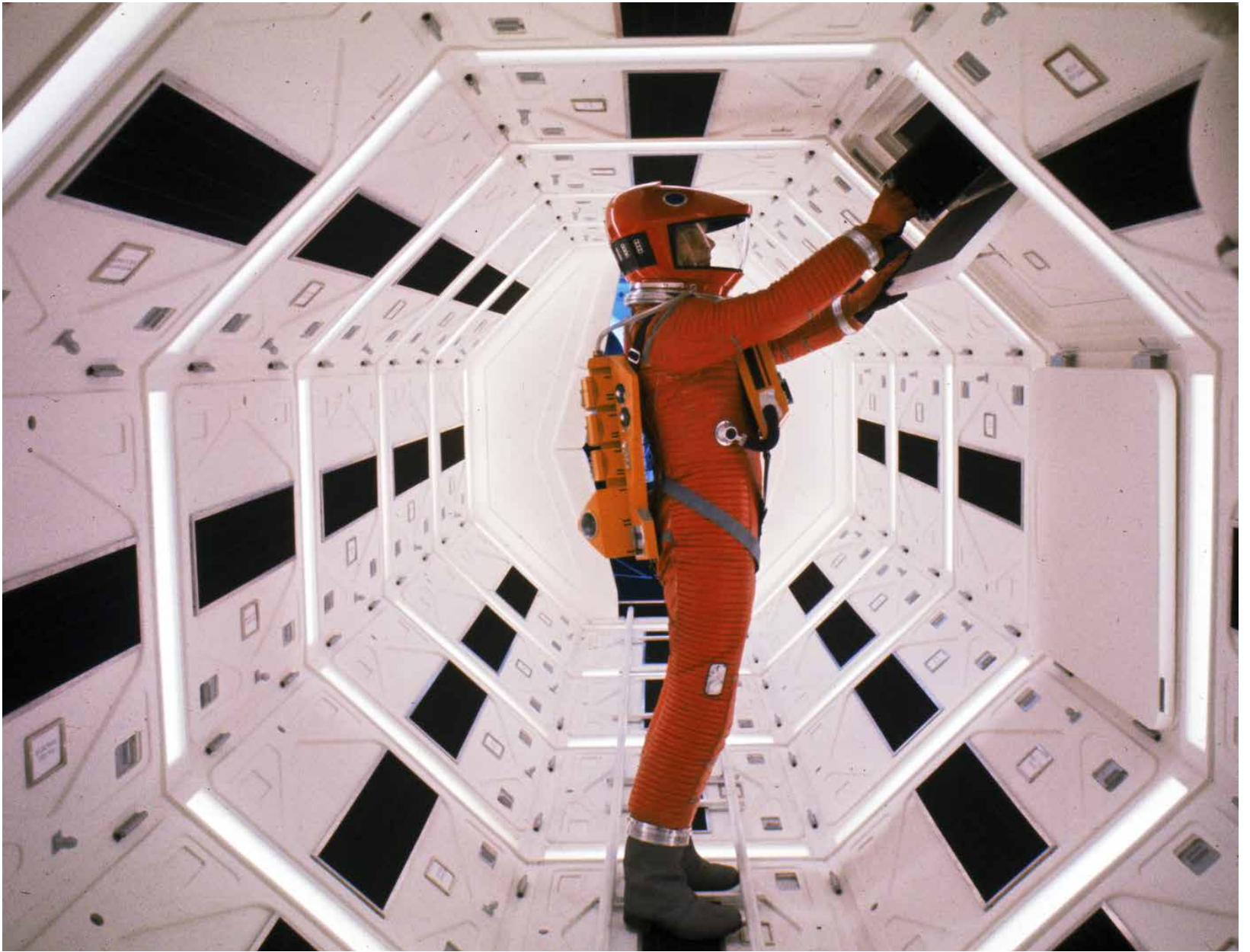
Above: Airlock. Still from *2001:A Space Odessey* showing what has become a canonical visualization- a space between the void and the domestic, a non-space that is charged with meaning and anticipation

Left: Iron Ore Mine Australia, photo from BHP Billiton

Opposite: Rock outcrop in the Apuan Alps. Incontaminated Nature just meters from an active quarry

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1.2.
The Apuan Alps:

A sculpture carved by nature and man
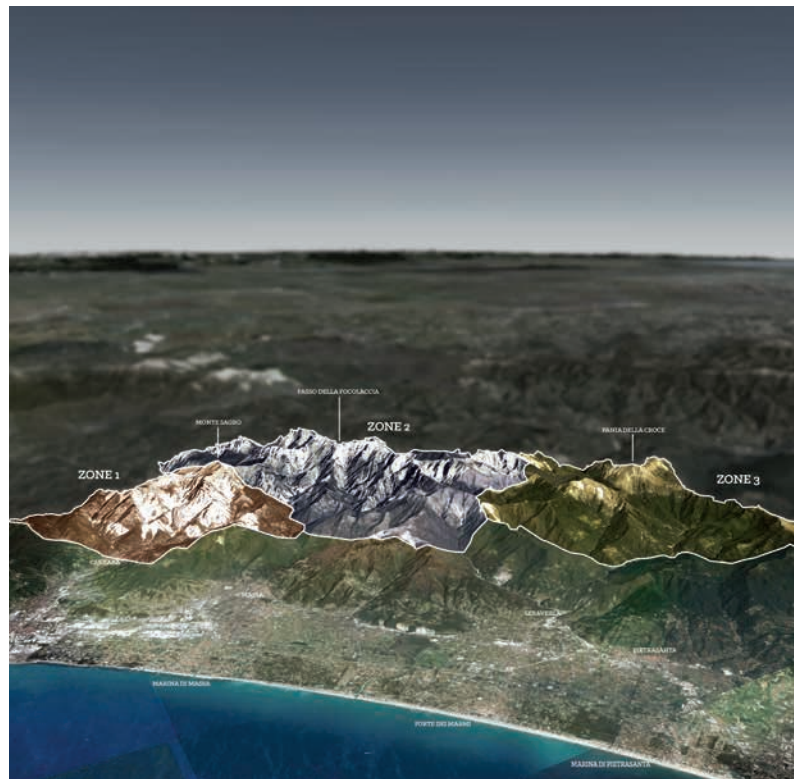
The choice of territory and site stems from a search for a certain kind of anthropogenic landscape. While it may now be possible to observe human influence in any part of the world, there are critical areas where the idea is far clearer. One could argue that cities or sprawl are the most obvious examples, but much like visual perception is based on contrasts of light and color, so here was needed a degree of differentiation. It needed to be possible to observe both the old system and the new on the same terms at the same time.

The Alpi Apuane were an intuitive choice based on personal experience. The famous marble quarries that are visible from Versilia framed by clouded peaks seemed, at a glance, to represent the kind of landscape that would be relevant to this project.

In physical terms this is a very small mountain range dating back to the Triassic period 200million years ago, older than much of the Apennines. They originate from marine calcareous sediment that was thrust upwards by tectonic forces. Today the peaks stand from 1500 to 1950m asl., and due to the erosive characteristics of the rocks, they present a distinctive jagged and sharp profile that gave rise to the title of 'Alpi' as opposed to simply 'Monti'. (Pucci, 2015)

Today these mountains are enclosed within the Parco delle Alpi Apuane, a UNESCO geopark of environmental and cultural importance. The regulations of this organization determine how the land is currently used, together with the decisions of the towns (comuni) and region. And all the regulation is important due to the millions of dollars of industrial production which takes place with the area of the national park. With this we arrive at the fundamental contradiction that defines this landscape.

TOTAL AVAILABLE MASS OF MARBLE IN ALPI APUANE:

MASS EXTRACTED EACH YEAR: (OF WHICH 20% CUT STONE, 80% DEBRIS AND WASTE)

279.000.000.000 tons

5.000.000 tons

YEARS NEEDED AT CURRENT RATE TO COMPLETELY FLATTEN TOPOGRAPHY:
ca. 55.800

YEARS ELAPSED SINCE FORMATION OF MOUNTAIN RANGE IN TRIASSIC PERIOD:
(AND THUS YEARS OF NATURAL EROSION FROM WATER AND WIND)

ca. 250.000.000

A Carrara esiste una città dentro la città. È il mondo delle cave, dove dai tempi dei Romani viene estratto il prezioso marmo bianco. Un'attività lunga millenni che oggi divide chi abita sul territorio. Fonte di lavoro e ricchezza per gli addetti al settore è invece, secondo gli ambientalisti, una minaccia per le montagne.
-Valeria Strambi, giornalista, 2014

Stone Extraction in the Alpi Apuane

The marble of the Alpi Apuane has been exploited for over 2000 years for a variety of uses, from roman and renaissance sculpture, to architecture cladding and elements, to the production of toothpaste and cosmetics. The demand for this white (usually) stone continues to shape the mountains from which it is taken. In some ways, the landscape of the Apuane could be seen as a great sculptural work created over centuries by many authors.

The landscape of the Alpi Apuane, which wants to be completely modified for the extraction of marble and yet at the same time should be part of a national park, has all of its contrasts and contradictions clearly exposed, even to a casual observer, and is thus a good place to have this conversation.

The regulatory plan or 'zoning' of the Parco delle Alpi Apuane determines the level of protection that each area is given. Some areas, although within park boundaries, are left off the map- these are the sites where it remains legal to extract marble. The attitude that prevails is unusual for a national park, in that this activity is acknowledged as of cultural importance, yet at the same time as damaging.

The quarries of the Apuane represent a sort of isolated terrain vague at the fringes of civilization, residual lands between nature and the city. (Sola Morales 119) Even active quarries are only in use part of the time, and across a fraction of their area. While they could be windows into geologic time, their abstract nature makes them more a part of the present, at least formally. Without any planning or art, yet still possessing a strong character, they are spaces waiting for a meaning to be found for them.

Above: How long before the mountains disappear? Graphic showing accelerated geology thanks to mining activity.

Below: Creations of the marble industry- extravagant bathrooms and living spaces, and an altered landscape. (architectural photos from Marmi di Carrara sales brochure)
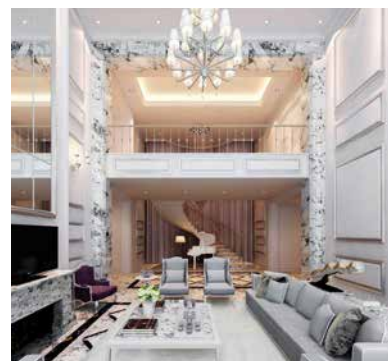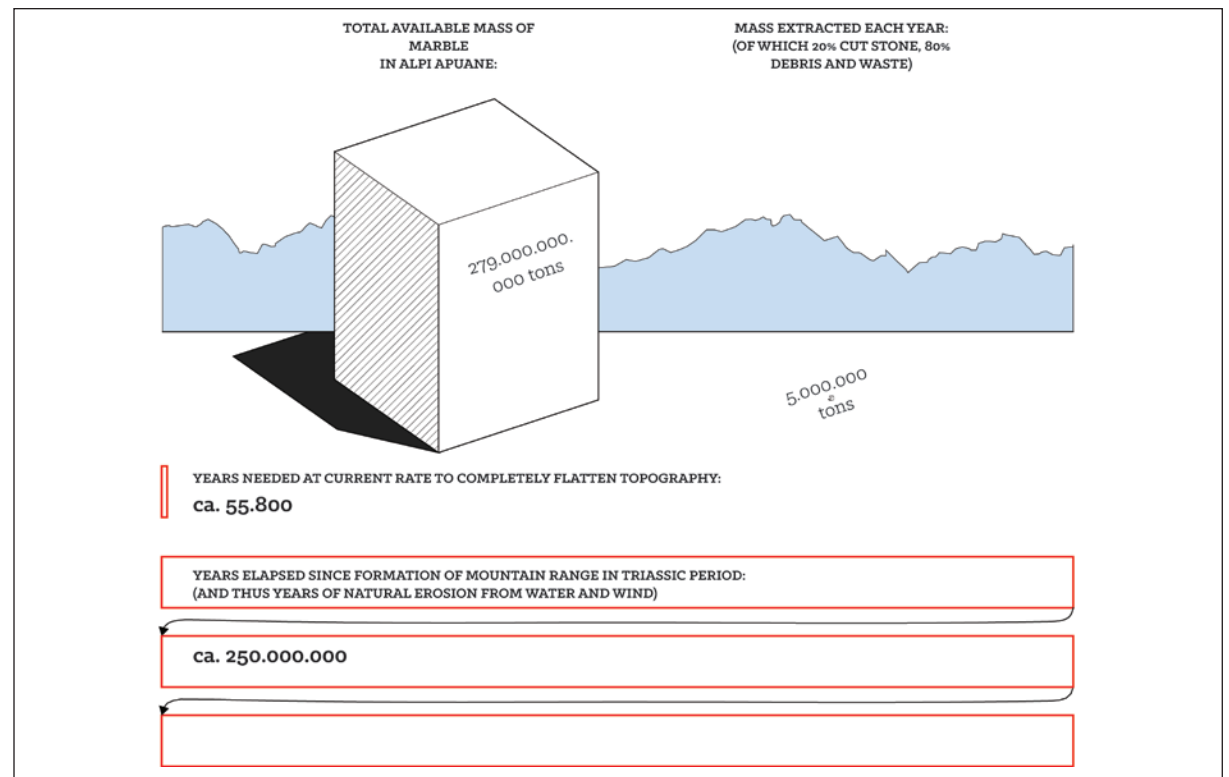
1.3.
Identity Crisis:

When contradiction defines a territory

Two different, competing roles have been applied to the surface of the Alpi Apuane- the first, dating back 2000 years, is the use as a source of marble to be exported around the world. The second, dating either 25 years or millions, depending on your point of view, is as a place for nature to run its course. This thesis takes no position, but elsewhere the contrasting expectations have created a long-running fight between factions.

Carrara has a highly developed industrial infrastructure based on cutting and processing marble, perhaps the best in the world, and certainly the most famous. Not only that, but the financial benefits from this industry sustain many residents in the area (the exact number is contested, but 12-20.000 people work in the sector). This vocal contingent includes the local political establishment and governments, who profit from renting the quarries, and from taxes and fees on each ton of stone. Against them are environmentalists and excursionists who see the Apuane as a natural haven for rare flora and fauna and as a landscape that is unique to central Italy. They feel that the mountains need to be protected, particularly at the higher elevations, to allow people to enjoy a natural setting, and permit native flora and fauna to live there without threats. (Strambi, 2014)

With each protest of the environmentalists comes a rally in support of the quarries. With each bill introduced that would limit extraction, there is a legal challenge posed by the marble workers. The most recent plan, from 2014, which included the closure of many quarries, was approved only to be immediately challenged. This impasse dates back to the formation of the park, and shows no signs of resolution. For now, neither side can claim victory.
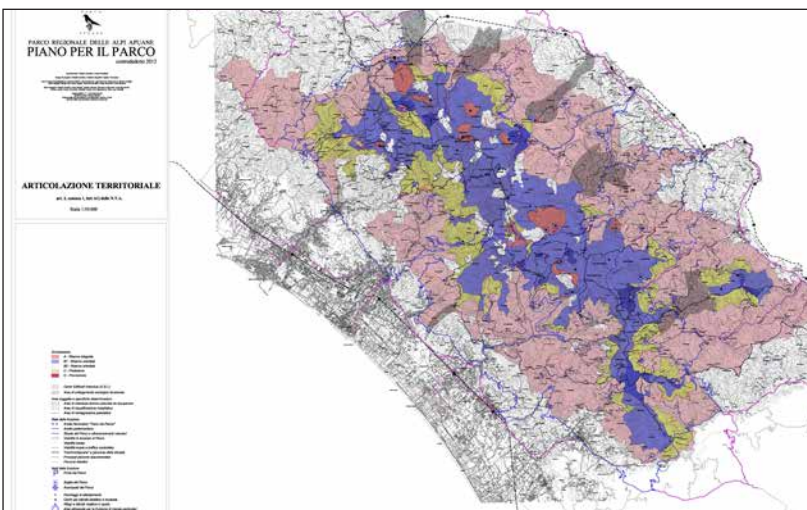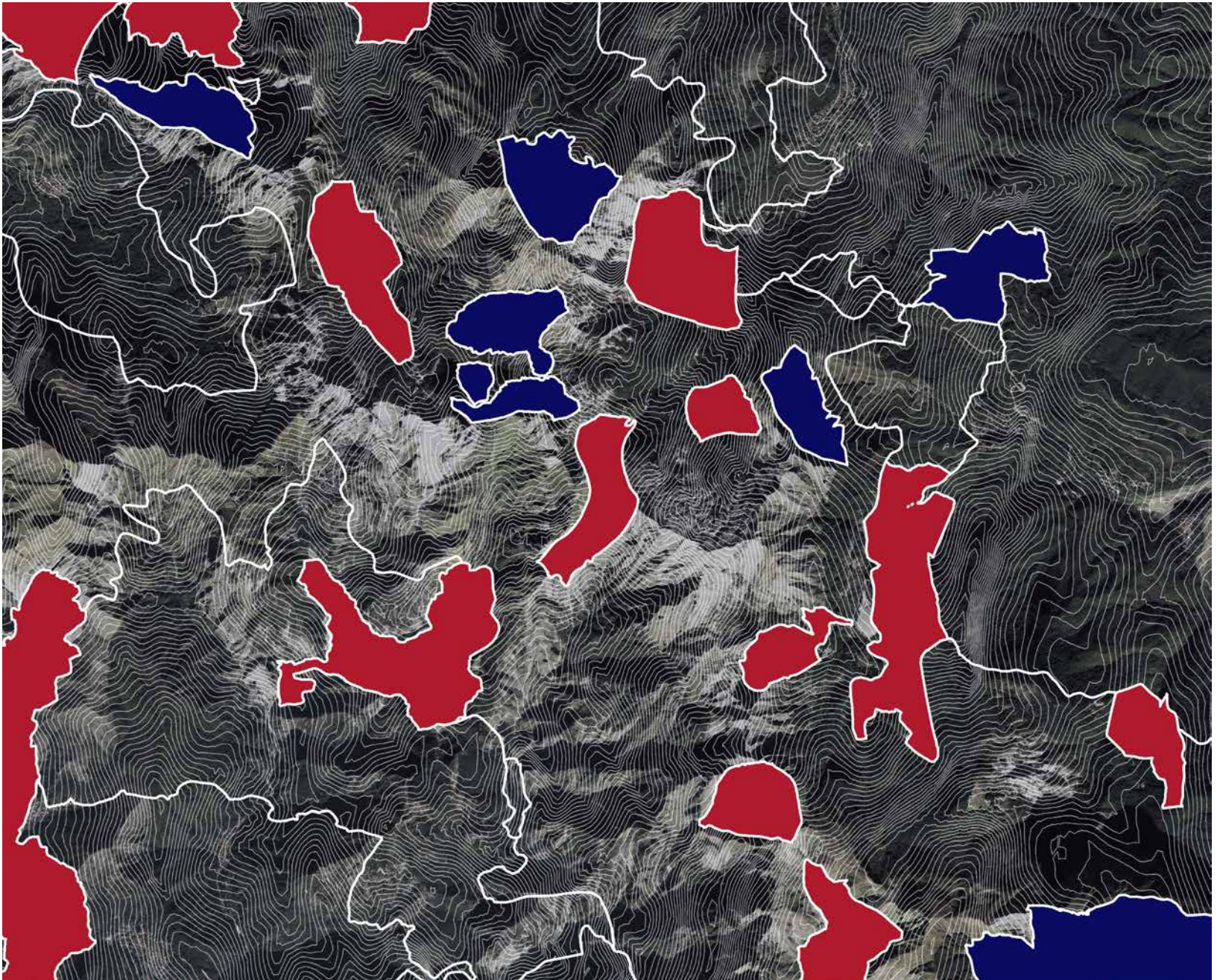
Above: Islands- Orthofoto of study area with overlay of zoning regulations. Red areas permit intensive mining, while blue contain high priority natural preserves (wilderness).

Left: Source- Regional environmental zoning map of the Alpi Apuane. This is the document that has created the archipelago of quarries within the mountain range.

25

Identity Crisis Resolved:

Dynamic Equilibrium in Land Art

For this project, these quarries are the embodiment of the anthropocene landscape. We will talk about them not in terms of a paradise lost or destroyed, but as part of a new world that is evolving and growing, much like biological evolution: without a known final result.

One way to conceptualize the landscape of the Apuane is to think of it as a system in dynamic disequilibrium, as defined by theoretical mathematician Edward Lorenz, in that the forces that define and shape it begin with one element (natural processes) until diverging into two competing forces that spiral ever further apart (man/nature conflict). What is needed is a way to re-contextualize the landscape. A way to unify all of the changes and avoid treating the two landscapes of the Apuane as completely in opposition and incompatible. (Hubbard, 2011)

This same concept can be applied to any project that involves the re-use of one of the millions of impacted sites around the world. There are many projects working with the industrial landscape- for example, the famous Duisburg north park embraces an industrial relic (following in the footsteps of Gasworks Park in Seattle) as the focal point of a public park. But there is an important qualifier here- what these projects really celebrate is the return to nature in the rusting ruins of an industrial world that still persists elsewhere, in another form. What I am instead asking is to work with the irreversibility of our modifications to the landscape. Not in terms of an Italian garden, celebrating the temporary conquest of geometry over nature's chaos, nor in a picturesque fantasy of nature as Eden, but as a permanent change that we must integrate and accept as valid. (De Poli, et al, 2014)

Michael Heizer said in the 1970s, "the monuments of our time are the mines and quarries" and while this may indeed be true, the works of the land artists are generally reproductions/simulacrums of these industrial works, not attempts to make visible the truth of that statement. For this project, we will try to see if it is possible to make the conceptually evocative quarry comprehensible as a work of art, one that leads to a reflection on man, nature, and the universe. Maybe a mountaintop marble quarry could really be a spiritual place for our times, where the creations of nature meet their equivalents in that which is made by man. Or maybe it's just a hole in the ground and nothing more.

Land art or Industrial re-use? These are the two most prevalent approaches to a post-industrial landscape that most closely relate to the project that I am proposing in the Apuan Alps. My position in this thesis is that neither of these methodologies- the 'post-industrial landscape' and the 'classical land art' of the 1970s- is sufficient to relate the theme of the anthropologic landscape, although both have been suggested as relevant. Latz's project is a meditation on decay and nature's return, an approach which actually would make my thesis weaker, while the other is a simulacrum, an imitation of already existing phenomena that (in my opinion) suffers from a lack of authenticity due to its extreme abstraction.

A third method seems to present itself in the work above, a response to the local topography, a site specific installation using a river valley as the gallery. It lasted only 28 hours before a storm destroyed it- but could/should it have been permanent? Could it have been inhabited?

Left Above: Duisburg North Park by Peter Latz Architects, 2002-2008

Left Below: Double Negative by Michael Heizer, 1969

Above: Valley Curtain by Christo and Jean-Claude, 1972

Opposite: Levitated Mass by Michael Heizer, 2013

Part Two
Analysis:
Experiencing an Unbalanced Landscape

This chapter is an attempt at forming a deeper understanding of the context of the thesis. The landscape is examined first physically through a series of maps, and then sensorially, considered as a soundscape and as percieved by other senses. Finally, the actual site for intervention is presented and explored through photos and other documentation.

2.1.
Unwrapping Complexity:

Maps, photos, and layers

A creation of commercial and industrial calculations, a quarry has no intentional symbolic content, and yet as we have seen before with land artists and photographers, this kind of industrial landscape has a unique poetic language. An overly obvious interpretation of this landscape could come as an environmentalist warning, or could speak to nostalgia for a simpler time, and in fact this is often the language used by those in opposition to mining. If we eliminate nostalgia and morality, we arrive at a materialistic point of view, where the landscape is part of an ongoing process of energy and interconnected networks. This philosophical approach draws on the works of Manuel de Landa, in turn drawing on the tradition of Deleuze, Guattari, et al, in an historic perspective where the natural and human are one and the same; all created by flows of energy and matter that have always and will always reshape the world according to a given set of laws.

The landscape of the Apuane can be seen as a reflection of these processes without an aesthetic or homogenizing overlay. Thus, the expression of these forces is significantly clearer here than in other places with various additional layers applied (cities, towns, parks, etc) and because of this it is natural to have a conversation about this new, man-made landscape. The exact nature of this conversation is not as important as the ability to allow it to take place without preconceived conclusions.

The following section of this report is an attempt to describe and understand the experience of this unusual landscape. Aesthetics come from
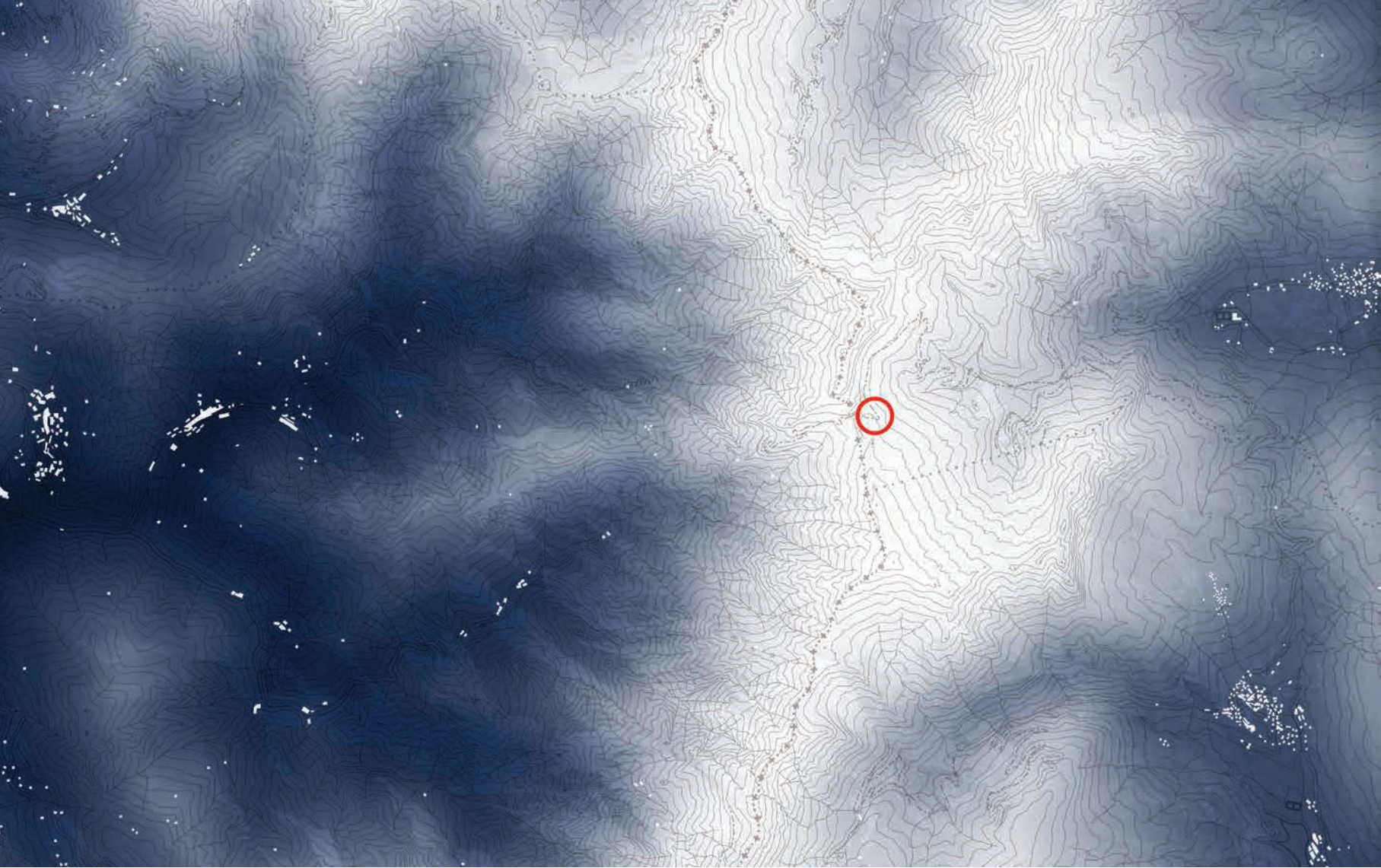
the greek Aistheta, meaning things perceived. In studies of aesthetics, there are two main categories, classified by the philosopher Cheryl Foster and others (Bell, 1999):

Perceptual: judgements are based on what can be observed

Integrationist: other factors (societal, historic, etc.,) contribute to the aesthetic experience.

This project works with the idea that aesthetics are purely perceptual, and that the aesthetic experience can be evaluated alone, and then incorporated into the understanding of the site as a place. Only after having experienced the sensorial totality of the landscape, can the significance of it be explored. Immersion followed by reflection and then by meaning. (Hubbard, et al, 2011)
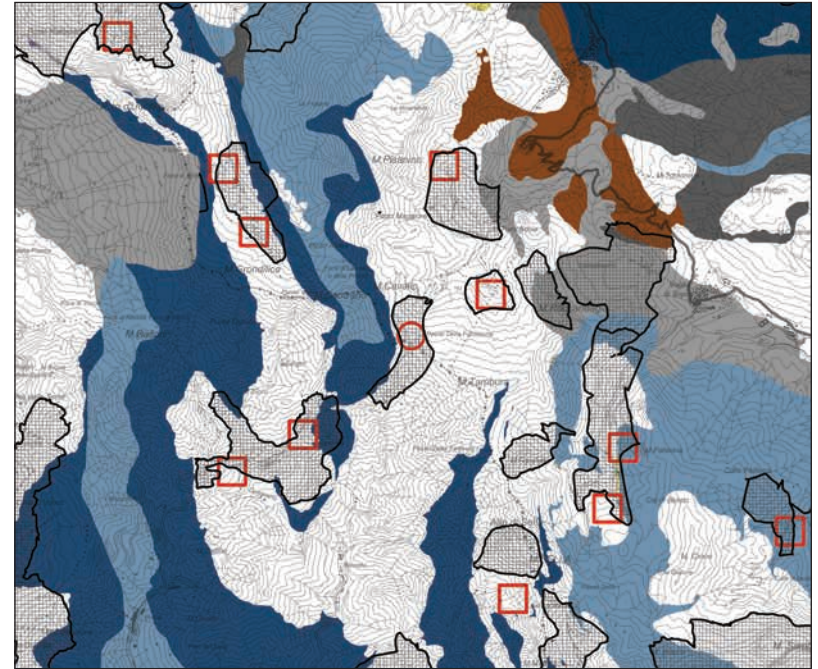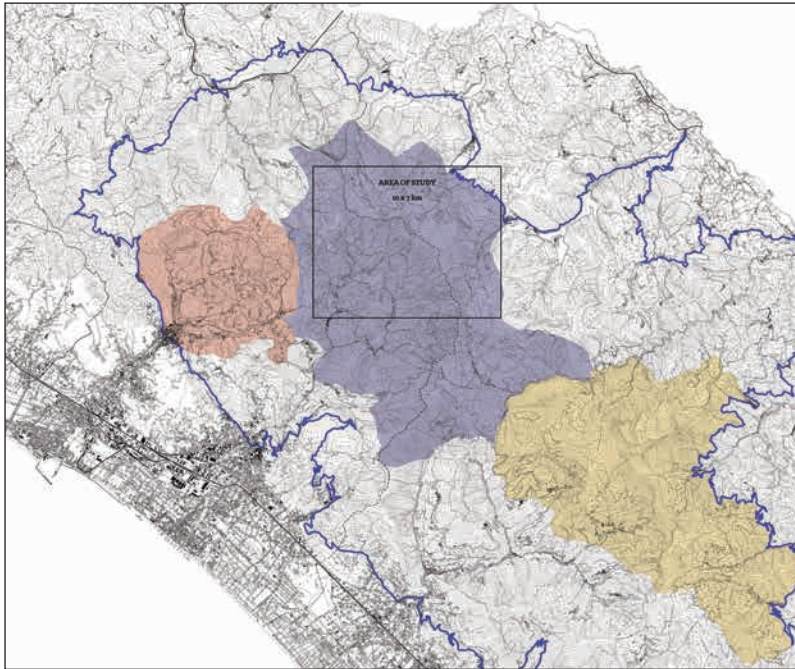
For this reason, I will not go on about the rich history of this area, the changing methods of marble quarrying, the flora and fauna, unless they are directly relevant to understanding the experience. The material reality of this place alone is sufficient to create a dialog between the single observer and the universal systems at work.

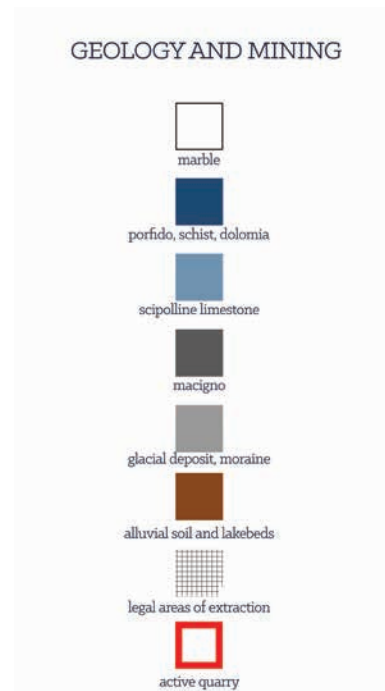The following section presents a series of analytical maps that breaks the area down into some of its component layers. Each map uses the same area as a base- the rectangular study area was intuitively defined as appropriate to understanding the complexity of the area, without examining the entire Alpi Apuane region. It measures roughly 10x7 km.

Mapping Layers

GEOLOGY AND MINING

marble

porfido, schist, dolomia

scipolline limestone

macigno

glacial deposit, moraine

alluvial soil and lakebeds

legal areas of extraction

active quarry

A map of the underlying cause of the environmental conditions in the Apuane. The white bands of marble occupy a great portion of the surface, within which lie the areas of legal mining and all the active quarries, in addition to even more numerous abandoned ones. The thesis reflects the idea that for the first time, forces other than geologic events are able to make changes in this map. The eventual removal of massive quantities of stone is literally replicating millions of years of geology in just a few decades.
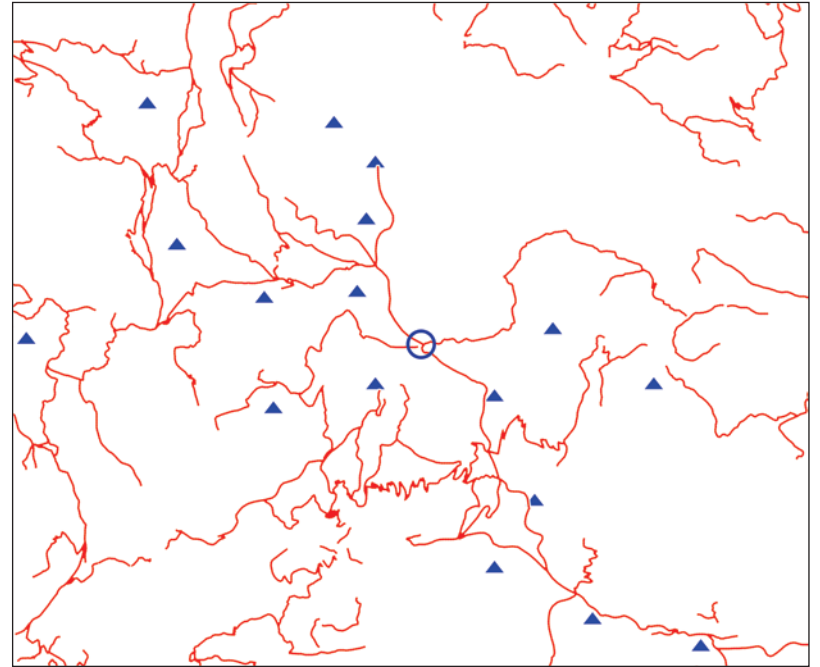
As seen already, the environmental protection zoning is responsible for the island phenomenon that characterises the interior of the park. Outside of the archipelago of quarries are typical features of a European natural park: various types of naturalistic areas with different degrees of protection, and small villages that existed long before the establishment of the protected areas. Outside of marble production, the area contains pastureland, much of which is now unused, and woodlands that are important to the local economy. Dominating this map is the diagonal band of highly protected naturalistic preserve that corresponds to the higher elevations.

Shown is the network of trails recognized by the park and CAI; Club Alpino Italiano, the national organization that maintains and creates hiking trails and shelters. These trails have been developed over the last 100 years, many based off of old shepherd's paths or marble transporting tracks.

Not shown are routes created by users (usually steep climbing routes to peaks, which are omitted from maps for liability reasons), and paths that overlap roads, hence some discontinuous lines. In any case, the project site is at an intersection of several important vectors in an area with an already highly developed trail system.

Mapping Layers
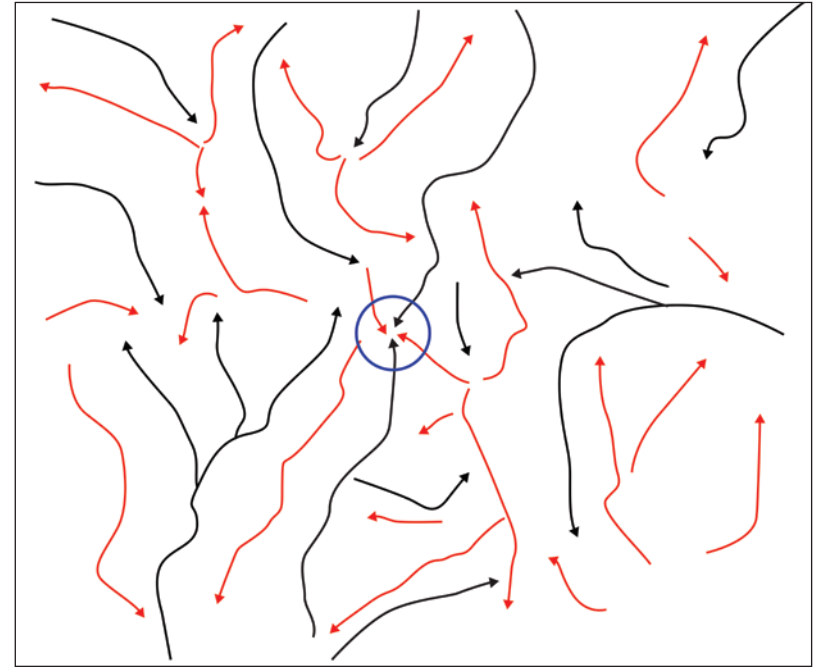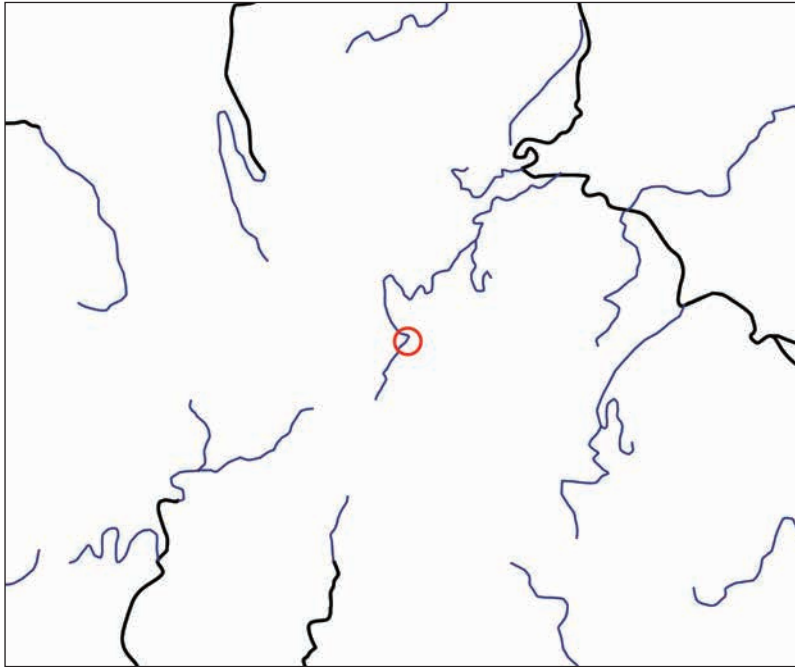
ROADS

— unpaved/marmifera

— asphalted major road

The network of roads is peripheral in this area- the topography still blocks passage across the ridge, as it has for thousands of years. In the past the Via Vandelli linked Garfagnana to Massa- it is now a hiking trail, and vehicular traffic must circumnavigate the mountains.

The major roads connecting the towns are paved but narrow and twisting. The unpaved tracks are mostly private or semi-private roads that lead to quarries. A large part of quarry operations involves maintaining the roads needed for transporting blocks of marble- Carrara has just recently invested millions in a series of tunnels linking its quarries to the industrial/processing area. In the area of the project, the roads are little more than primitive tracks, constantly at risk of landslides or erosion damage.

VISUAL FORCE ANALYSIS

→ red arrows along ridges pointing down

← black arrows along valleys pointing up

One part of an orographic (mountainous terrain) analysis is mapping the visual force vectors created by the topography. Essentially, a ridge naturally draws the eyes downward, while a valley instead leads them up the hill. (Bell, 1999) At this intermediate scale, all major and some minor ridges and valleys are traced, approximating the visual cues that would be most obvious to an observer on foot.

One discovery here is that the intended site, indicated at center, is actually a major visual focal point, at the intersection of 4 vectors. All mountain passes are natural force points, but here the terrain creates an unusually perfect alignment. This partially explains my own initial attraction to this site, and why it could be ideal for locating a possible intervention.
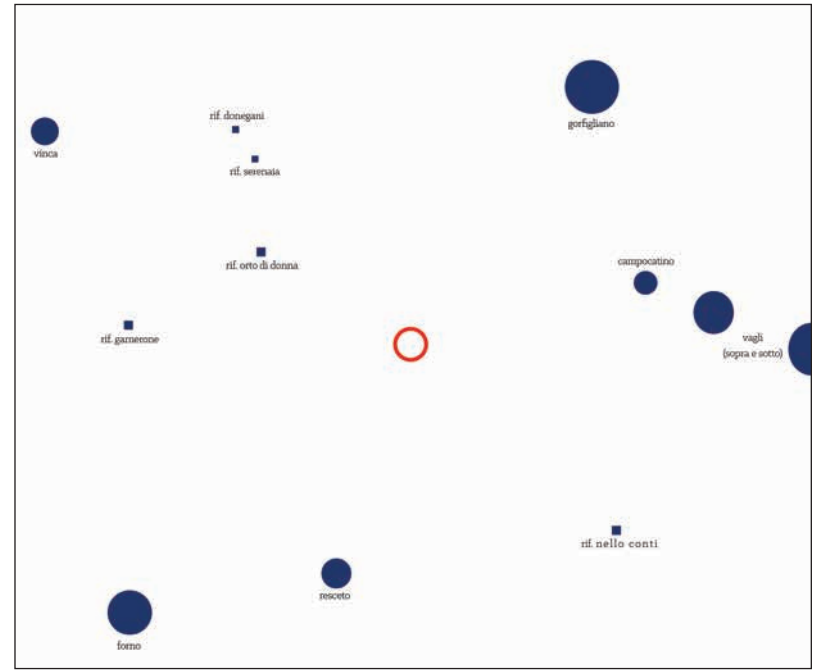
WATERSHEDS

EDRON

name of river within outlined area

RIVER	LENGTH	AREA	DISCHARGE
serchio	126km	1525km2	46m3/s
edron	13km	84km2	3m3/s
frigido	17km	61km2	6.4m3/s
carrione	20km	51km2	2m3/s
tascio	10km	40km2	2m3/s

Being a mountain range, the Apuane also divide the terrain in terms of runoff. In this small portion alone, there are the sources of five different watercourses. Marble dust from quarries and cutting factories has historically caused the rivers to take on a white color, a small environmental disaster that is still not completely resolved in spite of years of regulations and lawsuits.

Due to the impermeability of the soil, the lack of natural or artificial barriers, the seasonal nature of the Mediterranean climate, and other factors, all of these rivers and streams are prone to flooding. The Serchio and Frigido in particular have done considerable damage in the past during times of intense rain.

TOWNS AND HOTELS

town : inhabitants:

gorfigliano: 650
vinca: <200
vagli sopra: 300
vagli sotto: 400
resceto: 140
forno: 796
campocatino: 0-10

The towns in this area of the Apuane are all agricultural mountain villages. In the past the economy was based on agriculture and silviculture or forestry, which remains true to this day, with the addition of the service/ tourism industry. Only Resceto was historically involved in the marble trade. Most towns in the area have seen population declines in the last century, but the use as summer homes has kept the urban centers from total decay.

The 4 rifugi are concentrated in the northwest, in one of the more accessible valleys. They are all large modern masonry buildings with rooms to rent and restaurant/bar areas. Most are only open seasonally.
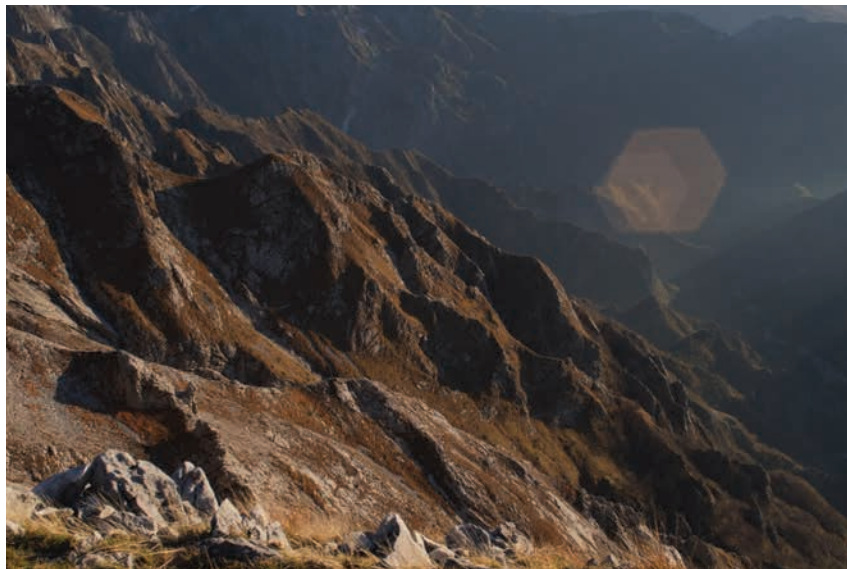
switchbacks on mountain roads and large paths

via vandelli, below monte tambura

natural channels, ravines, and other features created by rainwater runoff
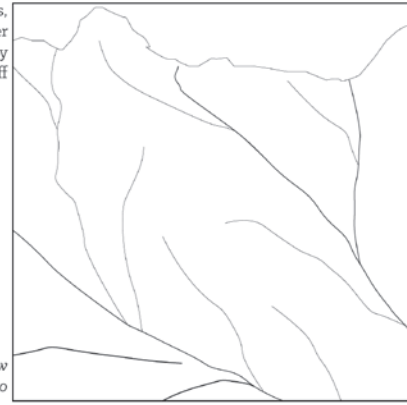
erosion patterns below monte contrario
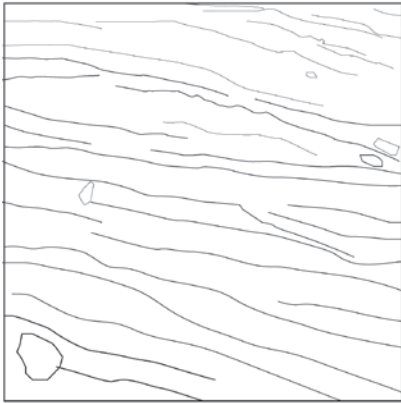
paths created by livestock and herders in areas of intensive grazing

hillside in area 'zanghini' near village of resceto

natural fractures, channels, and veining in karstic rock formations

east face of monte pisanino
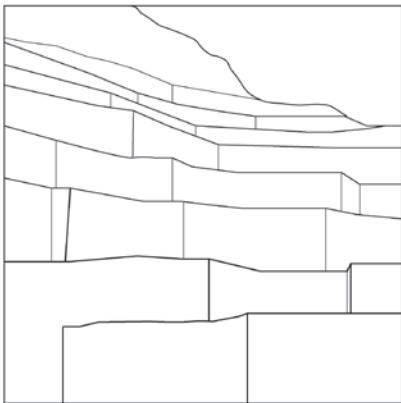
horizontal layers of cut stone in marble quarry

cava piastramarina, southeast walls

new growth in deciduous copse (bosco ceduo) after cutting

seen along marmifera in zona campaccio, but widespread

excavator in flattened piazzale area used for temporary storage of marble blocks

zona ex-passo della focolaccia

muflone standing on steeply inclined rock face

area of pizzo maggiore

2.2.
The Unmap-
pable:

Perception, Senses, Place

To think of an area of the world as a rich and complicated interplay of people and the environment-as a place- is to free us from thinking of it as facts and figures.

-Tim Cresswell, Place an Introduction, 2009

Landscape, historically, was "the portion of earth's surface that can be viewed from one spot" in the long tradition of painting and art dating back to the Renaissance. "We do not live in landscapes" concludes Cresswell- "we look at them." Instead, with this project we are working in a landscape as if it were lived, not just observed. (Cresswell 2004 citing Cosgrove '84, Jackson '97)

As Tuan puts in in his seminal work Space and Place: "what begins as undifferentiated space becomes place as we get to know it better and endow it with value. Architects talk about the spatial qualities of place; they can equally well speak of the locational (place) qualities of space. The ideas "space" and "place" require each other for definition." (Tuan , 1977)

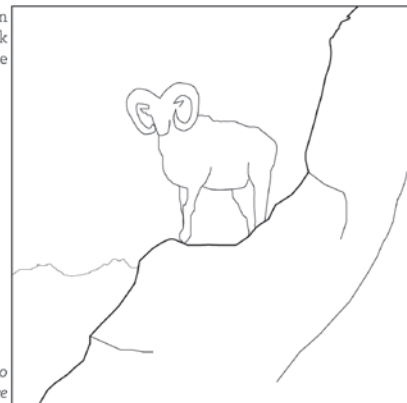Considering the strong identity and character of this area, it could become a place that carries a meaning, a place where a person could gain a certain understanding of history, of nature, of the future, through the physical qualities of the landscape. If the experience of this area could continue, if a person could live here in this environment, it could transition from a landscape to a place that reframes an increasingly universal debate on the role of nature and man. So the factors that are not visible on a map, from lines in the landscape, visual elements, colors, sounds, textures, shapes, smells, temperatures, air currents, etc., are not only important but the experience of them is what allows for a deeper connection to the place, and hopefully an understanding of it's relevance in the world. As Bell points out, in English, "I see" means "I understand", and the french "savoir" is related to our "savour." The connection between the senses and a deeper sense of knowing and dwelling, when it occurs, allows the most complete understanding of a place.

Facing Page: Analysis of vectorial patterns comparing natural and anthromorphic features in Apuan landscape. Note horizontal/vertical contrast: this would give rise to a formal choice in the final proposal.
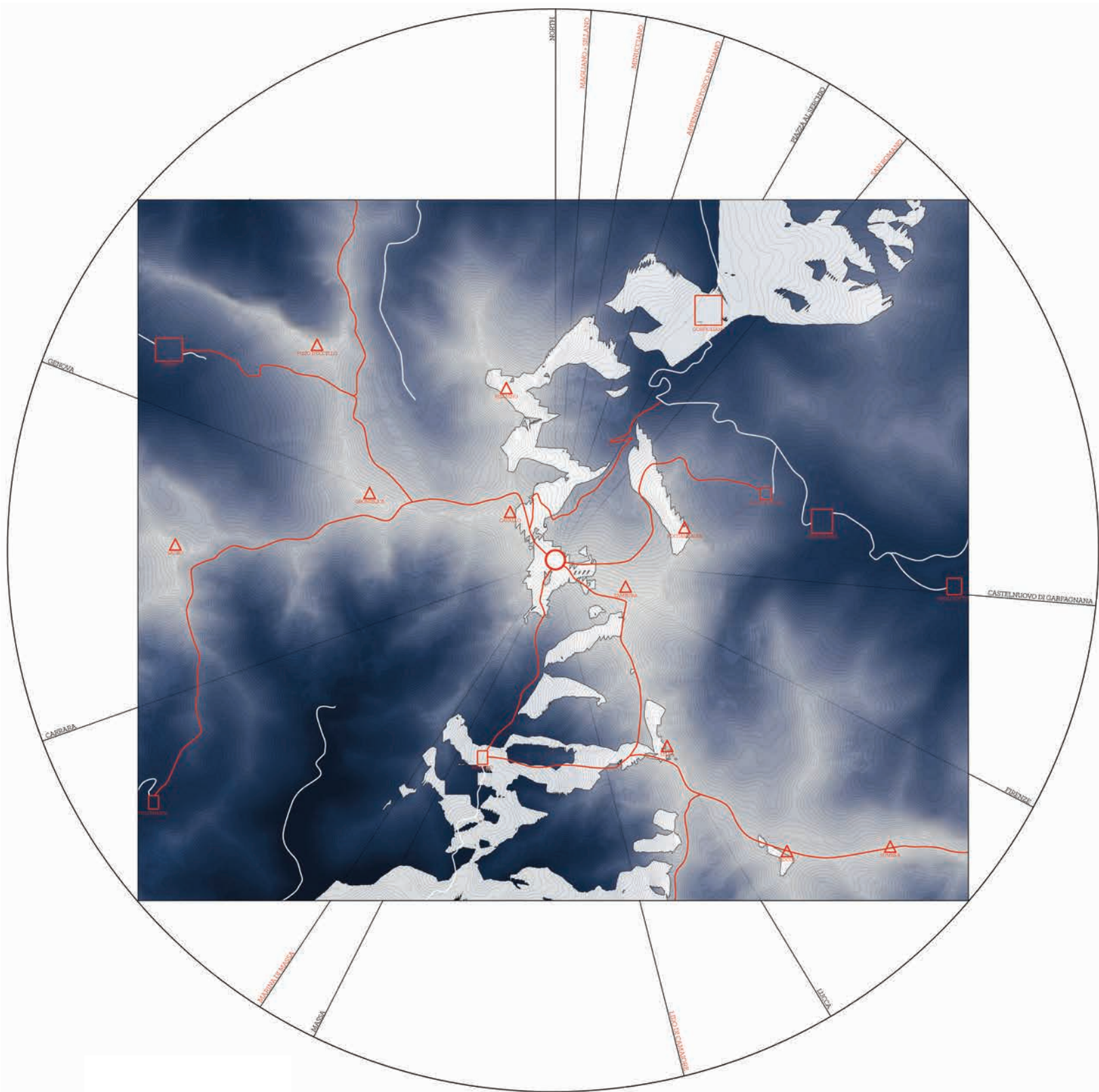
On the Creation of Place

CIMA DI IMPORTANZA

BORGO/PAESE/INSEDIAMENTO

PASSO DELLA FOCOLACCIA

SENTIERO C.A.I. PRINCIPALE

STRADA IMPORTANTE

AREA NEL CAMPO VISIVO DAL SITO

ALTITUDINE IN METRI S.L.M
500-2.000 a scala 1:10.000 (sopra)
0-2.000 a scala 1:25.000 (sotto)

POSTO FUORI MAPPA NON VISIBILE

POSTO FUORI MAPPA VISIBILE DAL SITO

The above quotation of Henri Lefebvre, French philosopher and sociologist, is a good summation of the late 20th century's sense of unease with modernity. The complexity, inevitability, and universality of change at this time gave rise to a huge amount of material from various authors attempting to understand and frame these phenomena. In architecture we saw the rise of placelessness, or the non-place, as defined by Marc Augè and refined by others.
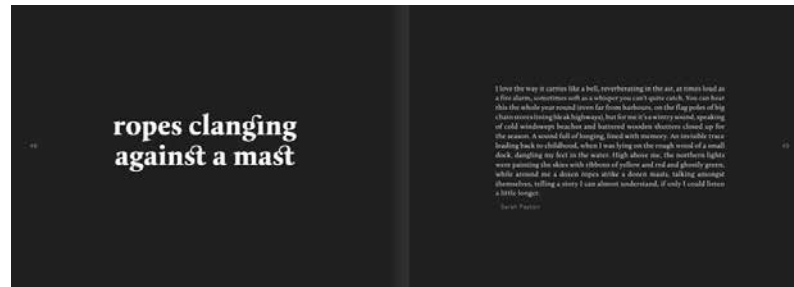
While Auge's writings serve more as a critique of reckless development, revisionist thinkers such as Richard Ingersoll attempted to find a sort of double life in the sprawl, where social spaces form almost accidentally between highways and infrastructure, and where the alienating environment of sprawl starts to form its own complex identity. Outside of the sprawltown, contemporary landscape also attempts to reach a truce between nature and manmade. The re-use of the industrial landscape for parks and nature reserves has played a huge role in landscape architecture for at least 40 years: the first example was the Gas Works Park in Seattle, realized in 1973 by Richard Haag Associates. More recent examples include the famous Duisberg North park by Peter Latz, to the even more famous and successful Highline in NYC. All of these works involve a re-occupation of an industrial site after the productive activities have ceased. As western society shifts from an industrial to service culture, this kind of cleaning-up of our industrial heritage represents an important step forward, yet at the same time it is a manifestation of gentrification and out-sourcing- the fossilized remains of industry do not represent an extinct species, but one that has simply been fenced out. (De Poli, et al, 2014)

So this project is an attempt to work in an active environment, using the theory of the Anthropocene as permission to accept the ongoing destruction of a landscape as merely a geologic phenomenon, thus allowing us to appreciate it from a purely aesthetic or sensory perspective. The idea of creating a place in this landscape where is possible to have this conversation comes directly from the theories of 'place' from various writers, and the architectural program is a further development of the same themes.

Today everything that derives from history and from historical time must undergo a test. Neither 'cultures' nor the consciousness of peoples, groups or even individuals can escape the loss of identity that is now added to all other besetting terrors. Points and systems of reference inherited from the past are in dissolution.

-Henri Lefebvre, The Production of Space, 1974

ropes clanging
against a mast

I love the way it carries like a bell, reverberating in the air, at times loud as a fire alarm, sometimes soft as a whisper you can't quite catch. You can hear this the whole year round (even far from harbours, on the flagpoles of big chain stores (rising like an highway)), but for me it's a wintry sound, speaking of cold windswept beaches and battered wooden shutters closed up for the season. A sound full of longing, lined with memory. An invisible trace leading back to childhood, when I was lying on the rough wood of a small dock, dangling my feet in the water. High above me, the northern lights were painting the skies with ribbons of yellow and red and ghostly green, while around me a dozen ropes strike a dozen masts, talking amongst themselves, telling a story I can almost understand, if only I could listen a little longer.
—Sarah Paxton

constant traffic
on a distant road

There was always that sound. Whatever I was doing, it never stopped. Sleeping, waking, eating, walking, talking, playing music, drinking or falling asleep... it never left. Until I left. When I came back it was still there, but louds louder. I used to live one mile from it, but now it's only half a mile away. It changes timbre depending on the time of day and the direction of the wind, so it evolves continually. A backdrop to my existence here in Cambridgeshire that seeps into my work. It's the drone of the a14 motorway.
—Jason Allen

Soundscape

...But beware of that which is breath-takingly beautiful, for at any moment the telephone may ring, or the airplane come down in a vacant lot.

-John Cage, *Lecture on Nothing, 1959*
(formatting removed)
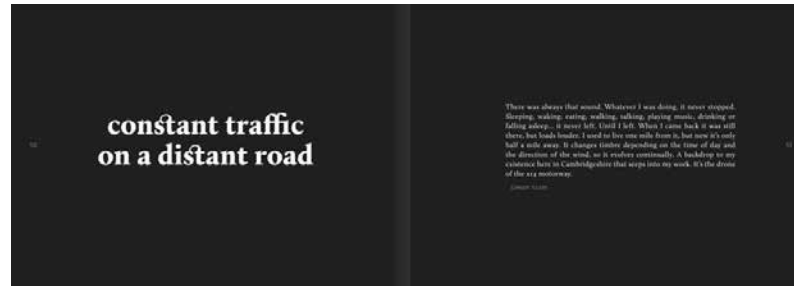
If a goal of this proposal is to allow for a sensorial experience of the site over a longer period of time, we cannot focus only on the visual, although what we see is perhaps the most important factor, much to the dismay of sound researchers/theorists like Murray Schafer, who lamented the "eye culture" or the dominance of the visual field over our other sense. .

Without a doubt, it is more difficult to represent the sonic part of the landscape of the Apuane, but we can say that what applies to the other parts of the landscape- the contrasting ideas, the instability, the conflicts- holds true for the aural environment as well.

Murray Schafer was a groundbreaking composer and researcher who essentially creating the discipline of acoustic ecology, drawing from contemporary (to the 1960s) musical theory. Today his name often comes up in discussions of noise pollution, but in reality this was but a small part of his work. Much like John Cage, he was part of a movement to recognise, describe, and appreciate the environmental sounds of the world, redefining our definition of music and also the way we experience everyday life.

Schafer's terminology helps to express the idea that the sound of a particular locality (its keynotes, sound signals and soundmarks) can—like local architecture, customs and dress—express a community's identity to the extent that settlements can be recognised and characterised by their soundscapes. (Wrightson, 1999)
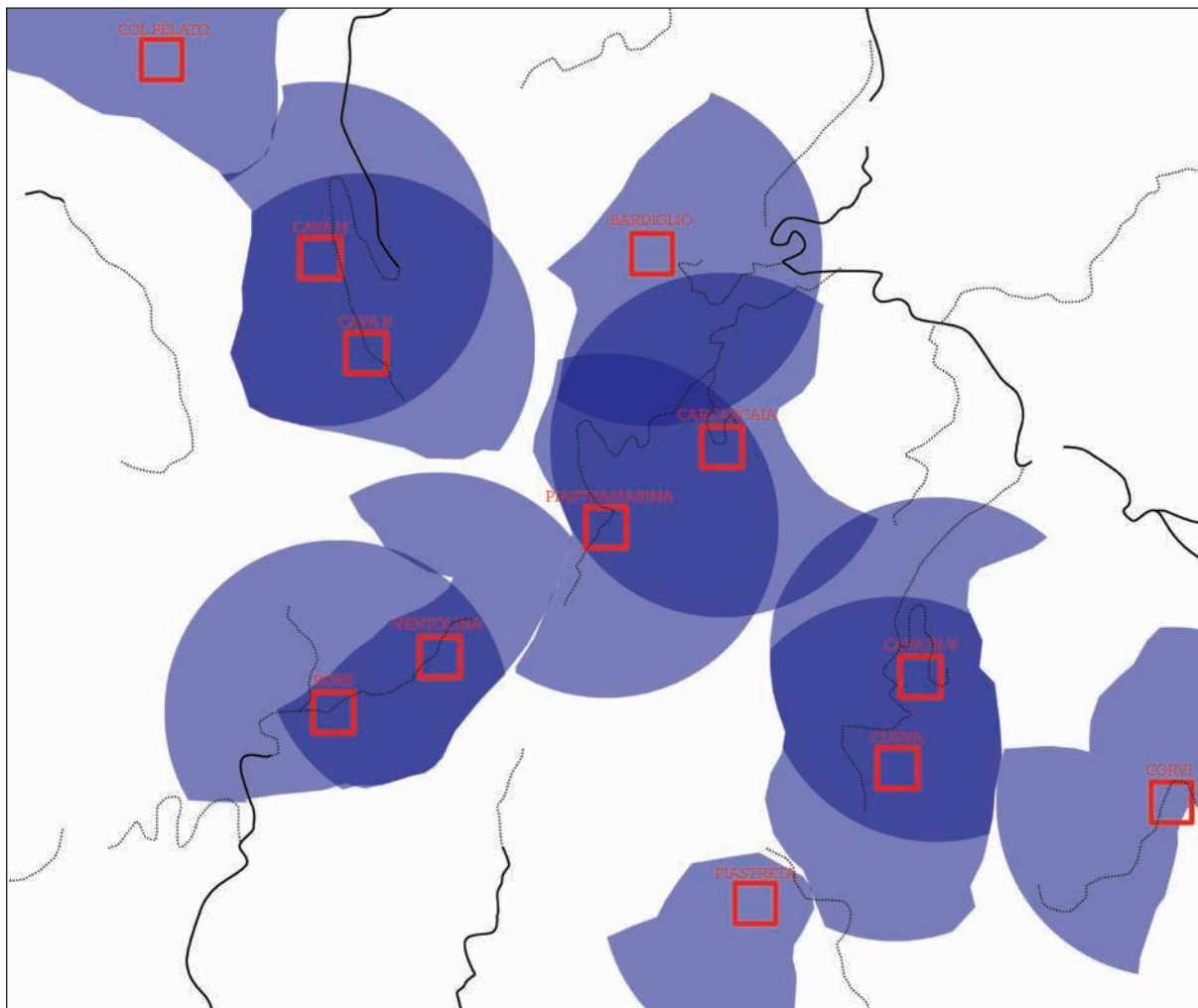
An underlying cause of the development of acoustic ecology as a field was the homogenizing nature of international culture, the loss of traditional soundscapes (along with landscapes, cultures, etc), and so it is easy to draw parallels to the movements in architecture that formed at the same time in response to the 'international style'. Much as the architectural developments of the 1960s and 70s remain surprisingly relevant today, so does environmental acoustics- much of what was written then remains the foundation of today's research. (Krause, 2008) In examining soundscapes, Schafer applied the terms hi-fi and lo-fi (high/low fidelity) as a basic quality. A high fidelity environment is one where "sounds overlap less frequently; there is more perspective—foreground and background." Low fidelity means that sounds dissolve into a field of background noise, as many signals intersect at once. The distinction essentially served to separate pre-industrial (high-fi) soundscapes from modern ones, where droning engines and traffic and a myriad of human noises combine together in a constant hum. Scientific analyses back up this intuitive division. In a natural landscape, each individual sound is clear, is allowed time to form and disperse, and in a balanced environment a kind of parity is achieved between all sounds.

The Alpi Apuane are unique in that there are two soundscapes, one modern, the other absolutely natural. The distance from roads and towns means that at night, on weekends, and during the winter months, there is a high-fidelity soundscape of animal noises, atmospheric sounds, and little else. During the working hours of the quarries, however, there is a completely changed condition- a constant droning of machines along with the sharp explosions of breaking rock and falling stone. The droning of machines works as a 'mask' for the other sounds- this contributes to the lo-fi character. The occasional sharp retorts are equally out of character- they are much stronger than any natural sounds.

ACOUSTIC CONTAMINATION

BARDIGLIO

name and location of active quarry

1km radius of strong acoustic effects

As the soundscape deteriorates, so awareness of the subtleties of environmental sound has withered in proport

ion. As a result, the meanings sound holds inner reality - inner sounds; thoughts, feelings, memory. For the listener, contemporary soundscapes tend to be polarised into extremes—"loud" and "quiet"; noticed or unnoticed; good (I like) or bad (I don't like). Compare this level of sonic awareness (and the results of the listening tests mentioned earlier) with the Kaluli men of Papua New Guinea who, according to Feld (1994) can "... imitate the sound of at least 100 birds, but few can provide visual descriptive information on nearly that many." In other words, environmental sounds for the Kaluli tribe comprise a continuum offering a limitless range of subtleties.

In the developed world, sound has less significance and the opportunity to experience "natural" sounds decreases with each generation due to the destruction of natural habitats. Sound becomes something that the individual tries to block, rather than to hear; the lo-fi, low information soundscape has nothing to offer. As a result, many individuals try to shut it out through the use

of double glazing or with acoustic perfume—music. Music—the virtual soundscape—is, in this context, used as a means to control the sonic envi ronment rather than as a natural expression of it. Broadcast speech and music provide the same opportunity for control, turning the sonic environment into a commodity. Networks, transmitters and satellites extend the acoustic community across the entire planet, a fact that has been utilised for fair deeds and foul. Schafer refers to the latter use of sound as "sound imperialism"

-Kendall Wrightson, from An Introduction to Sounscape Ecology

45

the wind blowing across bare rock

a diesel generator

the cry of the golden eagle

broken stones tumbling down a slope

distant thunder

a land-rover struggling up a steep incline

rock climbers celebrating at the summit

the shriek of metal from an excavator's treads

the warning calls of a marmot

shouted directions from the foreman

the buzzing of flies

the dripping of leaking pipes

bells and bleating from a herd of goats

steel cable slicing through white marble

beeping of trucks in reverse

rain splashing onto tall grass

iron sliding across smooth stone

...

Geophony

Geophony is the set of sounds that are produced by non-biological forces (Krause 75)

What we have here in the Apuane is the geophonics of geology sped up to the rate of human progress- the sounds of millions of years of erosion and earthquakes and landslides compressed into a few months of excavations each season.

This bi-polar character is best to experience firsthand- the moment when the silence of night is broken by the sound of an excavator moving tons of stone could be a profound moment. I will stop short of any personal interpretations, but it is impossible to deny that a contemplative mind would have much to take in if given the opportunity.

The map below is based on first-hand experience of distance from which the sound of machinery and excavation in a quarry becomes secondary to the sounds of nature. As a general rule, at a distance of 1km the sound from a quarry is almost always of little importance, although on a still day it can travel much further.

The resulting map shows the overlapping areas from some quarries, as well as the masking effect of the topography. A large portion of the central area of park is subject to acoustic contamination when the workers are present.

The kinds of sounds from the quarries are typical of machinery, but unlike in most contexts, their isolation results in a high fidelity soundscape of sharp contrasts. According to the classification of John Cage or Murray Schafer, this is a departure from typical low-fi industrial soundscapes that character-ise the modern world. So what we have are modern, manmade sounds experienced as one would the sounds of nature, because of the absolute silence of the landscape.

A unique identity

"(La prima volta che sono entrato nella cava in galleria in cui lavoro), ho realizzato di essere nelle viscere di una montagna, un luogo da togliere il fiato. Ora non ci penso, è come essere a casa, ho un tetto sopra la testa".'

-Giacomo, quarry worker in Carrara Basin

The dialog between the quarries and the less impacted areas speaks of a contrast across all sensorial methods of documentation, and this is a large part of the identity of this place. What we can propose is that the activity of mining is actually contributing to the identity of this area, and that we do not have problems of the placelessness that often haunt places of rampant industrialization. A quarry almost fits perfectly into a common definition of a non-place- it is connected to transportation and technology, is disconnected from the past, and is not continuously inhabited- and yet its identity is clear.

The honest nature of a purely industrial creation with absolutely no attempts made to soften the edges is refreshingly opposed to the attempts made to disguise the equally damaging creations in more visible landscapes. There are no problems of authenticity, and no demoralizing attempts to cover the reality with a thin veneer of ornamental plants, plastic sculpture, greenwashing, or similar creations.

Instead, as we saw, there is a distinctive aesthetic quality, which is a key part to the creation of place. That is, it has a meaning for the people who experience it, it creates certain specific emotions that define the identity. To experience this place, with these heavy contrasts, is not just to observe a landscape but to feel a part of the society that is creating it, is to feel involved in the process of human creation of a new geology. In the Alpi Apuane, with each block of marble that is removed, the reality becomes more evident.

The architectural proposal will be about resolving the physical difficulty of inhabiting this place. The architecture will make the place possible. Synthesizing various authors- Place could be the combination of the environment, your ability to stay or be within it, and the meanings it may have for you. So we have offered a potential meaning, explored the experience of being there, and with an architectural intervention, open up the possibility to interact and stay long enough for the other two factors to develop. To paraphrase Carol Becker, place is a key to understanding many aspects of one's life, from creativity, to mental state, to religious beliefs, to history, in its ability to focus and create a unique culture or set of memories.

2.3.
Cava Piastra-marina:

A quarry on the brink
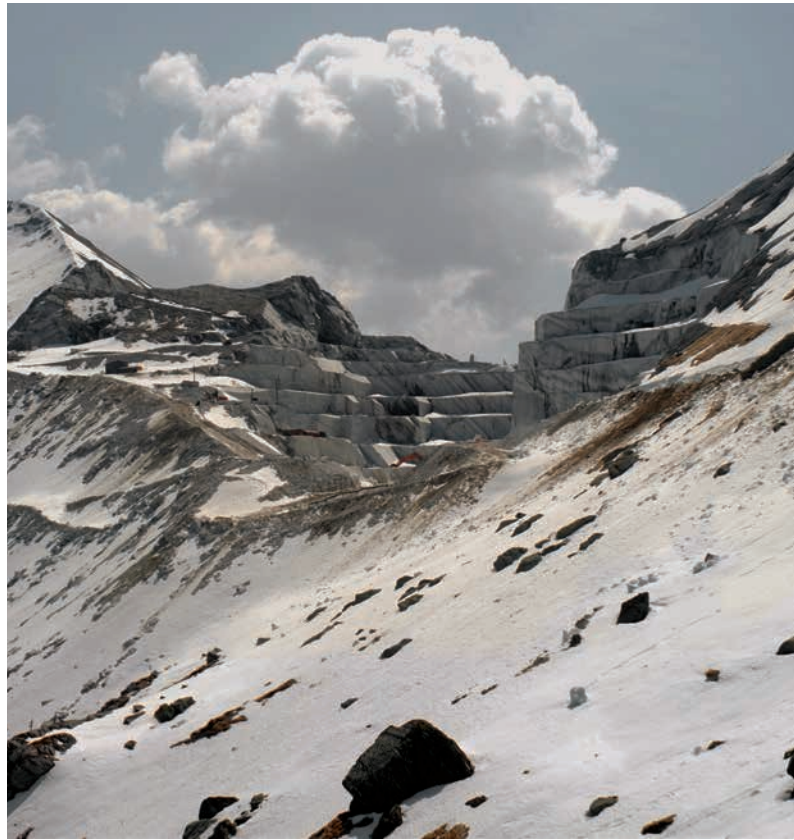
This is the highest quarry in the entire apuane, at 1600 meters above sea level. Also known as Cava "Focolaccia", taking the name of the pass that formerly occupied the same area, this site was the intuitive choice for a project, and subsequent reflection and analysis has only reinforced that decision.

It lies in a fragile alpine environment of meadows and loose rocks, where cold winds and snow permit only 7-8 months of extractive activity per year. It is reached by a long unpaved access road that starts near Gorfigliano and crosses through areas of the park and other active and inactive quarries before reaching the "Acqua Bianca" extraction area.

This quarry is at the center of the debate on the mines within the park, and it often appears as the lead photo in publications about the issue. It is emblematic of the damages caused by mining because it is so conspicuous- it is visible from long distances, lying exactly on the ridgeline that divides Versilia from Garfagnana. The site is highly complex, not only physically, but also politically and ideologically, and because of this I believe it to be a powerful location for an architectural proposal.

Every quarry within the area of the Parco delle Alpi Apuane is subject to various conditions imposed by the park, the comune, the region, and the state. For every site, the company in charge of the excavations is responsible for presenting a detailed "piano di coltivazione" that should correspond to the next 5-10 years of operations, showing where stone will be removed, how much will be taken, how many workers will be present, etc. A detailed survey is prepared, renderings and 2d drawings are presented and discussed, and experts are called in to evaluate the decisions based on their impact on the landscape visually, the possible pollution to aquifers that could arise, the infrastructure needed to excavate, and the economic benefits to each party involved.

The operating companies are then responsible for carrying out these directions. The reality is simply that these detailed plans turn into rough guidelines at best- the complexity of the landscape combined with the need to turn a profit means that quarry operators essentially do whatever they can to take as much material as possible, knowing full well that they face few repercussions for modifying the carefully plans of others. Fines are rarely applied, because towns are dependent on revenues from the marble industry, and the understaffed park mostly just observes from a distance and stops the worst offenders.

(source- interviews with administrators of the park and comune)

SITE PLAN CAVA PIASTRAMARINA WITH TOPOGRAPHY AND ANNOTATIONS 1:1000
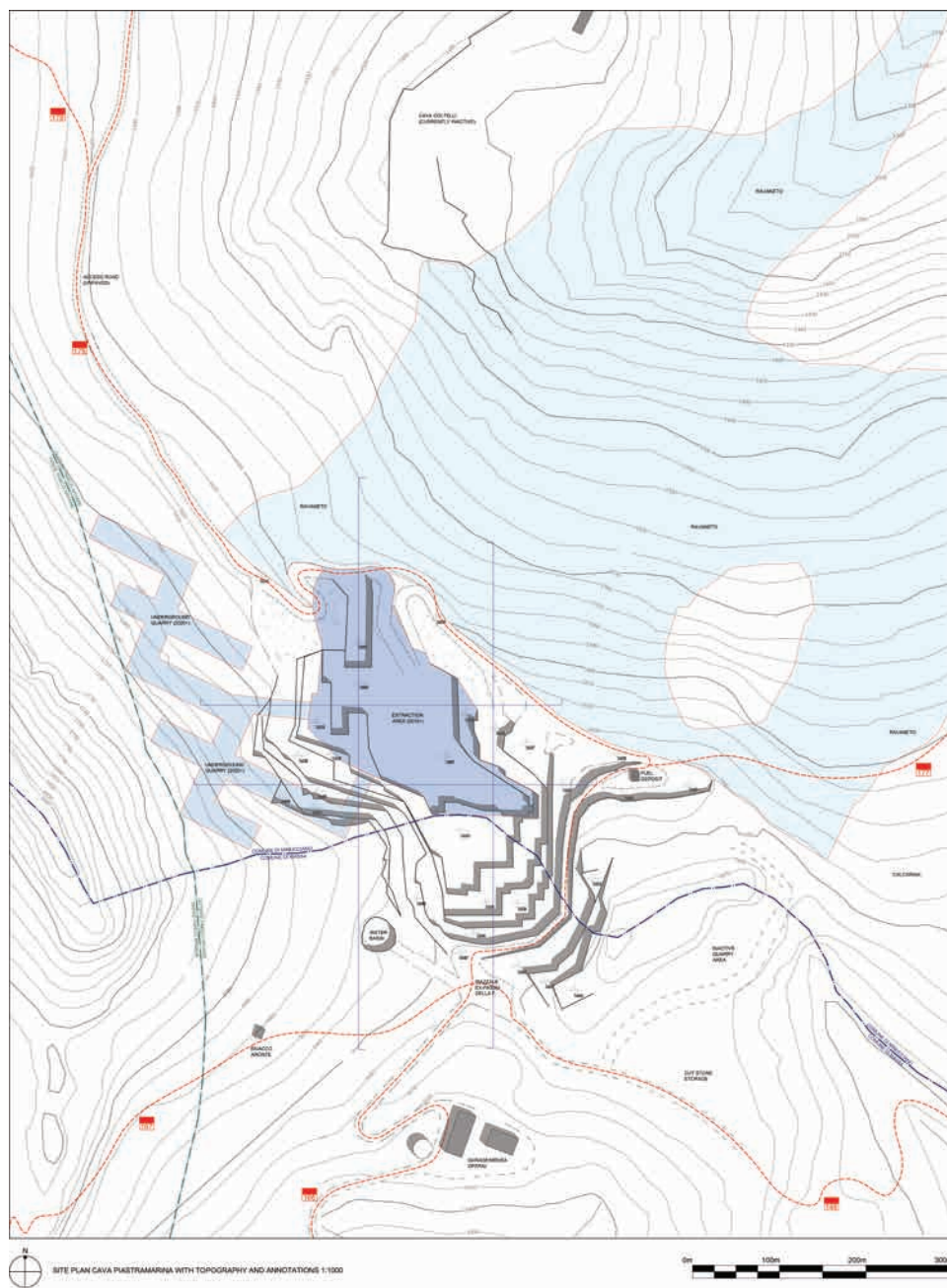
Il paesaggio che caratterizza l'area di studio è quello tipico dell'ambiente apuano in cui la naturalità dei luoghi si fonde in modo più o meno razionale con i segni dell'intervento dell'uomo sul territorio. Infatti come anche ribadito dall'art. 1-3° comma della legge 29/6/1939 n. 1497, illustrato dall'art. 9, comma 4° del Regolamento n. 1357, di applicazione della legge stessa, afferma:"... che nota essenziale di un complesso di cose immobili costituenti un caratteristico aspetto di valore estetico e tradizionale è la spontanea concordanza e fusione tra l'espressione della natura e quella del lavoro umano"; la sit-

uazione paesaggistica dell'area di studio è in perfetta sintonia con la norma.

...

La cava Piastramarina risulta inserita al di sopra del limite del bosco (faggeta) ad una quota di circa 1600 m s.l.m., nei pressi del Passo della Focolaccia, in un contesto paesaggistico di notevole vastità. Da una parte il rilievo del Monte Cavallo e dall'altra il vasto complesso carsico della Carcaraia. In questo contesto la cava Focolaccia è diventata parte della memoria storica di queste popolazioni e ha dato un'impronta caratteristica al paesaggio montano locale. Le lavorazioni realizzate nella cava

Piastramarina hanno creato, con il susseguirsi di gradoni di marmo intagliati nella roccia, un architettura paesaggistica unica e spettacolare; il grandioso anfiteatro ricavato nel versante garfagnino della montagna, ha preso le forme di un grande teatro all'aperto dove il marmo diventa protagonista del paesaggio diversificando e amplificando il paesaggio locale.

...

Specificatamente per quanto riguarda l'attività estrattiva "Piastramarina" in esame si può dire che faccia parte del paesaggio storicamente antropizzato della zona. La presenza di tecchie e di

bancate di marmo costituiscono, comunque, un esempio di come l'attività dell'uomo abbia inciso profondamente sulla montagna, e pur modificandone la morfologia generale, comunichi un senso di grandiosità e di imponenza verso l'osservatore.

Exceprt From: Relazione paesaggistica DPCM12/12/2005 "Piastramarina"

-Dott. Agronomo Paesaggista Alberto Dazzi
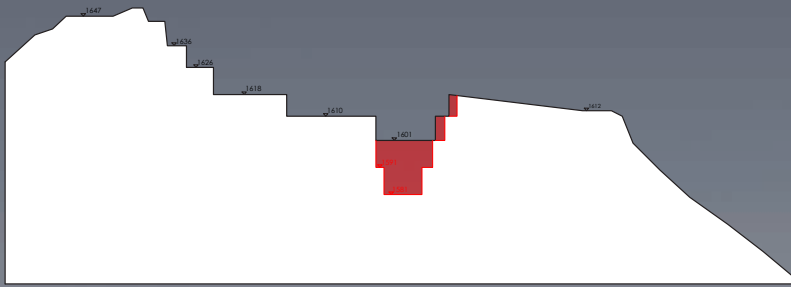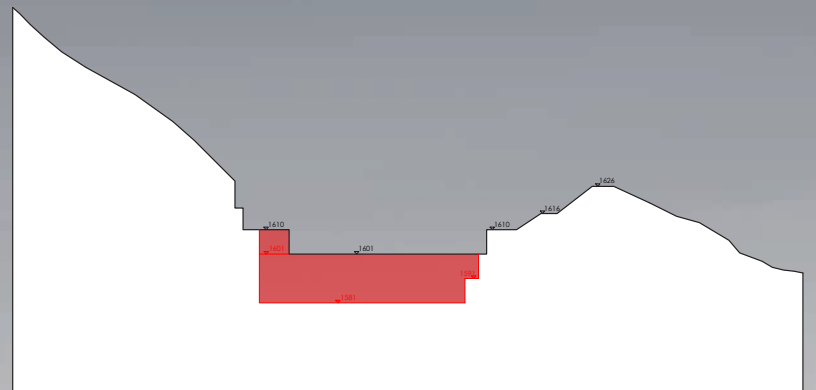
section aa   1:1500
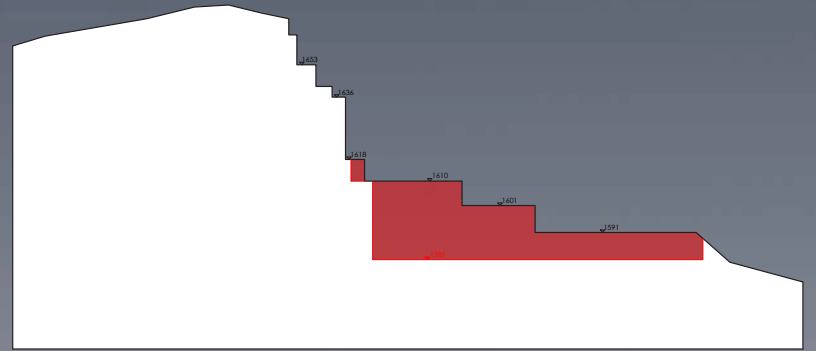
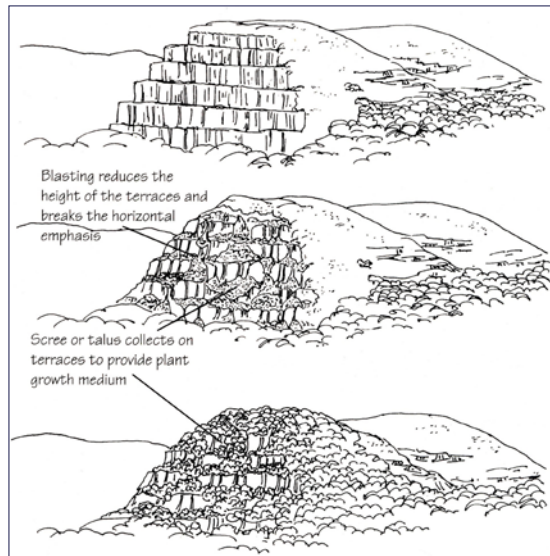section cc   1:1500
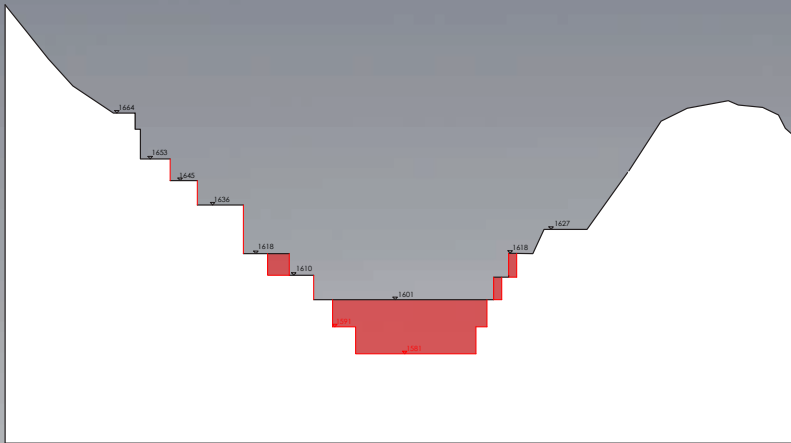
section bb   1:1500

section dd   1:1500

La cava Piastramarina è uno dei casi più critici ed emblematici sotto l'aspetto della tutela paesaggistica perché storicamente è uno degli interventi che ha prodotto il maggior impatto paesaggistico con la modifica della linea di crinale.

-commissione paesaggistica del Comune di Massa, La Nazione 9-4-2014
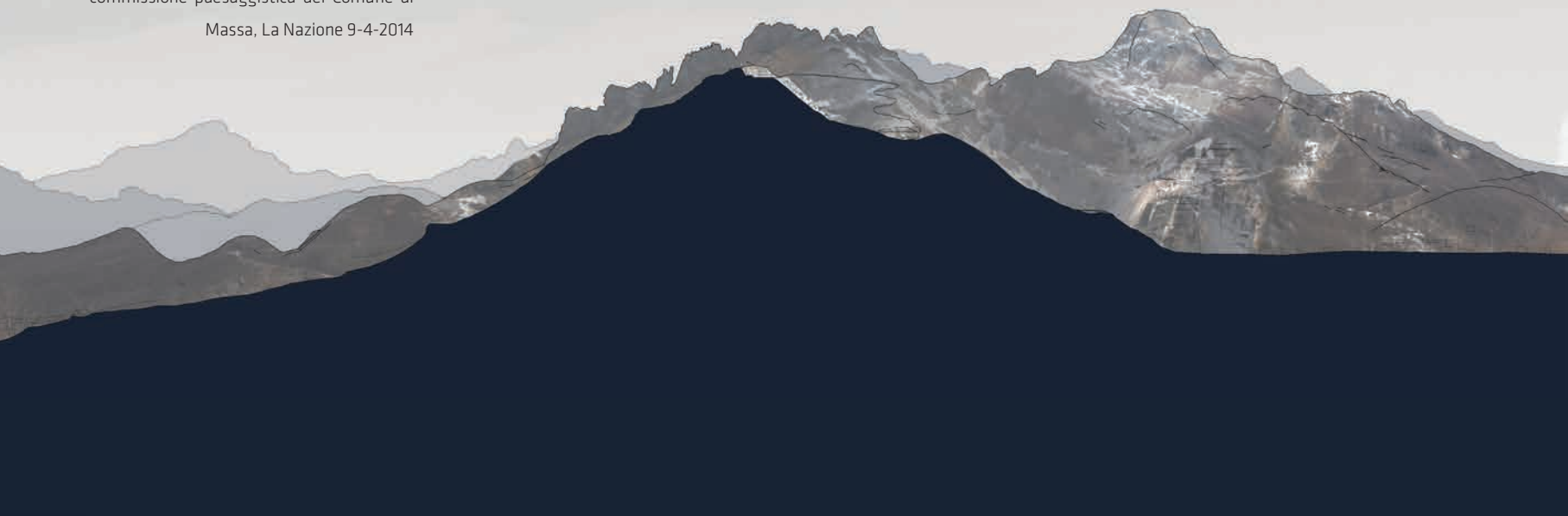
The past and future of the Piastramarina quarry

The diagram below shows the history of extraction activity, as well as the current set of guidelines for future mining. My project assumes that the latest plans for the area will be implemented, but in the event that they are not, the slight deviations that are possible now are unlikely to drastically change the proposal. The next developments here will likely be in the form of underground mining, which will leave the face of the quarry largely intact. Decades of extraction have produced a form that is likely to endure for thousands of years.

Blasting reduces the height of the terraces and breaks the horizontal emphasis

Scree or talus collects on terraces to provide plant growth medium

ca. 1965 - 2012

first period of extraction

cut stone removed from site	waste stone and fines dumped in ravaneto
ca. 552.000 tons	ca. 1.145.000 tons

*30% efficiency

ca. 22 parthenons (from cut stone tonnage)

2012 – ca.2025

current authorizations and plans

cut stone removed from site	waste stone and fines removed from site
ca. 393.000 tons	ca. 355.000 tons

*55% efficiency

ca. 16 parthenons (from cut stone tonnage)

ca. 2025+

hypothetical extension of underground quarry

cut stone removed from site	waste stone removed
ca. 300.000 tons	ca.185.000 tons

*65% efficiency

ca. 13 parthenons (or more)

ridgline 1950

-1980

-2012

2025+

-2025
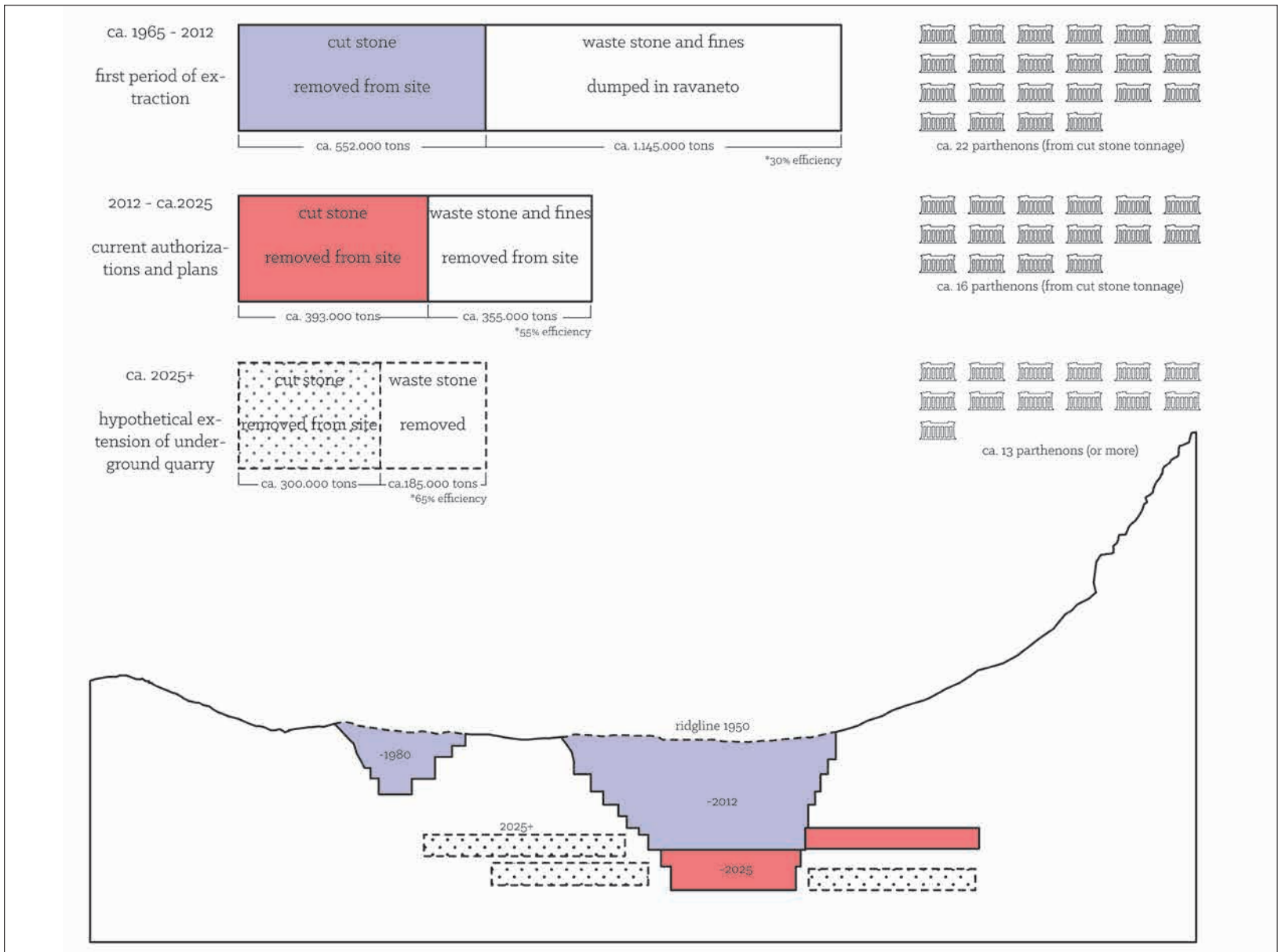
Part Three
Proposal:
Architectural Arbitration

Before presenting the architectural proposal, there is a short typographical study of the alpine refuge through its 150 year history. Then, we break down the diagrammatic layout of the proposed structure, before returning back to its relationship with the landscape and the meaning it could begin to carry.

3.1.
Architecture in Nature:

A short history of the alpine refuge

The mountain hut is one of those building types that rarely appear in the architectural mainstream, and even then is often grouped together with temporary structures and loosely related interventions. However, the few publications available reveal a relatively deep history of variations and creativity. A research project could cover just this typology, and indeed a few authors have made dedicated books and exhibits, from which the following abbreviated history can be extrapolated:
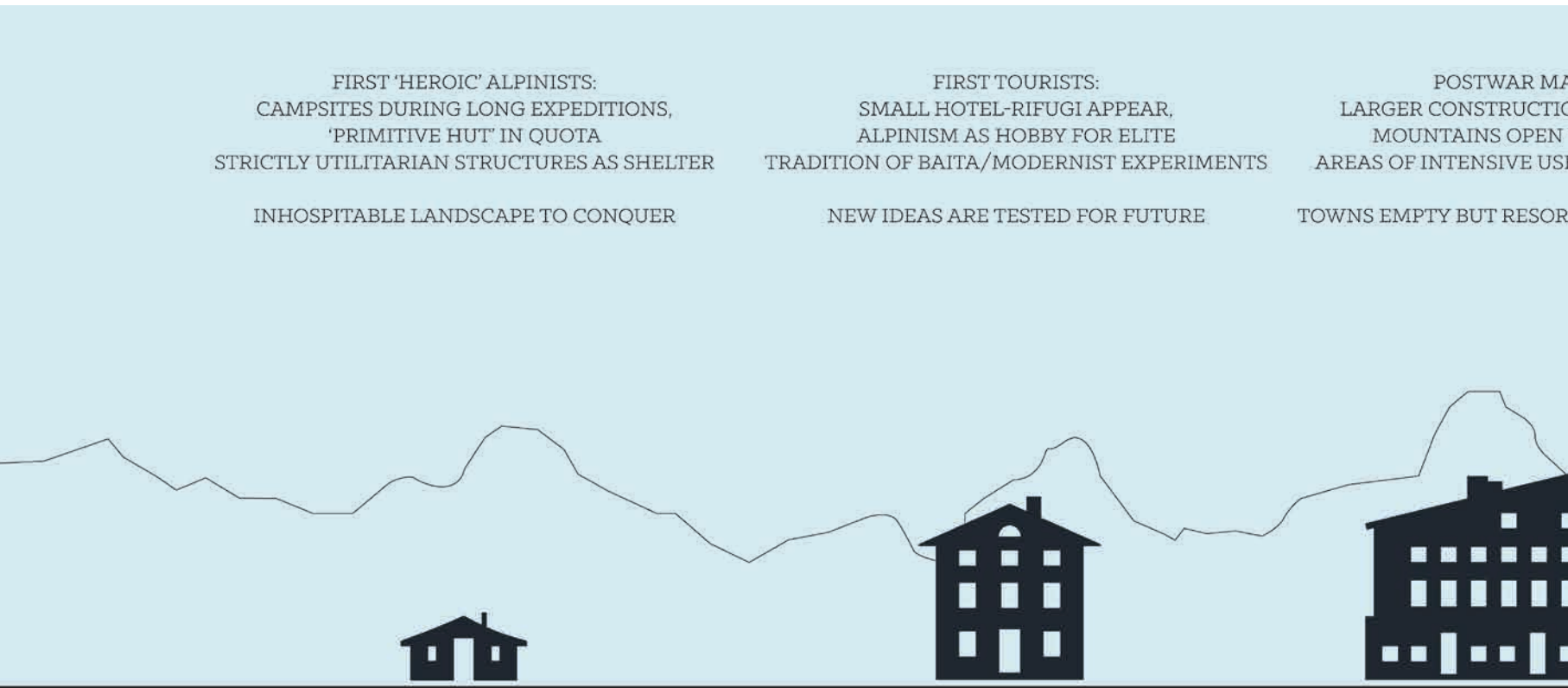
Until the late 1700s and the beginning of the romantic period, the tallest mountains were essentially deserted, with shepherds occupying the lower slopes, while the peaks were considered completely inaccessible if they were considered at all. With the re-evaluation of nature's role that arrived simultaneously with the onset of the industrial revolution, a small class of educated Europeans flocked to the Alps to explore this uncharted territory. At first they needed only the barest of shelters, but as more came, and stayed longer, the primitive huts began to take on the cultural signature of their builders as well as adaptations in construction techniques and spatial considerations that arose from experience and innovation. (Masotti, 2010)

After the initial, heroic push to plant flags on the tallest peaks was over, the mountaintops began to enter into the society that existed below them, which itself was in the midst of turmoil. Up until the onset of WWII, the high places went through an experimental phase, in which we tried to find what exactly could be done up there. Much like early modern architecture had to try many variations, so too did alpine construction. Various kinds of hotels, sanatoriums, businesses, indeed even whole towns, were proposed to differing degrees of success.

The knowledge gained in these years would be put to use after the war, when a global boom of tourism arrived in the

FIRST 'HEROIC' ALPINISTS:
CAMPSITES DURING LONG EXPEDITIONS,
'PRIMITIVE HUT' IN QUOTA
STRICTLY UTILITARIAN STRUCTURES AS SHELTER

INHOSPITABLE LANDSCAPE TO CONQUER

FIRST TOURISTS:
SMALL HOTEL-RIFUGI APPEAR,
ALPINISM AS HOBBY FOR ELITE
TRADITION OF BAITA/MODERNIST EXPERIMENTS

NEW IDEAS ARE TESTED FOR FUTURE

POSTWAR MA
LARGER CONSTRUCTIO
MOUNTAINS OPEN
AREAS OF INTENSIVE US

TOWNS EMPTY BUT RESOR

1853

1918

1945

1853
rifugio ai grands mulets
3050 m

1866
rifugio dell'alpetto al monviso
2268 m

1904
rifugio gastaldi in valle d'ala
2659 m

1928
rifugio principe di piemonte al teodulo
3317 m

1931
rifugio vittorio emanuele II
2735 m

1952
rifugio-albergo torino colle del gigante
3370 m

Alps and elsewhere thanks to the rise of a large middle class with leisure time. For this group, large hotels took the place of small shacks, and small prefabricated buildings or bivacchi were erected on what were previously campsites. At this time, winter sports became the driving factor in alpine construction, but even areas that were unsuitable for skiing saw a great expansion in use, and a consistent modernization of more primitive structures.

The headlong building boom of the postwar ended with the embrace of sustainability and another period of serious research into the realities of building in the mountains. Green de-

sign arrived early in the mountains, as mountain dwellers are always more aware of their environment than those not at the mercy of it. Today's buildings are technologically advanced, sustainable, expensive, and represent more than 2 centuries of research on how to live and build above 2000 meters. (Ghibelli, 2011).

Nel Volume I cento anni del Club Alpino Italiano 1863-1963 l'ingegnere Giulio Appolonio dedica un intero capitolo alle modalità costruttive dei rifugi indicando criteri di progettazione tuttora validi, sintezzati nei seguenti punti:

-massimo sfruttamento dello spazio interno
-studio di piante e volumi semplici e regolari

-esterni privi di rientranze per avere la minima esposizione al vento e alla neve
-studi per eliminare la trasmissione di rumori
-cura all'esposizione solare
-aperture di dimesnioni limitate specie se esposte al nord
-impiego di material resistenti all'usura

(Masotti, pp 102)

ASS TOURISM:
ON IN POPULAR AREAS
TO ALL OF SOCIETY
E BECOME THEME PARKS

TS FILL DURING HOLIDAYS

TECHNOLOGY AND EXPERIMENTATION:
PREFAB CONSTRUCTION WITH HELICOPTERS
OR USE OF REINFORCED CONCRETE
NEW TECHNOLOGIES CONFRONT TRADITION

TRADITIONAL BUILDING METHODS ARE OBSOLETE

SUSTAINABILITY ERA:
NECESSITY AND AWARENESS LEAD TO GREEN DESIGN
INCREASINGLY COMPLEX ARCHITECTURE
CREATION OF LANDMARK STRUCTURES

NEW RESPECT FOR NATURE INTEGRATED IN DESIGNS
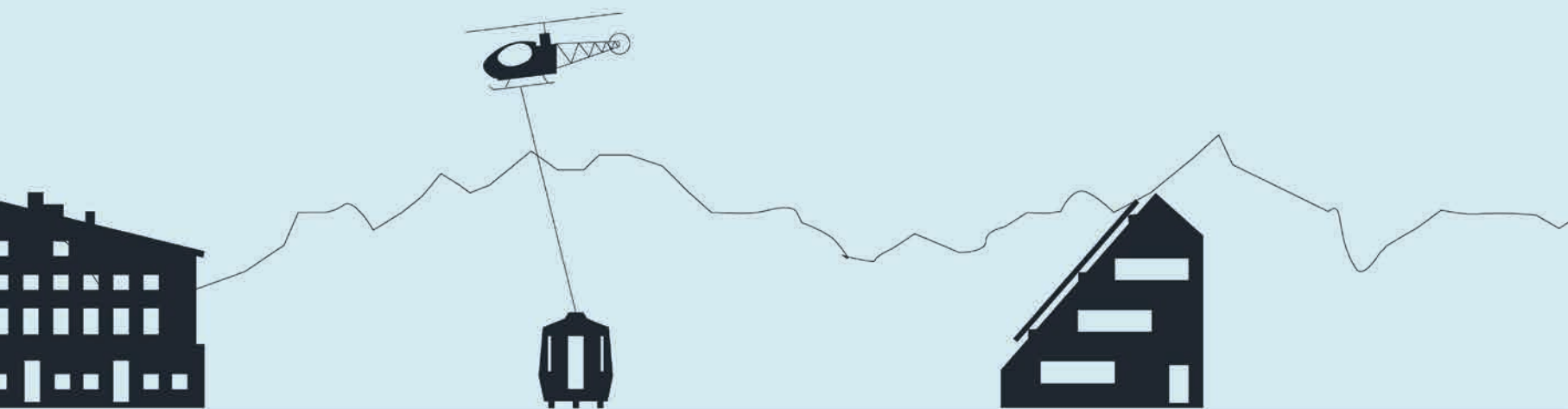
1968   1991   2015

1954
casa capriata di mollino
2100 m

1974
bivacco dello stockhorn
2598 m

1980
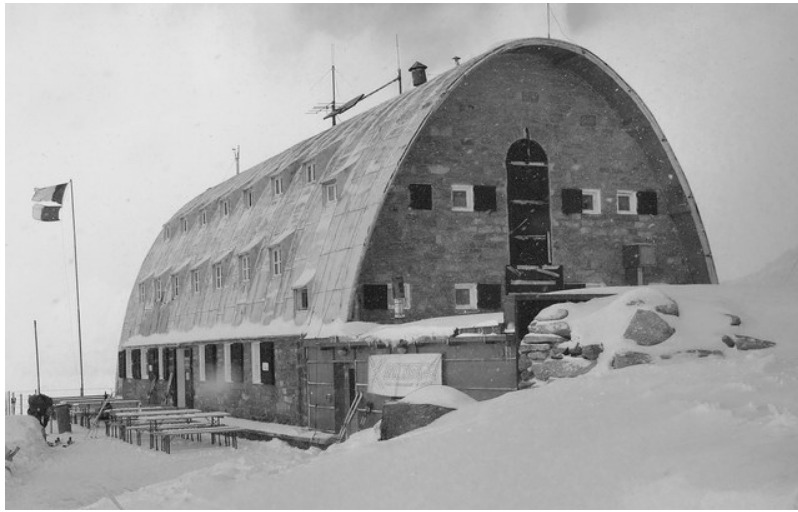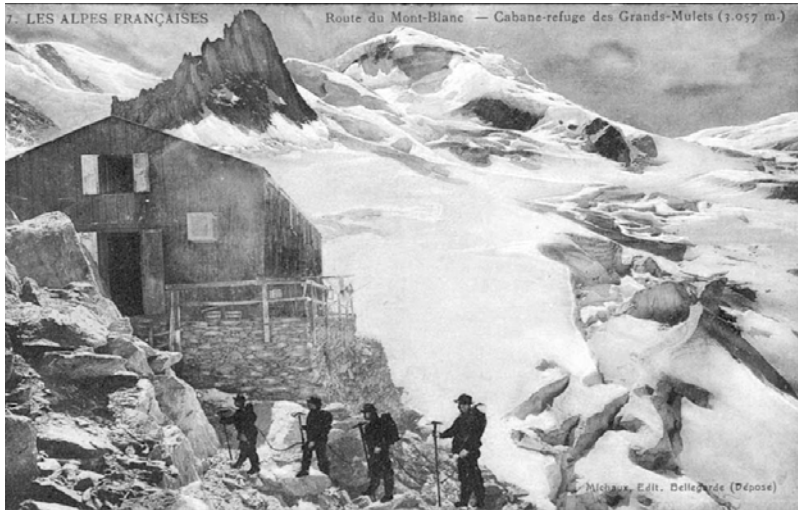capanna regina margherita nel monte rosa
4559 m

1993
cabane du vélan
2643 m

2008
monterosahutte
2883 m

2010
bivacco gervasutti
2835 m

Above- Tipological study of the Rifugio, showing general steps in the development of this building type from its origins circa 1850 to today's structures
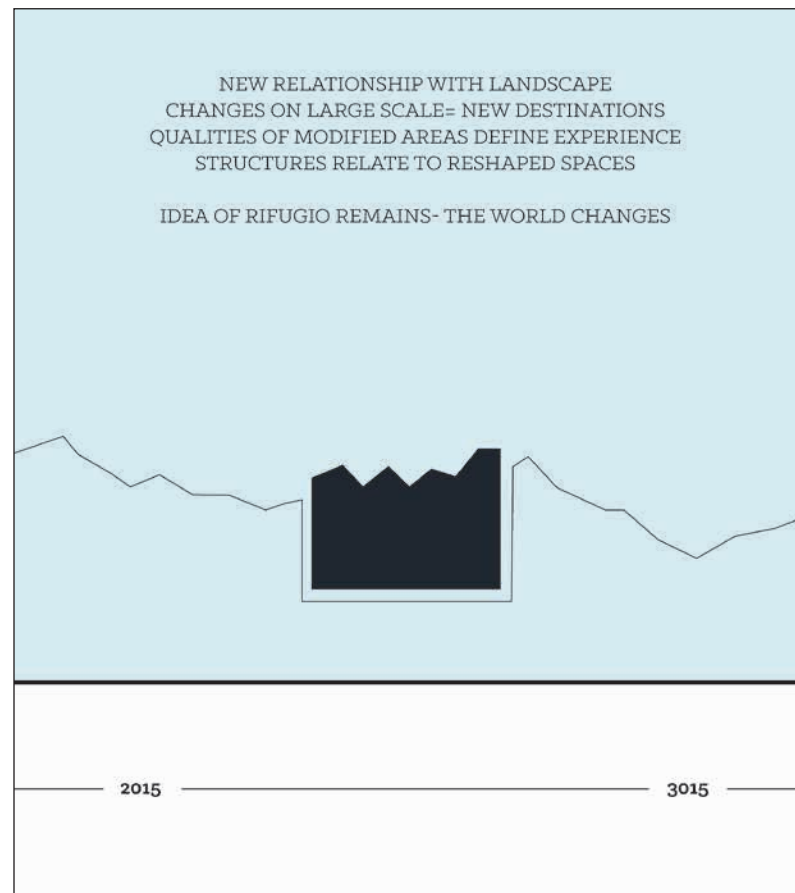
7. LES ALPES FRANÇAISES — Route du Mont-Blanc — Cabane-refuge des Grands-Mulets (3.057 m.)
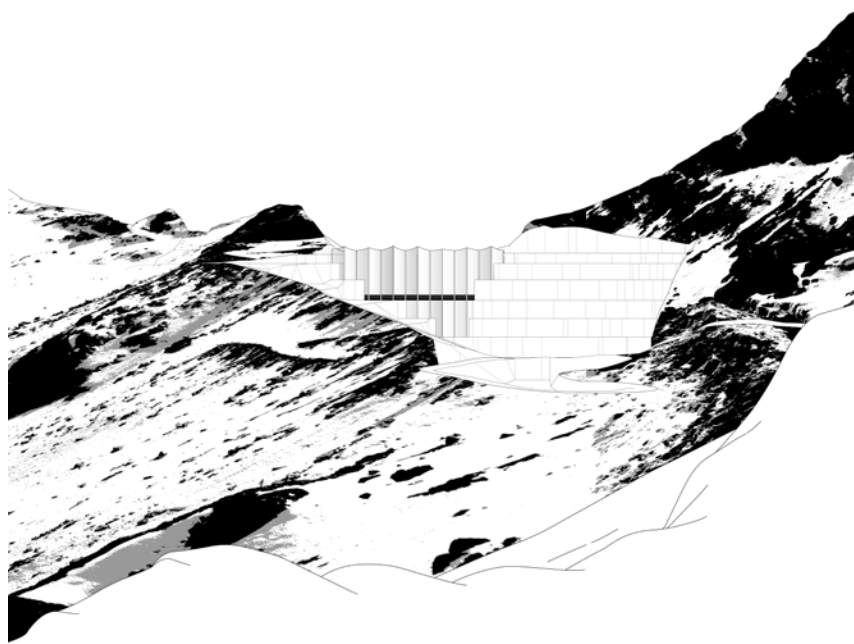

Maurizio Scalvini

Next Step:

Rifugio Alpino of the Future

At the completion of this short typological study, we have to ask what the future could hold, especially a future in which the very idea of nature is in question. What is the role or symbolic meaning of a rifugio in an area that is defined by human activity? The reality is that the essential program elements will remain as before- basic shelter and shared spaces. However, the relationship with the context does change, and consequently the architecture will adapt.

Instead of being a lone artifact of man in a hostile world, the anthropocene rifugio does not strive for a landmark status. It needs to be inserted with care, as a dialog with the landscape, or between the different parts of the landscape. In this case, between quarry and mountaintop, debris field and alpine meadow. It can offer a place where the contemporary state of human relations with nature becomes clear, where the physical changes to the most permanent elements of the earth are brought into sharp focus, where we learn to adapt to a new world as we would have in the wilderness.

NEW RELATIONSHIP WITH LANDSCAPE
CHANGES ON LARGE SCALE= NEW DESTINATIONS
QUALITIES OF MODIFIED AREAS DEFINE EXPERIENCE
STRUCTURES RELATE TO RESHAPED SPACES

IDEA OF RIFUGIO REMAINS- THE WORLD CHANGES

2015   3015

3.2.

Conflict Mediation:

Rifugio Alpino Piastramarina

The proposal calls for the construction of a new mountain hut, Rifugio Alpino Piastramarina, in the site described above. Instead of naming the structure after the mountain pass in which in sits, as is typical of rifugi, it uses the commercial name of the quarry. Instead of following a single model, it is an adaptation of this typology to a new world, combining basic shelter with elements of science-fiction, land art, and contemporary architecture, in order to create a unique experience that helps redefine the surrounding landscape.

PASSO DELLA FOCOLACCIA

EXTERIOR PIAZZALE AREA   +/- 1250 m²

AIRLOCK

MULTIFUNCTIONAL/ENTRY   1000 m²

SHARED SPACES -1 LEVEL

LOUNGE/CAFE   100 m²

HALLWAY/SHARED SPACES   300 m²

LATERAL QUARRY TERRACES   +/-400 m²

REAR QUARRY TERRACES   +/-500 m²

PRIVATE -1

UNITS - LIVING   150 m²   EXPANSION   +250 m²

UNITS- SLEEPING   200 m²   EXPANSION   +200 m²

-1.5

MECHANICAL   350 m²

MEDITATION

OBSERVATION PLATFORM   300 m²

(ON STONE STEPS)   +/-200 m²

Program Breakdown

The program is oriented vertically on levels defined by the steps of the quarry, which vary from 7-10 meters in height. The main entrance is on the top level, connected to what is currently the pass or 'saddle' on the ridge. Here there is already a sort of 'piazzale' or flat area where several trails and a road coincide, where people often stop after the long trip up from Resceto or Gorfigliano, or down from Monte Tambura. So this existing area is extended into the upper level of the new rifugio via a thin bridge. This thin-ness is important; it creates a path and also a sense of ceremony rather than building a directionless extenson of the the piazzale area. I call the upper level the 'Airlock' as it is a sort of abstract interface between the domestic level below and the harsh environment outside. In this plastic shell, the sounds, light, and temperature are amplified by the architecture, especially when the windows are closed as they would often be given the typical climate at 1600m s.l.m.

Below this level is the residential portion of the rifugio, which takes a different architectural approach- within the steel shell a series of wooden modules can be constructed, each one a self-contained living unit based on the layout of an existing Apuan refuge. The module is detailed below. This level also contains the shared spaces of lounge/cafe and enclosed corridors that can also become social spaces. The -1 level has a strong connection to the quarry step at 1636m, as each unit has its own bridge to rear terrace, and there are shared entrances to the lateral terraces overlooking the quarry. The -2 level houses an observation/meditation deck with a panoramic view over the quarry as well as to the distant mountains. Hidden above this is a lofted space in which all the mechanical lines and machines are placed so as to easily serviced and onobtrusive.
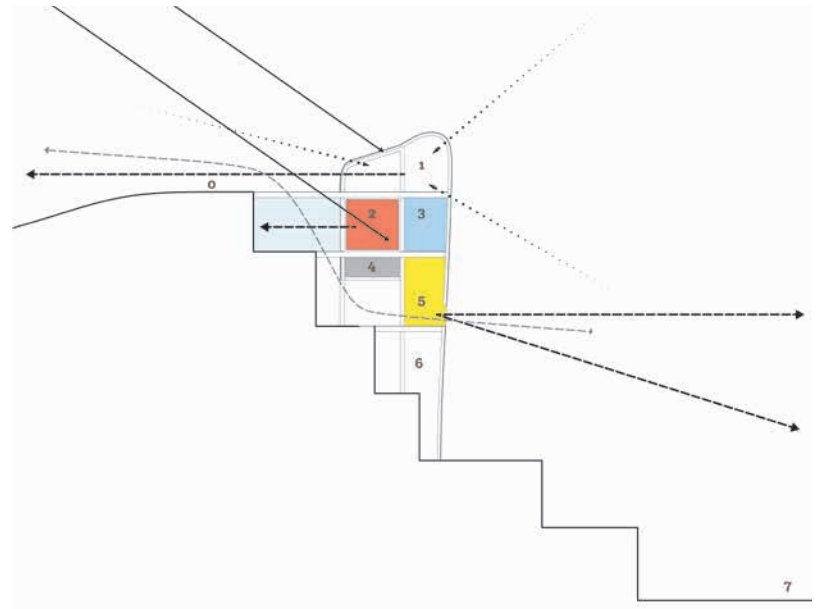
Relationship with Quarry

The structure is placed on the southern portion of the site, in the area of the Comune di Massa, where mining has currently been suspended and seems unlikely to return. Not only is this area convenient legally, but here the quarry workers have left a set of huge stepping terraces sized to allow machinery access to the rock faces- accessibility is obviously a important factor when considering what would be a difficult construction process. These terraces, other than simply providing a surface to construct from, also offer great potential as liveable areas. Now they are blocked to keep people away from the vertical drops, but with a simple railing they can become panoramic platforms of considerable dimensions. They are a sort of 'found space', ready-made balconies that are waiting for occupation. The final position considers many other factors, including town boundaries, access, feasibility, desire to keep the quarry operational, connections to external spaces, views, and so on. And in the end, a way of resolving the problem presented itself: setting the building back from the edge of the quarry would allow light to enter into the lower level of the structure- thus I could retain a low profile, ensure illumination of the units as well as protection from high winds, and take advantage of the stepping quarry to create external spaces in addition to those within the structure. In the end the inhabited areas have the same exposure as the pass, which is the least shaded part of the whole area.

Several possibilities were explored as far as locating the program within the site. The first would have created a garden within the quarry- but it would have shut down excavations. The second had the best solar position but led to a traditional type of building. Scheme three was a bridge that spans the quarry- this works conceptually but the resulting architectural language was not what I wanted to see in this site- too radical and polemical. The fourth scheme eventually became the project as explained above.

Right: Daily shadow path map of the summer solstice, equinox, and winter solstice, showing the degree of shading natural present on the site, and where sunlight more often falls.
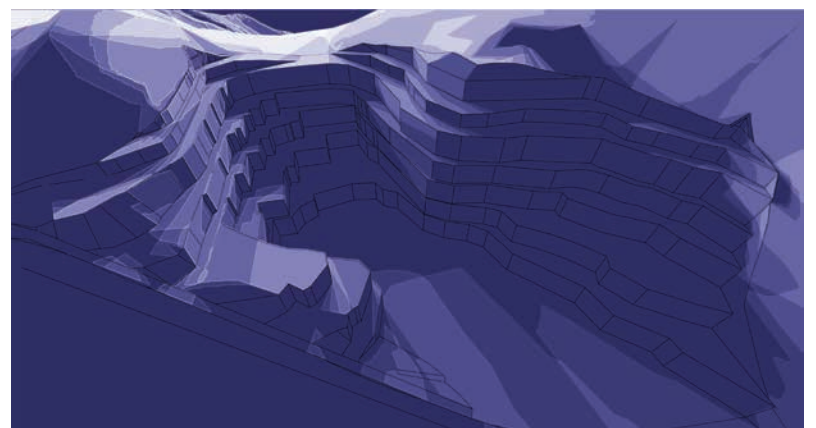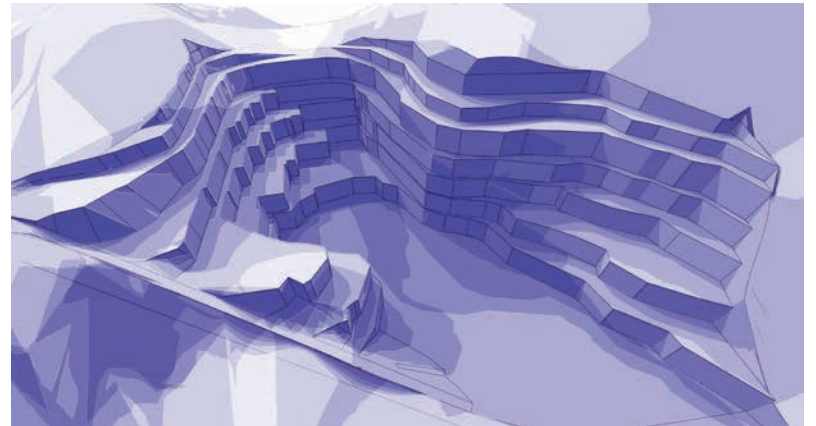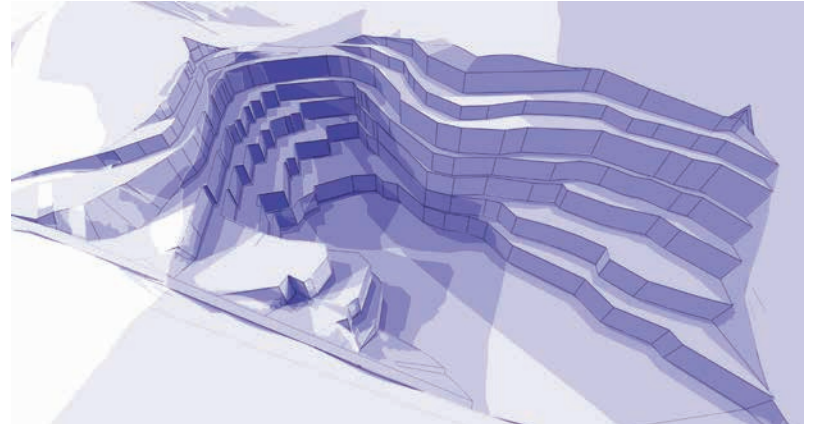
Right: Solar Radiation map of Cava Piastramarina created with DIVA software, showing amount of energy falling on each m2 of ground. I placed the volume of my proposal in one of the tests: due to its elevated and offset position, it is the most exposed element in the system, indicating a good placement of photovoltaics or other stretegies for absorbing solar radiation.
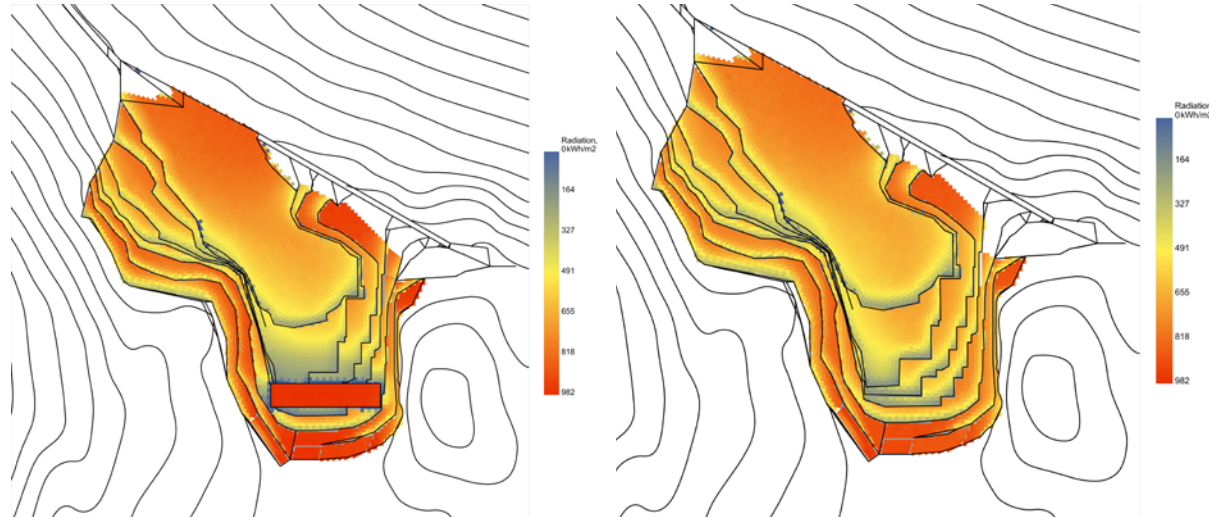
Right: Confrontation. The structure would literally force a confrontation between the workers in the quarry below and the excursionists in the shelter. The monolithic building, like the black rectangle of *2001*, could simbolize a new evolutionary state that has been reached, a change in the order of things.
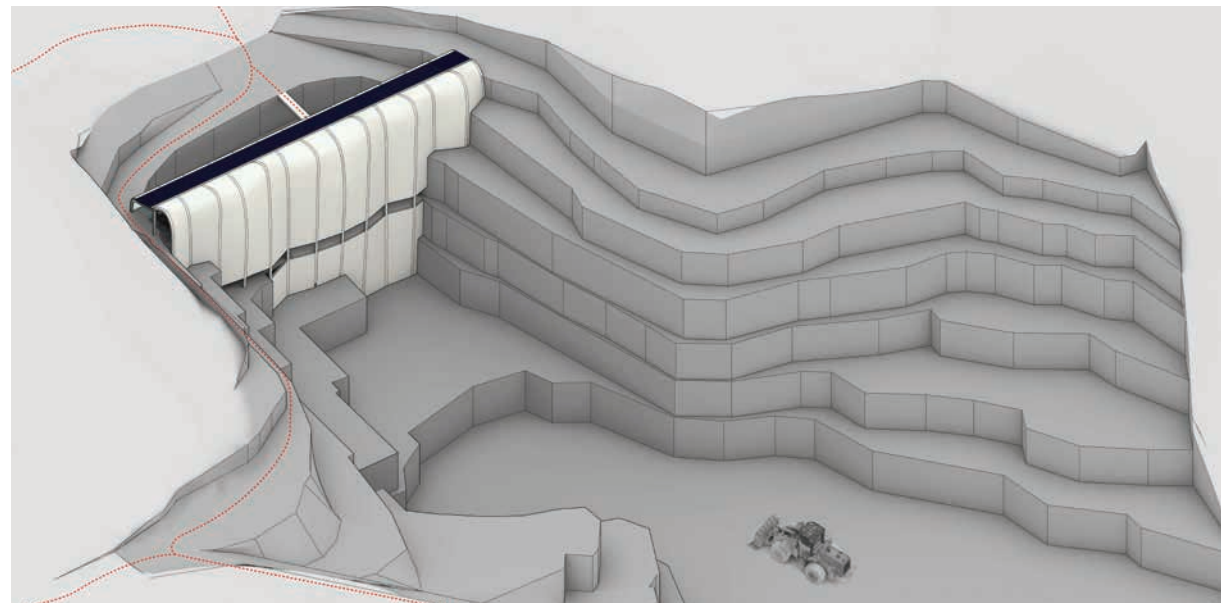
Bivacco Aronte:
Exemplar and Inspiration

Secondo una leggenda raccolta da Vincenzo Giannarelli, Aronte fu un gigante che aveva il compito di difendere le Apuane dagli attacchi dei nemici che provenivano dal mare. Quando i primi cavatori salirono sui monti per estrarre il marmo e ferire la montagna, Aronte scese a valle per impedire agli uomini di rovinare le belle montagne. Il gigante incontrò una giovane fanciulla e se ne innamorò, ma lei lo respinse; allora Aronte disperato risalì sulla montagna e morì di dolore. Fu così che da quel giorno tutti i monti delle Apuane vollero dimostrare la loro inimicizia alla gente che abitava sulla costa e voltarono verso il mare le loro pareti più scoscese e inaccessibili.

The details of this legend, recorded by researcher/photographer of all things Apuan, Stefano Pucci, sounds to me a bit too convenient to the environmentalist faction of Carrara. In any case, the oldest mountain shelter of the Apuane takes its name from this legendary figure, Aronte, who is also mentioned in Dante, and probably origates in Etruscan times. Built in 1902, the vaulted masonry hut stands only a few meters from Cava Piastramarina, which of course would have still been Passo della Focolaccia at the turn of the century.

The architectural theme of the cell has been investigated many times, and with everything from La Certosa to La Tourette to Plug-in metabolist towers kept the back of my mind, I decided to adapt the functional layout of the Aronte rifugio into the modular design of the residential portion of my proposal. I stayed in Aronte when researching this project, and appreciated the austere authenticity of this tiny building. Dark, dirty, and decaying, it was nevertheless far more comfortable than sleeping outside, and the interior layout, however rudimentary, worked well, better than many other shelters I have seen. So my proposal incorporates the basic layout, expands it, and improves it, while trying to keep the spirit of this primitive (but pleasant) hut intact.
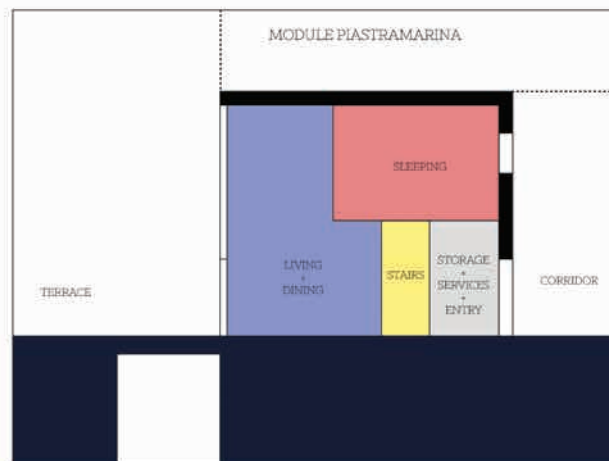
Left: Functional diagrams comparing rifugio aronte to living module of rifugio piastramarina

Opposite Above: axonometric of rifugio aronte

Opposite Below: axonometric of rifugio piastramarina's module at same scale
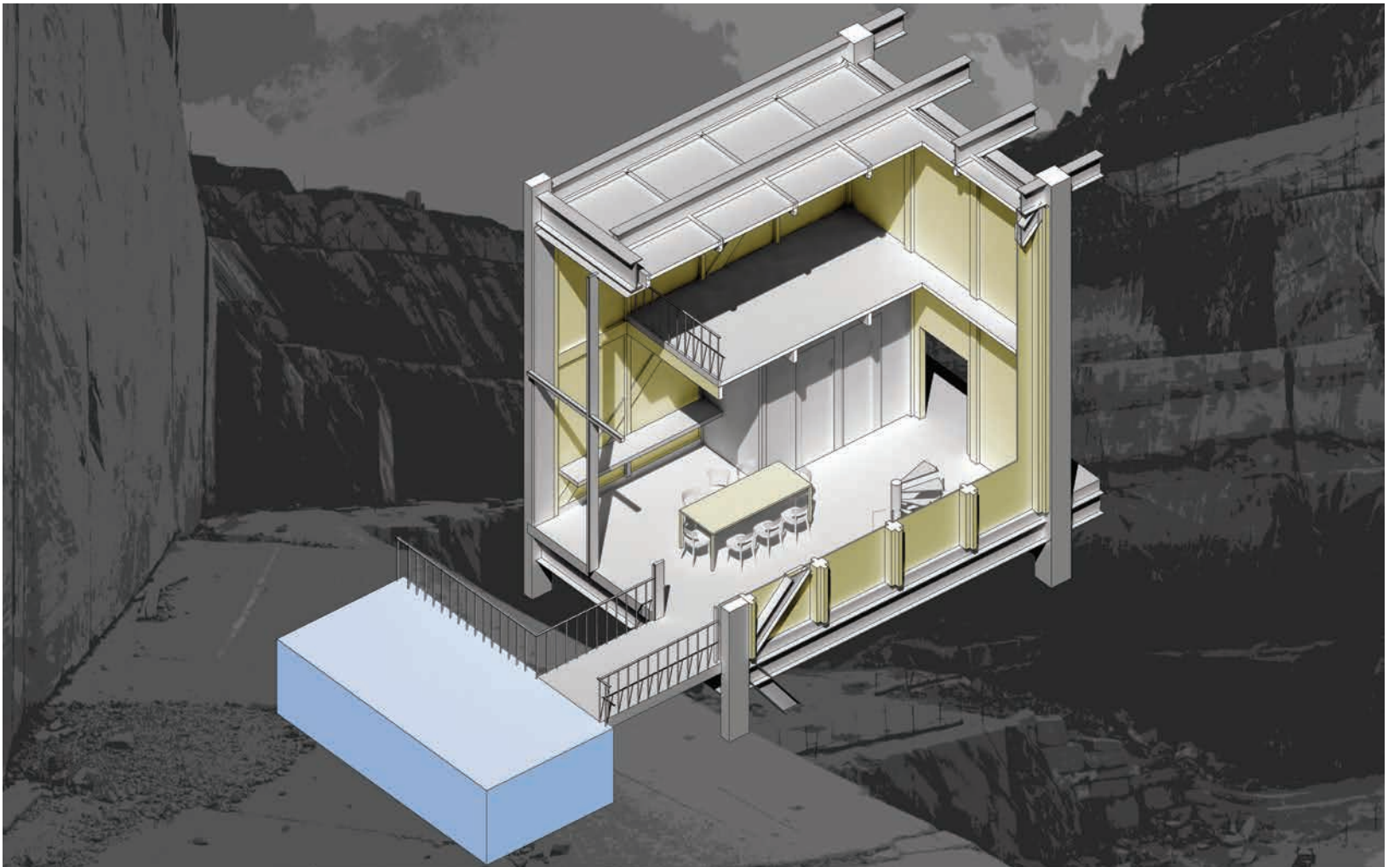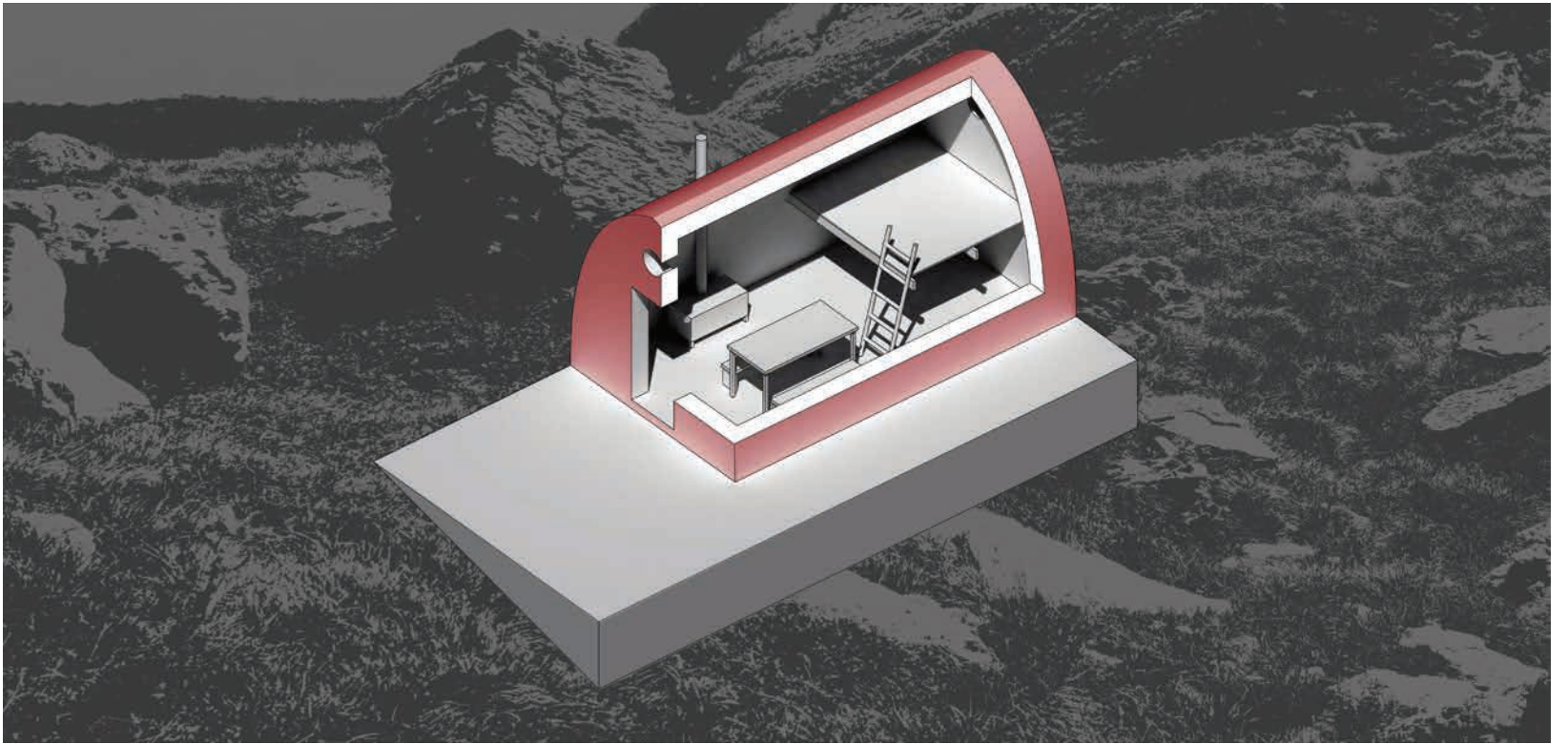
3.3:
Design
Drawings

Initially I thought that this project would be more of a technical exploration, but I realized that the complexity of the site, the logistics of construction, and the few architectonic gestures that were necessary here did not take well to a technically radical building. So what we have is a relatively simple steel frame construction with a few curving elements that do not need complex joints. The attachment to the walls and steps of the quarry is a complicated operation, and a local solution would have to be developed for each single column and beam depending on the state of the stone, the load, deflection, etc. I am taking a risk with the outer flexible covering- experimentation is needed to find the perfect way of tensioning and attaching the sheets of flexible plastic that cover much of the building. We discussed the idea of a rigid shell made of pre-formed plastic panels, but for the moment I feel like the sheer size of the main wall and the fact that no panel could repeat makes this construction a bit impractical. I may be wrong though. In any case the outer walls are intended to be translucent and somewhat insulating.

I break from the steel/plastic high tech look in the residential modules- precut laminated timber beams and wood composite insulating/finish panels mean that while the construction is absolutely contemporary in terms of technology, the natural finish brings a warmth that the rest of the building lacks.
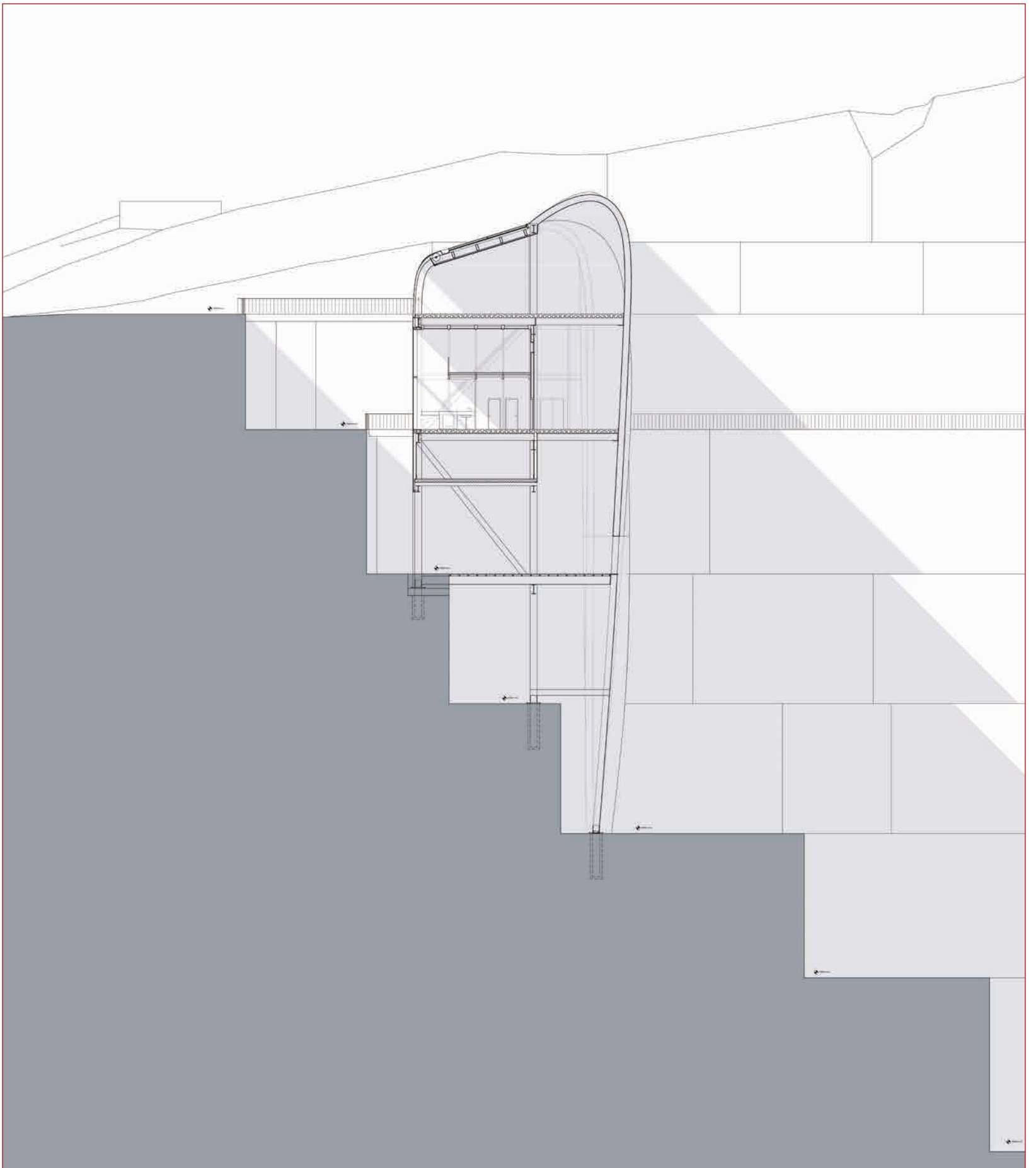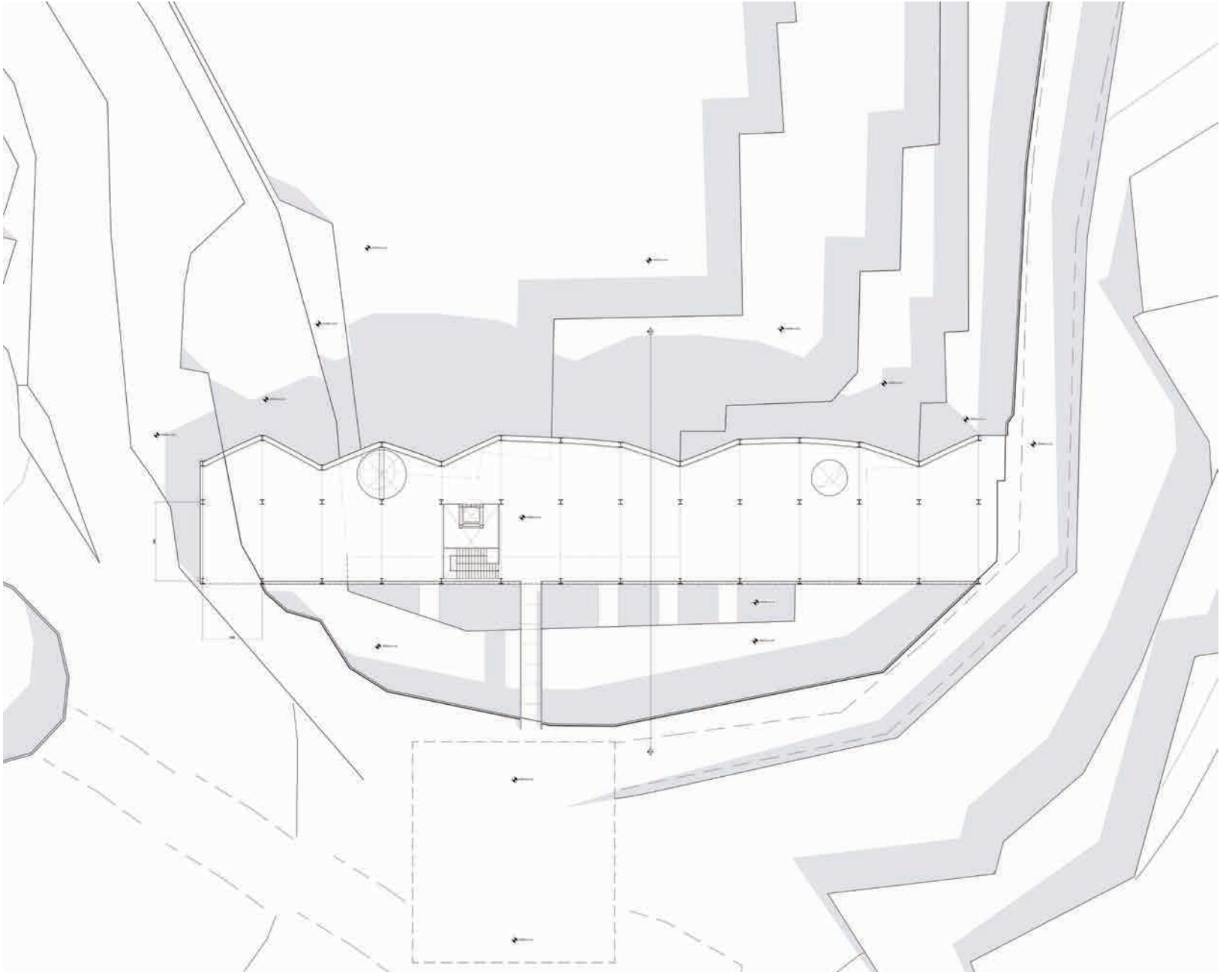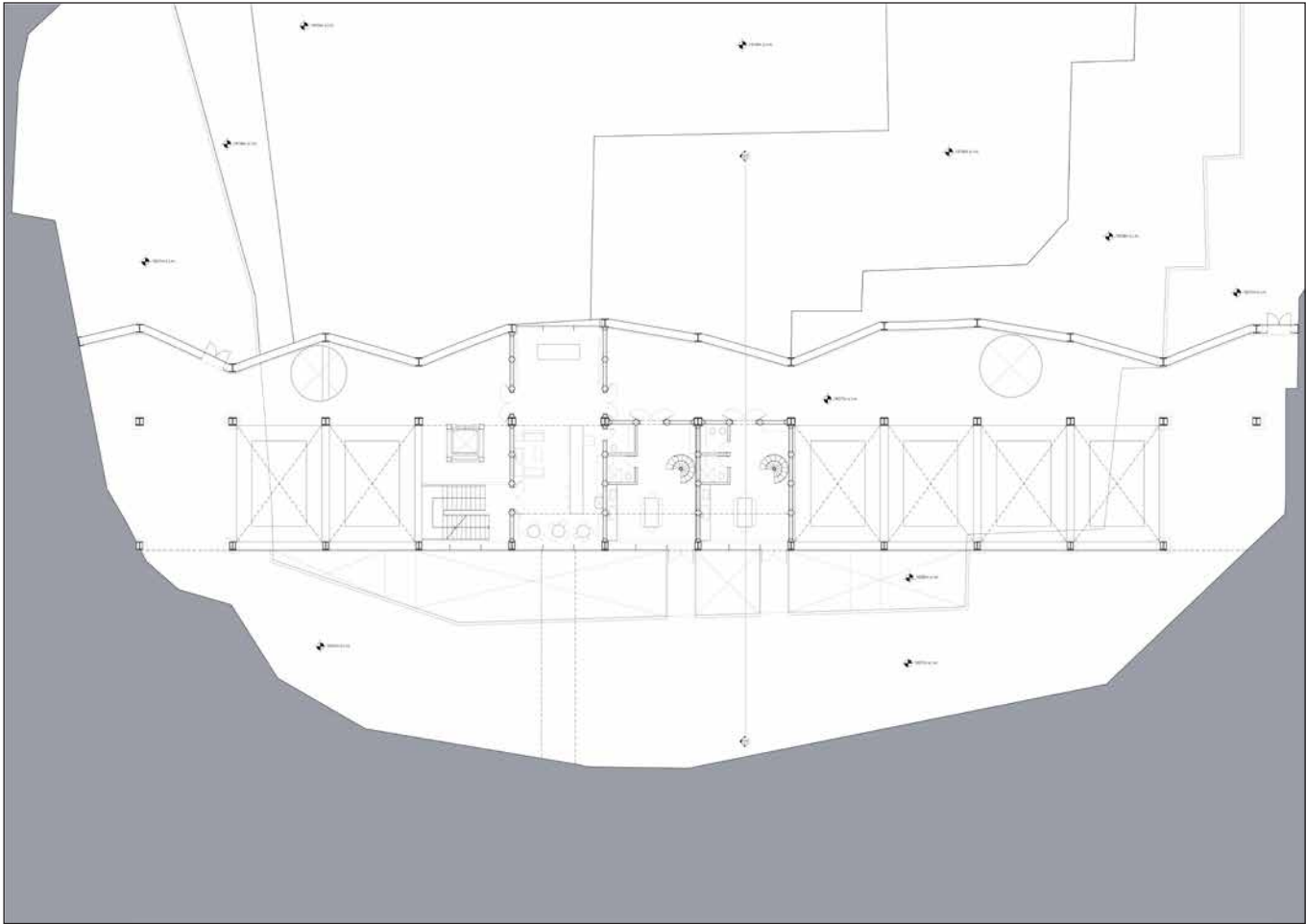
Opposite: -2 Ground floor plan: Airlock space
Above: -1 Level plan: living quarters
Below: -2 Level plan: observation deck
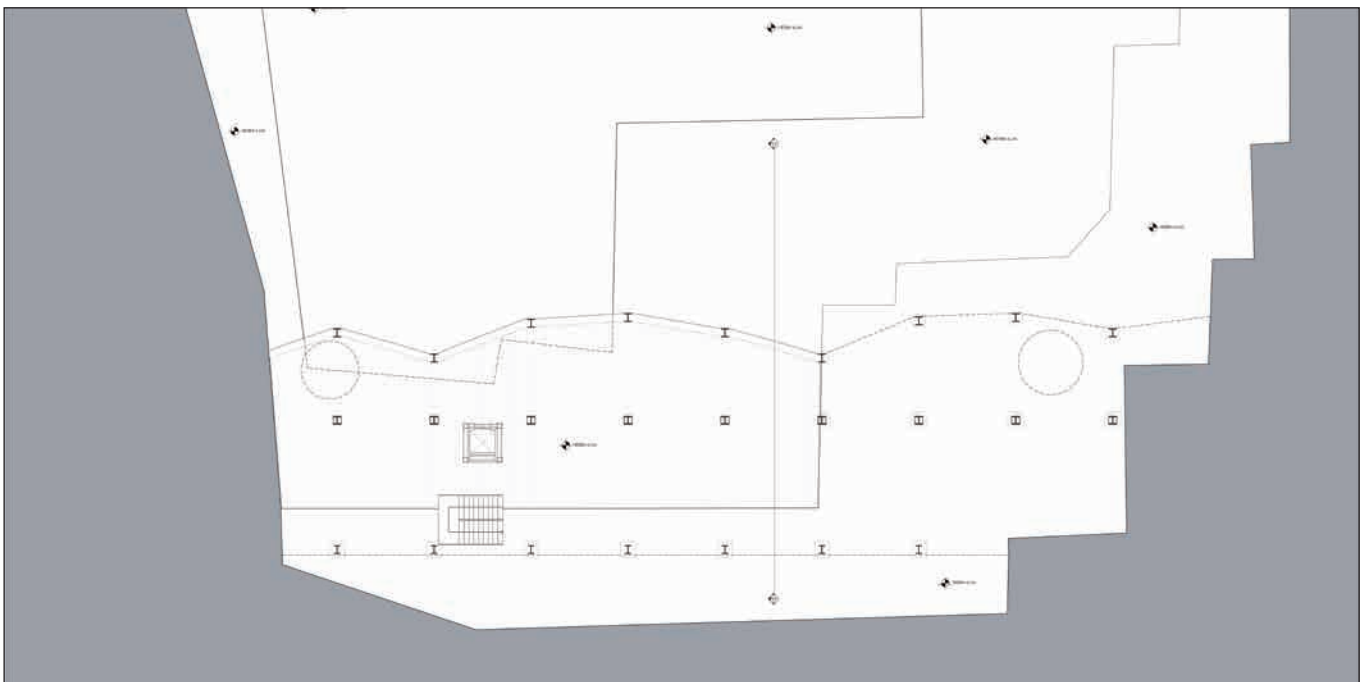
Context

"Fuck Context"
-Rem Koolhaas, S,M,L,XL, 1996
"Context, let's get it on"
-idiot student, 2015

My project is trying to have a more mutually
beneficial relationship with its surroundings, even if
it is a sort of insertion into a void...

corridor
(width varies, allowing a
degree of social activity)

entry
(direct view to wall of
quarry in front)

storage
(climbing gear,
backpacks, etc.)

bathrooms
(two-number of users
varies, and redun-
dancy for breaks)

kitchen
(sink and woodstove)

furnishings
(large central table,
sofa/extra chairs along wall)

sleeping area
(lofted space with no set
layout, furnishings may vary)

bridge

terrace
(on stone quarry steps)

Above: Floor Plans of main level and lofted sleeping
space of living module in rifugio piastramarina

Opposite: Rendering from quarry terraces into living
modules at dusk.
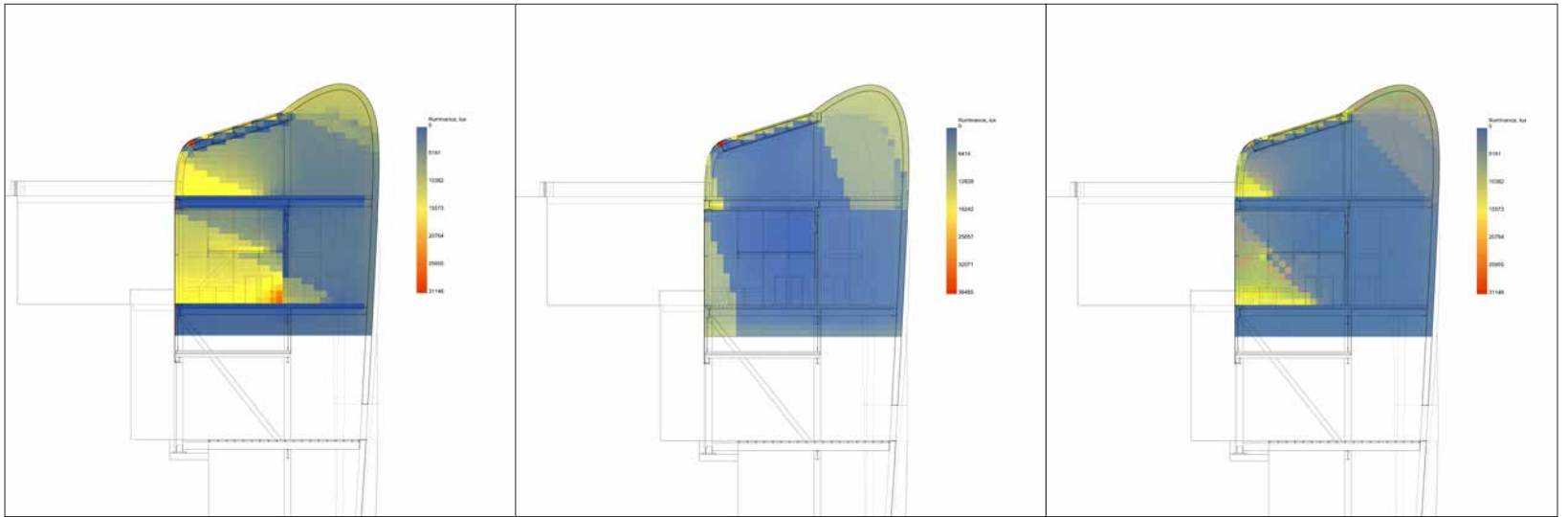
Internal Solar Performance- Software Testing

As a test of the validity of the site strategy, I ran some very basic simulations of illumination and radiation to visualise how sunlight enters or is blocked by the building. Above, you can see the sunlight flooding into the room in december, even with the quarry wall in front. Below, the floor plan shows how the solar energy increases as you move away from this wall, to the point where it is quite strong at the edge of the building envelope.

This Page: Images created using DIVA plugin for Rhinoceros

Facing Page: Site plan with shadows

RAVANETO

EXTRACTION
AREA (2016+)

FUEL
DEPOSIT

COMUNE DI MINUCCIANO
COMUNE DI MASSA

COMUNE DI MINUCCIANO
COMUNE DI MASSA

WATER
BASIN

INACTIVE
QUARRY
AREA

PIAZZALE
EX-PASSO
DELLA FOCOLACCIA

BIVACCO ARONTE

CUT STONE
STORAGE

"Our work is about exploring alternative worlds as a means to understand our own world in new ways...through real travel to extraordinary and alien landscapes, exploring the specters of nature and technology and the way they're becoming indistinguishable. "

-Liam Young, Tomorrow's Thoughts Today

20X15CM PROFILE EXTRUDED STEEL BLOCKING

40X15CM STEEL SUPPORTS FOR ROOF STRUCTURE
12X12 HOLLOW STEEL SECTION JOISTS WITH PRECAST
FIBER REINFORCED CONCRETE PANELS SCREW CONNECTION
WITH POLYETHYLENE WATERPROOF SHEATHING
MODULAR SOLAR PANELS MOUNTED ABOVE ROOF
ca. 400M² OF TOTAL AREA- ca. 12KW/DAY
BUILT IN RAIN GUTTER OF PAINTED GALVANIZED
STEEL SET FLUSH WITH ROOFLINE

2CM PLASTERBOARD OVER WOOD FRAME
WHITE PAINTED FINISH
CHANNEL LIGHTS RECESSED WITHIN WALL

55X30CM IPE BEAM

2CM PLASTERBOARD OVER WOOD FRAME
WHITE PAINTED FINISH

FIXED SECTION OF 4MM EXTERIOR
POLYETHYLENE SHEATHING

3MM SHEATHING USED IN OPERABLE PORTION
EDGES SET INTO RAILING IN EXTRUDED ALUMINUM GUIDE

CUSTOM EXTRUDED ALUMINUM RAIL PIECES
SET FLUSH WITH STEEL COLUMN
INTEGRATED RAIN GUTTERS WITHIN CENTER OF PROFILE

"AVVOLGIBILE" SYSTEM ON SOUTH FACADE:
RETRACTABLE PLASTIC AWNINGS ON RAILS
CYLINDRICAL ROLL WITH ELECTRIC OPERATING SYSTEM

2CM PLASTERBOARD OVER WOOD FRAME
WHITE PAINTED FINISH

2MM INTERIOR WHITE TRANSLUCENT ETFE FABRIC
MOUNTED AFTER 4MM EXTERIOR COVERING, USING INNER COLUMN FLANGE

CURVED 45CM IPE STEEL COLUMN
USED AS MOUNTING POINT FOR EXTERIOR SHEATHING

AIR SPACE- DOUBLE SKIN FACADE IN NON-THERMAL ZONES
OFFERS DEGREE OF ISOLATION FROM EXTREME THERMAL EXCURSION

PAINTED STEEL RAILING SYSTEM(NOT DETAILED)

2CM PLASTERBOARD OVER WOOD FRAME
WHITE PAINTED FINISH

4MM EXTERIOR ETFE FABRIC
WHITE TRANSLUCENT EXTERIOR LAYER
ATTACHED/OVERLAPPED AT IPE AND HELD IN TENSION WITH INOX. FASTENERS

LPE STRUCTURAL TIE UNIFIES VERTICAL FACADE SUPPORTS, CANTILEVERED FLOOR
JOISTS, AND PROVIDES CLEAN EDGE TO FLOOR SLAB

25CM STEEL LPE USED AS ARMATURE FOR FLOOR
AND LOWER BORDER OF SUN SHADE SYSTEM

CONCRETE FLOOR WITH INTERNAL STEEL REINFORCEMENT
POURED OVER CORRUGATED STEEL PANELS RESTING ON

50CM IPE FLOOR JOISTS- TALL PROFILE SPECIFIED FOR
PARTIAL CANTILEVER TO NORTH SIDE OF STRUCTURE

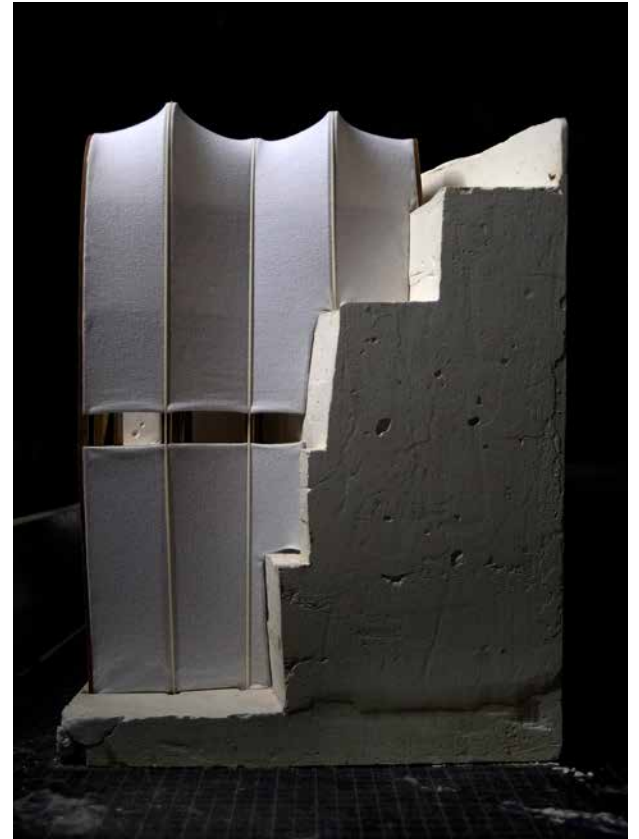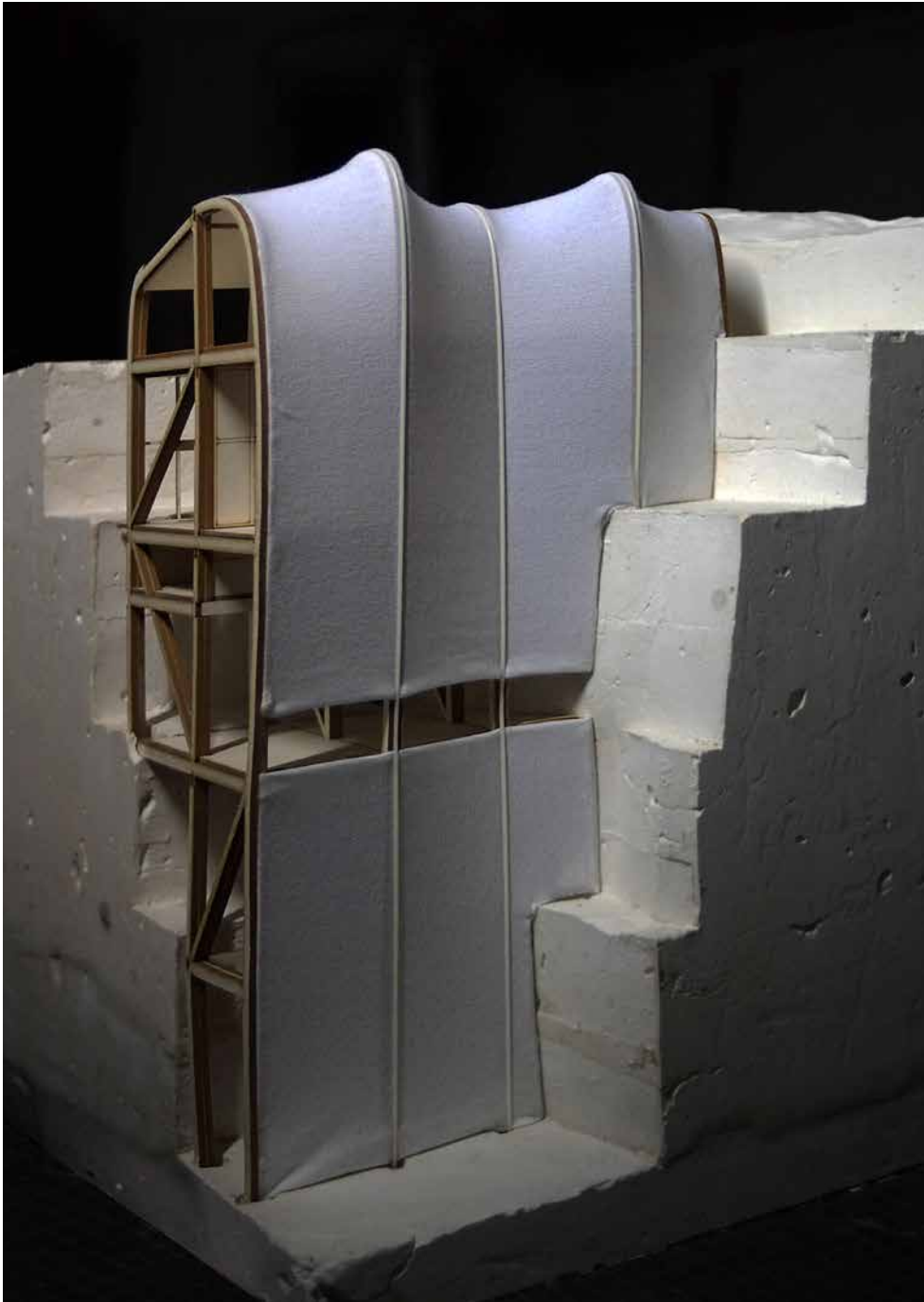50CM CONCRETE AND STEEL ACCESS BRIDGE

EXTERIOR FASCIA USING SAME PLASTIC SHEATHING
AS ELSEWHERE

CUSTOM EXTRUDED ALUMINUM WINDOW FRAMES

PLASTERBOARD CLOSURE AGAINST DEBRIS/ANIMALS

LED LIGHTING SET WITHIN STEEL BEAM SECTION

65CM IPE PRIMARY STRUCTURAL MEMBER

CROSS LAMINATED TIMBER SECONDARY MODULE STRUCTURE
X OR T SECTIONS AT CORNER

COMPOSITE WOOD AND NATURAL FIBERBOARD PANELS
SELF SUPPORTING WALL SYSTEM LEFT UNFINISHED

70X70 CASEMENT WINDOW FOR CROSS VENTILATION
OF SLEEPING AREA, DOUBLE GLAZED LOW E WINDOW

BLACK PAINTED EXTRUDED ALUMINUM MULLIONS

3CM DOUBLE GLAZED LOW-E GLASS

STEEL RAILING SYSTEM AS ELSEWHERE

CROSS LAMINATED WOOD HEADER

INSULATED COMPOSITE WOOD DOOR

THERMAL BRIDGE RESOLVED WITH EITHER
SECTION OF INSULATION SET IN CONCRETE
OR BREAKER SILL CAST IN PLACE

50CM CONCRETE AND STEEL ACCESS BRIDGE

CUSTOM EXTRUDED ALUMINUM WINDOW FRAMES

65CM IPE PRIMARY STRUCTURAL MEMBER

WHITE POLYETHYLENE EXTERIOR WALL FINISH

INTERIOR NATURAL FIBER INSULATION SET WITHIN
GALVANIZED STEEL I PROFILE STUDS

2CM PLASTERBOARD OVER WOOD FRAME
WHITE PAINTED FINISH

40CM IPE DIAGONAL STRUCTURAL BRACING

MARBLE WALLS OF QUARRY

UTILITY SPACE WALL FRAMED WITH GALVANIZED
STEEL STUDS AND SYNTHETIC INSULATION

65CM IPE PRIMARY STRUCTURAL MEMBER

EXTERIOR PLASTER FINISH WITH WHITE PAINT

INSULATED CONCRETE FLOOR SLAB- 5CM FINAL POUR
OVER 7CM EXTRUDED POLYSTYRENE INSULATION
OVER REINFORCED POUR ON CORRUGATED STEEL PANELS

25CM IPE FLOOR JOISTS

40CM IPE SECONDARY STRUCTURAL BEAM

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Opposite Top Left: Rendering of interior of living module, looking south towards quarry wall.

Opposite Top Right: Rendering of lounge space with conventional view of landscape

Opposite Bottom: Photo-insertion of refuge as seen from the pass

Above: Photos of partial model of first 4 structural bays

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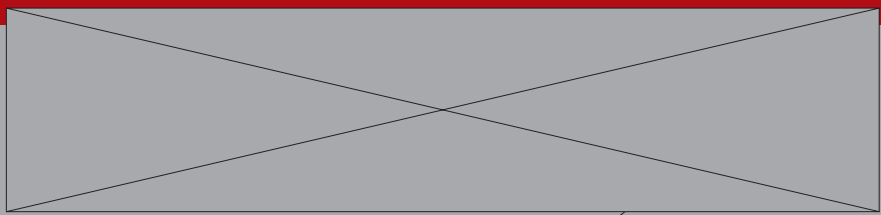
UNIFYING A LANDSCAPE OF CONTRADICTION. RIFUGIO PIASTRAMARINA

A CURA DI
ROBERT KANE