

Pierluigi Angelo De Pace

Polimi TIS

TIS#

THESIS INCUBATOR STUDIO

PROJECT / THESIS
MUSE_BUNKER

METROPOLIS ESCAPES

URBAN
BUNKER

Exploration

BUNKER in PAST and PRESENT

- 🗝 Definition of Bunker
- 🗝 History
- 🗝 Nowadays Condition
- 🗝 Reuse
- 🗝 Bunker Society Analysis
- 🗝 Conformation and Qualities
- 🗝 Architecture, Materials and Layout
- 🗝 Primary Needs
- 🗝 Secondary Needs

Reflection

META-PROJECT

- 🗝 Bunker Hospitality
- 🗝 Metropolis Condition
- 🗝 Urban Bunker
- 🗝 Experience
- 🗝 Manual

Implementation

PROJECT

- 🗝 Context Analysis
- 🗝 Flows
- 🗝 Layout
- 🗝 Project
- 🗝 Storytelling
- 🗝 Feedback

Creation

.12 □

.14 □

.18 □

.24 □

.52 □

.88 □

.114 □

.128 □

.130 □

.134 □

.148 □

.150 □

.154 □

.164 □

.186 □

200 □

.206 □

.212 □

.220 □

.222 □

ABSTRACT

The research is based on analyzing all the intrinsic and extrinsic characteristics of **BUNKERS** mainly used for people. We start by analyzing their origin, therefore the history: We start from the First World War, even if the term bunker is used improperly to define more fortified trenches and casemates, only to be resumed with great force during the Second World War, where Germany's expansionist vision instilled a feeling of fear throughout Europe and beyond. Lastly, to be a great defense weapon from the nuclear bombs that characterize the Cold War. The types that alternate in these historical events are different, ranging from simple holes **IN THE GROUND** used in the military to real massive fortifications, to which we now attribute the main meaning. The reasons for building a bunker are various, but we note how they have originally changed

in recent years, between global terrorism pandemics and climate disasters and natural disasters we are now far from the military campaigns for which these fortified structures were mainly built in the past. The research continues by analyzing better the target and therefore who is housed within these structures. And besides a few rare small groups, most of the community that is building bunkers is precisely that of **PREPPERS**. The community is growing in recent decades thanks to a cause also of world events that do not reassure the population of the globe, giving life to a community that is increasingly grains and tendencies to create **GROUPS** also **ON SOCIAL NETWORKS**. The preppers in turn are divided into two levels: the medium and the high preparation level. The solution that is offered is that, by the **MERCHANTS OF TERROR**, through bunkers, and

private fortifications that can even cost millions of dollars. The project therefore analyzes these phenomena by transporting them to the city, where the threats are not atomic bombs and wars, but the **CHAOS** and work that threatens the balance of private and public spheres. Here, however, the solution is a **CITY BUNKER** where you can disconnect from everything and everyone. To focus on yourself and have moments of reflection with your person. Trying to recover an anti-aircraft structure present in **MILAN**. To then be a **MODEL PROJECT** to be replicated in various parts of the world.

HOW TO PROVIDE CITIZENS A REFUGE FROM CHAOS?

PHASE 1

EXPLORATION



DEFINITION

Starting from definition of Bunker, A bunker is a defensive military fortification designed to protect people and valued materials from falling bombs or other attacks. Bunkers are mostly underground, in contrast to blockhouses which are mostly above ground. They were used extensively in World War I, World War II, and the Cold War for weapons facilities, command and control centers, and storage facilities. Bunkers can also be used as protection from tornadoes.

History

Development of Bunkers

Analyzing the history between 1914 and 1917, The earliest and most basic trenches are foxholes or slit trenches, which were nothing more than a hole in the ground providing cover for an infantryman. From the beginning of positional warfare in October 1914, trenches were the main components of the defensive system and are among the most frequently excavated. In mid 1917, the military doctrine changed and defences were organised in greater depth, with concrete bunker strongholds becoming increasingly important. As the invention of heavy bombers were a general invention of numerous countries during the WW2, they also tried to build bunkers for defense. They should house vital infrastructure and safe it from air raids. Some bunkers were military bunkers for the General Staff, others were used to store valuables or art. Some bunkers were for the safety of high personalities,

WORLD
WAR I



1914-1917

WORLD
WAR I



1917-1918

WORLD
WAR II



1939-1945

History



other for organizing a battle. The Atlantic Wall was an extensive system of coastal defences and fortifications built by Nazi Germany between 1942 and 1944, along the coast of continental Europe and Scandinavia as a defence against an anticipated Allied invasion of Nazi-occupied Europe from the United Kingdom, during World War II. The dropping of atom bombs on Hiroshima and Nagasaki in 1945 decisively ended WWII and marked the beginning of a new world order that was under constant fear of nuclear destruction. In many countries, bunkers and designated fallout shelters were built almost everywhere, creating the impression that anywhere could be a target of nuclear attack at any time.

Nowday Condition

From history to Nowday

During the Second World War, the European continent, in particular, saw the construction of mammoth defense lines that had the enormous responsibility of repelling enemy incursions using modern construction techniques and any other means available to ensure the best defense, according to ideal of "total war". The Maginot line, the Atlantikwall and the Alpine Wall are some of the enormous fortifications of this period, erected to protect the national borders and beyond: a complex system of structures, obstacles, posts, flood systems, barracks and deposits with the purpose to safeguard armies and ensure support in the event of an attack. Despite this, many of the lines of fortifications proved ineffective against attacks either, and after the end of the war, they were decommissioned or reused for the same purposes wherever possible. More specically, From the end of the 19th century until the 70s of the last century, hundreds of thousands of bunkers were built in Europe: along the MAginot line (the barrier that protected the eastern French borders) about 10

thousand works were built over a distance of 2 thousand kilometers between 1928 and 1940; along the Vallo Alpino, commissioned by Mussolini to defend the Italian borders, there are 3,000 works. The atlantikwall represents one of the most impressive fortifications in the modern world: a defensive line about 12,000 kilometers long that protected all the western coasts of the European continent, from southern france to northern norway, built by the will of Hitler from 1942 to 1945 with over 15 thousand fortifications. Military architecture represents one of the most delicate themes of our time: structures that are the son of military genius, built with impressive speed and through meticulous planning, will soon find themselves no longer of any use in post-war society. Yet these structures have enormous potential.

But most of these constructions have been abandoned to their fate, due to the enormous costs of demeloition required but above all for their "uncomfortable" past, which did not allow to see in these



Nowaday
Condition



buildings the possibility of a new life, of reuse. Among these, the bunkers represent the most evident and most widespread type in the area. At the end of the Second World War, most of these structures obviously became obsolete from the military point of view, due to the incessant technological progress that took place after the war. Only a few remained active, mainly the bases used as submarine remittances, such as the Best submarine base in Brittany, one of the most impressive German military bases. Other submarine bases have been converted into museums and cultural centers, as well as others restored and open to the public; for many others it was thought of a demolition with recycling of concrete and steel, but this operation was complicated and not very convenient due to the other often isolated position. And here hundreds of thousands of bunkers have been abandoned to their fate, suffering the signs of time and vandalism, which have transformed them from artifacts of war to artifacts of decay. To circumvent the problem of vandalism and all

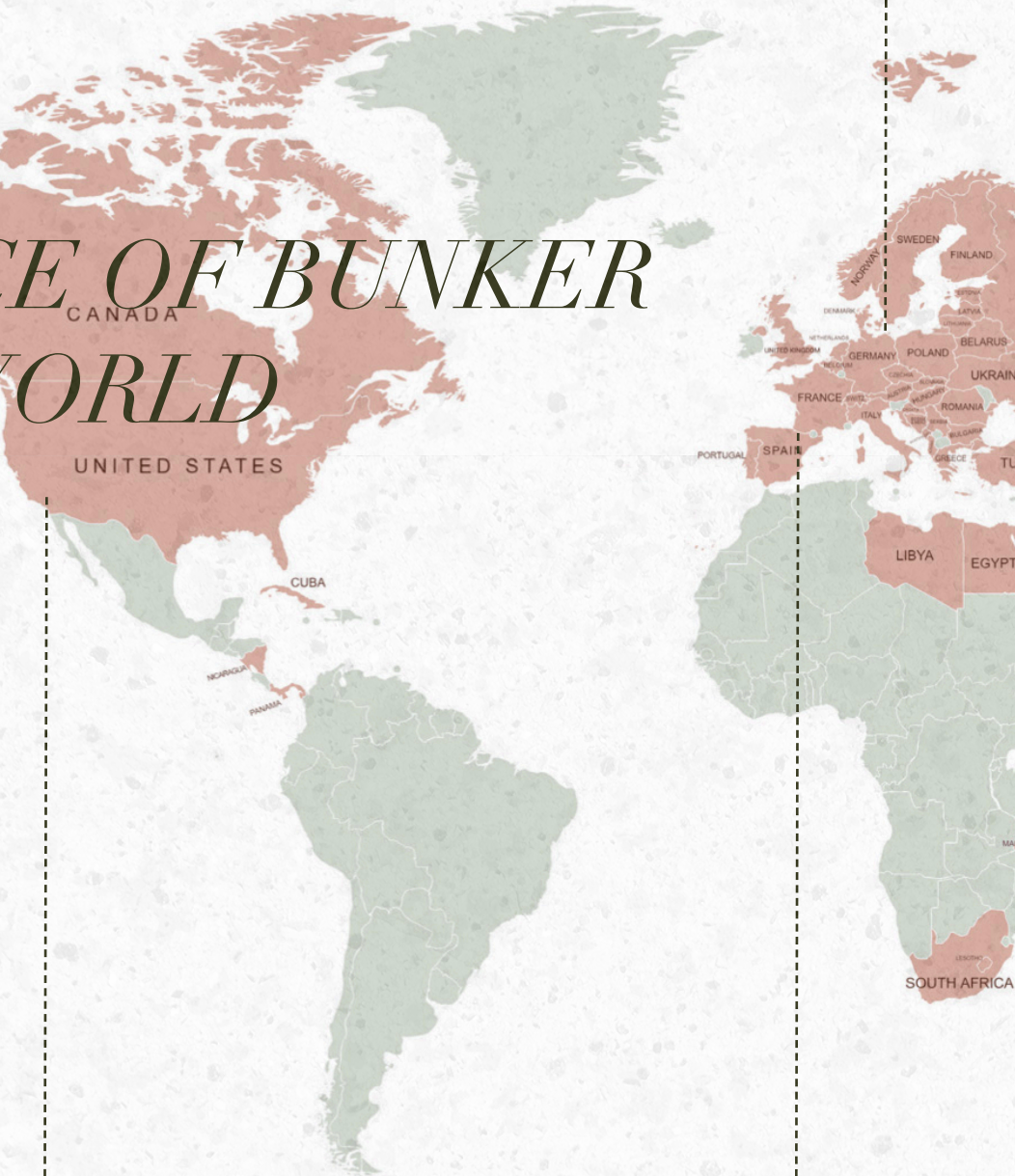
illegal activities, in many cases it was chosen to brick the entrances, burying these artifacts forever and their possibility of birth. One of the most unfortunate examples is precisely one of the most important military structures of all: Adolf Hitler's bunker in Berlin, which was sadly demolished and sealed after the war. The building, almost completely from the countryside, presented a complex system of entrances, rooms and defense systems, which could have become a monument of inestimable social value. This choice was mainly dictated by the colony of avoiding any demonstration or tribute by neo-Nazi movements trying to eliminate any possibility of "relapse", but in fact the opportunity for future generations to be able to observe and relive history in places in which was written. In its place today stands a parking lot; only a commemorative panel placed nearby indicates the presence of what was probably the most important war artifact of the 1900s



EUROPE:

- Albania
- Austria
- Belarus
- Bosnia
- Bulgaria
- Croatia
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Gibraltar
- Greece
- Hungary
- Italy
- Latvia
- Lithuania
- Montenegro
- Netherlands
- Norway
- Poland
- Portugal
- Romania
- Russia
- Serbia
- Slovakia
- Spain
- Sweden
- Switzerland
- United Kingdom

*PRESENCE OF BUNKER
IN THE WORLD*



AMERICA:

- Canada
- Cuba
- Nicaragua
- Panama
- United States

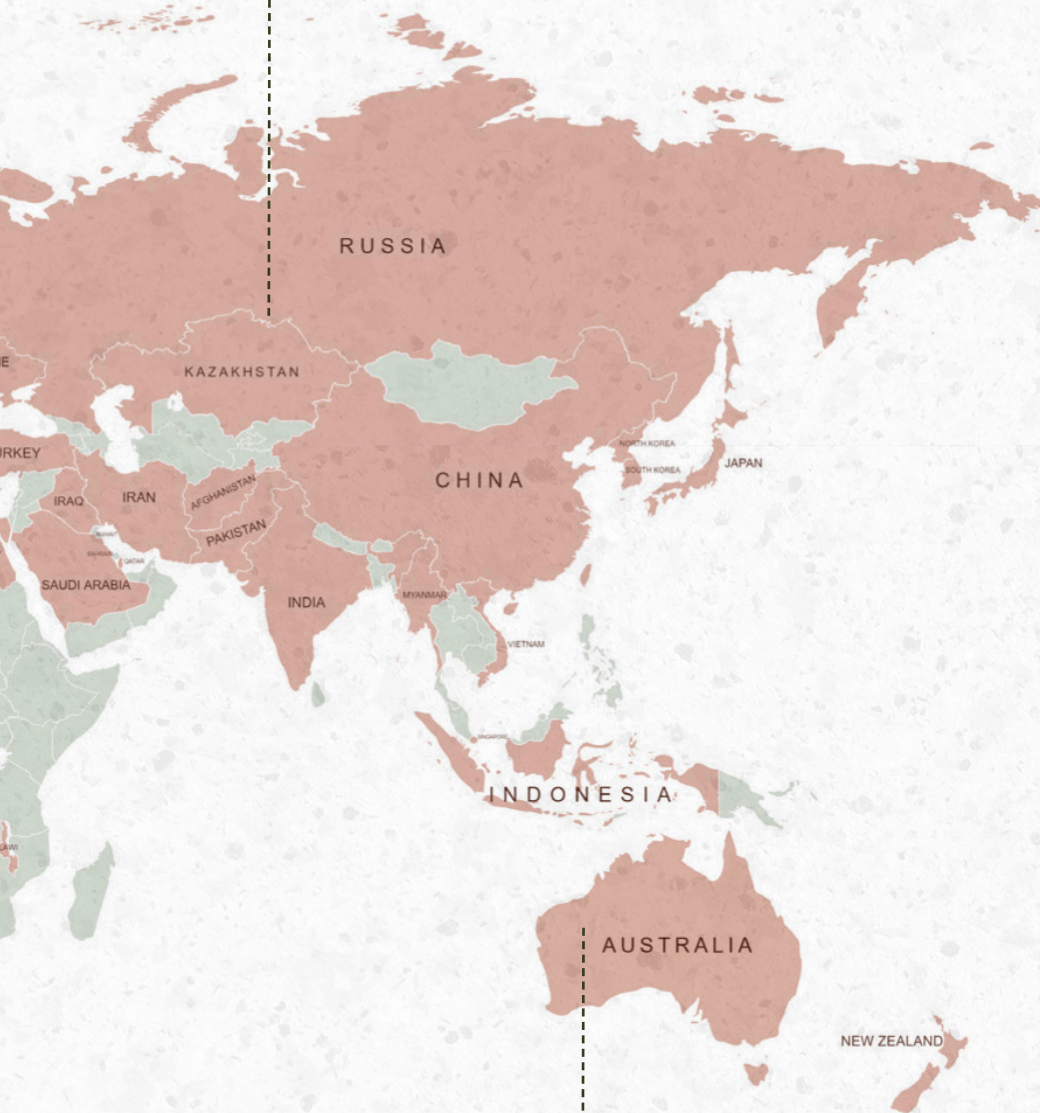
AFRICA:

- Egypt
- Lesotho
- Libya
- Malawi
- South Africa

ASIA:

- Afghanistan
- China
- India
- Indonesia
- Iran
- Iraq
- Israel
- Japan
- Kazakhstan
- Myanmar
- North Korea
- Pakistan
- Qatar
- Saudi Arabia
- Singapore
- South Korea
- Syria
- Turkey
- Vietnam

Nowaday Condition



-
-
-
-
-
-

-
-
-
-
-
-

-
-
-
-
-
-
-
-
-
-

OCEANIA:

- Australia
- New Zealand

PHASE 2



CREATION

Re-use phenomenon

In the photographs of Virilio and Gautrand a change of course is perceived: for the first time the bunkers of the Second World War are not seen as the remains of a sad event to be forgotten, but are observed, analyzed and interpreted as elements of an urban landscape in transformation; they are not vestiges of the territory to be erased but heritage to be safeguarded. It is no coincidence that this change is taking place at this very moment, between the 1960s and 1970s: the end of the post-war economic boom and the industrial divestment that took place in the 1960s began to arouse interest in abandoned artifacts, as they were witnesses of a past and could represent a future opportunity. In recent years, many industries that had found employment in post-war society irremediably closed their doors, leaving behind a huge building heritage apparently without a future. Added to this is the issue of waste: until the 1950s the expansion of cities and urbanization did not take into account the consumption of land and resources that an

uncontrolled construction would have generated. And from this moment on, abandoned buildings begin to play an important role, probably also due to the changing artistic-architectural trend, which left room for more evocative and spontaneous research, abandoning the iconic approach. If before the raw concrete and the structural components of a building were strictly hidden, now these elements become the new expression of the architectural language; Similarly, the poor art of Kounellis and Merz will represent, starting from the mid-1960s, a new way of expressing oneself through objects and materials of common use, dissociating itself from the figurative art of the past. These trends will help fuel the interest and sensitivity towards abandonment and, subsequently, reuse. The theme of abandonment becomes more and more central with the passage of time; at the end of the 80s the Urbex phenomenon (short for Urban Exploration) spreads all over the world: a series of people from various



*Abandoned bunker, dome of people
that make parkour*

-
-
-

RE-use

-
-
-
-
-

-
-
-
-
-

-
-
-
-
-
-

fields (photographers, architects, historians, archaeologists, etc ...) come across abandoned structures of any kind , to the discovery of an architectural heritage that is not even known to exist. Over the years this practice has had a strong social and political influence; it has become a commitment to signal, safeguard and protect these places from complete decay. Many enthusiasts of this activity try to enhance these environments and propose them to media platforms to make known the permanent wonders of their countries and also carrying out awareness projects and fundraising. Gradually the charm of decay will influence various artistic fields; from architecture to sculpture, from photography to cinema. Charm that derives, not so much from the aesthetic aspect itself, but from what these buildings could offer and what they could become. Of course, when it comes to war artifacts, the situation becomes more complicated, as the memory and the meaning of the work itself have a different value than any other

type of building or construction. Yet, they represent one of the most widespread categories when it comes to abandoned buildings both for their sad past and for the difficulties of demolition due to their constructive peculiarities. In particular, the abandoned bunkers continually suffer from acts of crime, vandalism having been designed mainly to hide what was inside and therefore fertile ground for illegal activities. Reuse allows us to grasp the meaning of the work through a critical rereading: giving life to a bunker is a moral necessity as well as a social opportunity. An example is Albania where, during the Second World War, 750 thousand reinforced concrete bunkers were built, for a population that at the time did not reach 2 million inhabitants. In anticipation of bombing which, in reality, never arrived. Many of these structures are still in place, witnesses of a past that for many is not pleasant to remember. But something surprising happened in Albania: it is analyzed by a project born from the intuition of two Albanian students, Elian Stefa and

Gyler Mydyti, then undergraduates at the Politecnico di Milano, called "Concrete Mushrooms", from which the book "Mushrooms" concrete. The reuse of 750,000 abandoned Albanian bunkers ". These old concrete agglomerates are so heavy it was unthinkable to move them, so why not recycle them? It all started with an art center, a tattoo parlor and a few discos, then storage facilities, hostels, a shoemaker's shop and several restaurants. The encouragement of the reuse of these spaces has given new life to these unused structures and has awakened the curiosity of tourists. Currently, there are three types of bunkers: small, medium and large. The book created to illustrate the phenomenon is a sort of manual to transform one: suggestions, practical models, details and prices of the interventions serve to give citizens an idea of how to act. All this becomes a real invitation to occupy the bunkers and use them for civilian use, finally eradicate the feelings of pain and death they evoke and give them a smell of the future.



RE-use



Re- use in nowday society

Reuse is one of the most current and discussed architectural themes of our time: the excessive consumption of grief and resources has led to reflect on what is the disused building heritage. Today, most of the architectural proposals concern interventions on the existing; a vast scenario of what are the various possibilities of reusing an abandoned artifact has opened up, what the objectives of this practice could be and how to pursue them. Bunkera, more generally all war constructions, were not immediately considered as an example of structures that could be reused, as it could have been an abandoned factory or any other civil building; their reuse meant at most a conservative intervention, which limited itself to communicating its history. In fact, the particularity of these artifacts makes it difficult to think of a radical transformation that suggests a different function from the initial one. Very small rooms, the almost total lack of openings to foreign countries, their isolated or hidden position and many other factors have contributed to avoiding the

path of reuse for decades. Recently, however, several architectural projects have tried to interpret a path that is not simply limited to archeology but that it tried to give a new life to this typology of buildings, trying to reinterpret its principles through another function. This approach represents an interesting challenge and an opportunity for the hundreds of thousands of bunkers scattered throughout Europe and around the world which until now, except in a few and rare cases, have never received the right consideration. The greatest difficulty of an approach of this type is certainly the preservation of identity, in the sense that the transformation must give life to the work without distorting it, in such a way that we can read the superimposition of interventions that have contributed to obtaining what is he is observing and living; otherwise, the true essence and history of the building would be lost, which in the case of the bunker or any other military architecture would represent a lack. The reuse of bunkers, therefore, represents a real social victory:

through architecture the horror of war is overcome, preserving its memory, transforming a war relic into a new opportunity. When we enter into the merits of reuse, we systematically clash with the identity of the artefact, with its history and its role within society, putting the designer in front of choices that are finalized by these elements. It would not be correct to present a story on the praxis of reuse, since each building has its own history and its social role; the same goes for war architecture, where more than any other type of building, the preservation of its history is a fundamental prerogative. In the case of bunkers, despite the various problems to consider, there are many opportunities that can give back to the community these buildings that would allow us to look at them with totally different eyes from those with which we do it today. Their very bad state of conservation is a witness to their non-role within today's society. But recently a series of personalities from various fields are showing their interest in this problem, through projects, articles, events and so on, trying to trigger a common interest on this particularly delicate issue.



RE-use



Typology

In the last period dragged by the wave of more sustainable architecture, the renovation of buildings and building complexes, and the recovery of historic buildings, the bunkers are slowly taking on a different connotation, more about the future rather than being tied to the past. . The three trends concerning the recovery of these concrete buildings are the following

We will present a series of examples of projects that address the various possibilities of reusing bunkers, each with a different logic, objective and consequently a different result. These are projects that try to reveal the hidden identities of these buildings, they also bring attention to the media, many times through provocative interventions, which are often more successful than any other project in conveying a message more clearly and directly. It is divided in **Residential, Storage, Culture.**

Now we'll go to to analyze various case study about this categories.

Residential



Storage



Culture



RE-use



Case study 1

The first case study that we analyze is The enormous Hochbunker (lit. 'high bunker') next to the U3-station Feldstrasse. The former WWII anti-aircraft bunker dominates the St. Pauli skyline and provides a striking reminder of history. Today it hosts, for example, a venue for live music, several night clubs, a large music store and office space for artists and musicians. The bunker's uses will continue to grow, as there are plans for an urban rooftop garden in the near future.

In response to Berlin air-raids by Allied Forces in 1940, the Nazi regime issued an immediate decree to build air-raid shelters in cities all across the Third Reich. Hamburg, a central location for the U-Boot (submarine) and oil industries, was deemed an obvious target. At the end of WWII, Hamburg counted no less than 1,051 bunkers – more than any other German city. Today, there are still some 650 bunkers left. Most are more discreet than the Hochbunker in St. Pauli and are located underground or hidden behind residential buildings. The bunker at Feldstrasse, originally

H
O
C
H
B
U
N
K
E
R



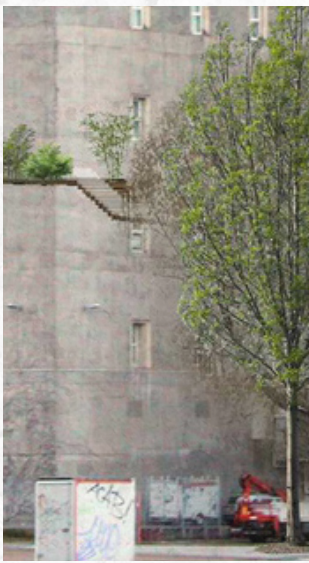
Residential

Hamburg, Germany

2019



RE-use



Render of Project

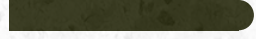
called Flakturm IV (lit. 'Flak Tower IV'), is one of the largest ever built. In 1942, one thousand forced labourers were ordered to build the structure, which measures 75 by 75 metres in width and 35 metres in height, with walls that are 3.5 metres thick. It was designed to accommodate 18,000 people and featured a special, extra-wide entrance for women with prams and children. During the air raids on Hamburg in the summer of 1943, no less than 25,000 people sought shelter in the bunker and were well-protected by its thick walls, even when directly targeted. However, Allied forces neutralized the bunker's primary military purpose of firing missiles at bomber aircrafts by releasing tin foil strips to interfere with the bunker's radios. After the war, plans to demolish the bunker were dismissed. Even if successful, the amount of explosives required would likely tear down the surrounding residential areas along with the bunker. Since then, the structure has been used for various civil purposes. In 1950, the public broadcaster NWDR broadcast

the first-ever television images in Germany from the bunker.

Its impenetrable walls make the bunker a perfect location for events that are a bit on the louder side. The nightclub Uebel&Gefährlich on the top floor is a popular destination for lovers of electronic music, while the ground floor is home to a large music store. A prestigious pop music school as well as several artists, actors and musicians have taken up office in the building as well. The newest plans for the bunker are as bold as they are green: with Project Hildegarden, the inhabitants of St. Pauli have teamed up with architects to design a vast city park extending from the U3-station Feldstrasse all the way up to the roof of the bunker. The park would span a total of 8,250 square metres, with plenty of space for urban gardening, venues and cafés – all with a magnificent view over Hamburg.



RE-use



Case study 2

Go on in the residential categories we found Fake Chalets. The annual costs for safeguarding the value, constructing and closing down the protective buildings reached 167.4 million francs in 2006, of which 128.2 were borne by private individuals and the remainder by the municipalities. Substitute contributions. The construction of a shelter in a single-family home costs around 10,000 francs. Who builds a house can avoid the obligation to build a bunker. In this case, however, he must pay a contribution of 1,500 francs for each protected place (two for every three rooms in the house). Traditional green-tinted shutters, lace curtains, typical beams of a chalet: if you come across a structure with these characteristics scattered in the Swiss woods, it will probably be a villa ... Or not? Maybe it's just as misleading you as these 18 bunkers. On the surface these suggestive residences may seem like small Swiss villas, but in reality they are real military bunkers, camouflaged in the landscape so as not to attract attention ... But if you look more closely you will notice that the window panes do not reflect sunlight.

THE - SWISS - CASE



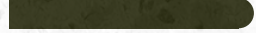
Residential

Swiss

2006 - Nowadays



RE-use



Exemple of Fake Chalet

Case study 3

The first of categories of Storage is this project. The project takes place in a former 1200 square meter antiatomic shelter. An amazing location 30 meters down under the granite rocks of the Vita Berg Park in Stockholm. The client is an internet provider and the rock shelter hosts server halls and offices. The starting point of the project was to consider the rock as a living organism. The humans try to acclimate themselves to this foreign world and bring the 'best' elements from earth: light, plants, water and technology. We created strong contrasts between rooms where the rock dominates and where the human being is a stranger against rooms where the human being took over totally. The choice of lighting has been very challenging. We tried to bring as much variation as possible. Otherwise it is very easy to loose the feeling of time in an enclosed space. Our references come straight from science fiction films, mostly 'Silent Running' and a bunch of Bond films with Ken Adams set design. One can describe the process in five different phases: -planning



Storage

Italian Alps

2008

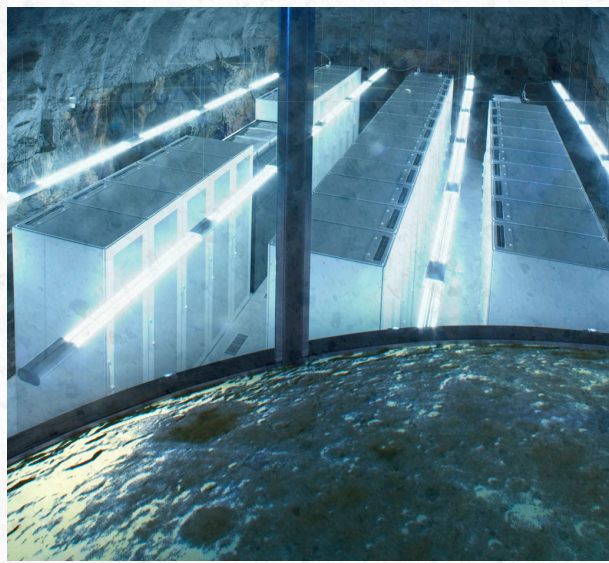
DATA CENTER

Contruction in Cold War Period

Designer: Albert France-Lanord Architects



RE-use



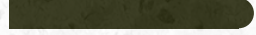
Interiors and Exterior

-destruction of the former office and blowing up the rock to create extra space. -reinforce the cave. concrete work. -technical installations. electrical. -glass and steel work. paint and furnishing. The client had a strong vision from the first brief and the result is only possible because of their persistence, the absence of compromise and great communication/ understanding between all parts under the process. It has been very exciting to work with a space which at first didn't offer one square angle: the rock. The main room is not a traditional space limited by surfaces but defined by the emptiness inside a mass. important consultants Geology: Geosigma AB El: Rejlers ingenjörer AB Construction: Albert France-Lanord Architects contractors Steel: UMB AB Explosive: Uppländska bergborrning AB Concrete: Vita bergen bygg AB Glass: Samglas

Södermalm AB Electricity mm: Stockholms ställverksservice AB Cold: Carrier AB UPS: Eaton Powerware AB Reservkraft: Blue Peter AB furnishing Furniture: Magis/ Hay Light: Supermodular/ Lamp/ Lucitalia/ Milan Rubber carpet in the tunnel and office: Nora Floor in the data centre: Golv bolaget



RE-use



Case study 4

Go on on the Storage category, Shanghai Godolphin is a China-based wine lifestyle consulting and design firm. just a 1.5 hour drive outside shanghai, nestled within the chenshan mountain botanical gardens, the studio has turned an old military bunker into a unique industrial style winery – creating the a home for the international wine and spirits museum. From bullets to bottles: shanghai godolphin turns military bunker into wine museum looking down the candlelit gallery that demonstrates the original formwork of the bunker.

The free standing bunker was originally built by chan kai shek, an ex-leader of the republic of china, inside the chenshan mountain cave over 80 years ago. used to store national treasures for safe keeping during war time, the site also functioned as a hold for artillery and anti-aircraft machine guns. the bunker was strategically placed there due to the cave's internal fresh water lake, previously quarried out by the british who then used the stone to build the famous shanghai bund. 'My senses were



Storage

Shanghai, China

1940s - 2015

WINE STORAGE AND SALE

-
-
-

RE-use



-
-
-
-
-



-
-
-
-
-



-
-
-
-
-
-

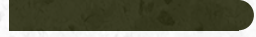
Photography of interior

first met by the musty smell of stale damp air and the reverberations of our steps and voices off of the concrete walls', explains Yin Lixue, managing director of Shanghai Godolphin, of her first time visiting the location. 'as each section of the bunker was lit one at a time by the old emergency lights above, we could see it had been abandoned for some time and lived several lives of its own.' The international wine and spirits museum mixes raw military functionality with the luxurious experientiality one would expect of such an institution. unfinished cement brick walls are offset with undulating installations made using repurposed wine crates. taking the form of seemingly organic insertions, the crates visually symbolise the location's gradual transition from one function to another. Overhead, chandeliers illuminate the long, arching hallways of the bunker, in many cases creating an illusion of almost endless corridors. this effect is especially prevalent in the main storage passageway, where multiple rows of repurposed wine

crate again add to the illusion of limitless space and staggering quantity. the effect is both disconcerting and captivating, and encourages visitors to explore further the depths the museum has to offer. A private cellar area, entered via a set of heavy metal doors, is home to an intimate wine tasting room. here, a centralized marble table lends itself to an almost gothic atmosphere as candles are suspended overhead on a floating glass shelf and high backed wooden chairs line the room. wooden wall panels add a softness to the atmosphere of the space, but the white stone walls that peek out from between remind guests of the solidity of the structure, and reinforces the overall sense of both exclusivity and familiarity.



RE-use



Case study 5

Now in the first case of Culture re use of bunker, we are located on the west coast of Denmark, in the town of Blavand; this is one of the prized territories of the AtlantikWall military bunkers, as its coasts directly overlook those of England and could have been a landing place for allied troops. here the community has wondered several times what to do with these buildings, trying in every case to protect their historicity. In addition to the red bunkers in good condition and freely accessible, others have become real works of art such as the sculptures of the English artist ùbill Woodrow, who in 1995 transformed some small bunkers on the beaches of Blavand into mules, overlapping the concrete constructions two metal elements representing the head and tail. The BIG Project represents a further step forward for the reuse of these artifacts: it is a cultural center based on the story of the Second World War, in particular of the aspects that characterized the western front of the conflict. The design works in



MUSEUM & TOURISM

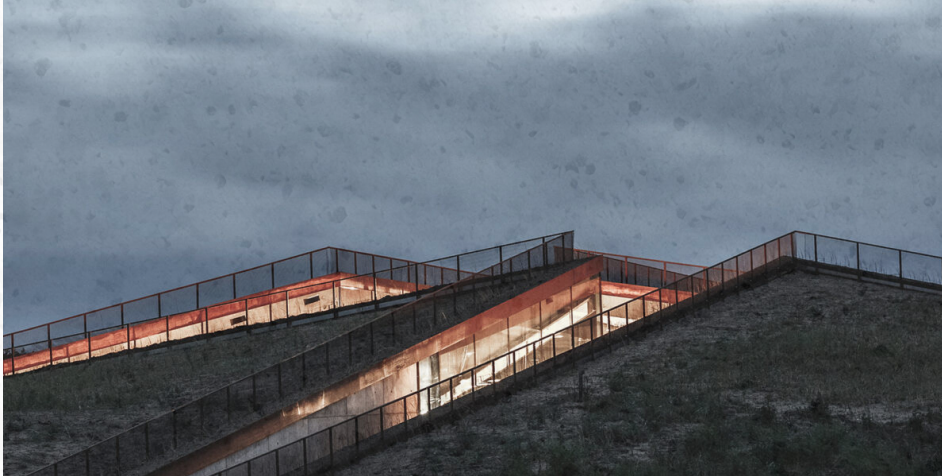
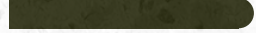
Culture

Blavand, Danmark

2017



RE-use



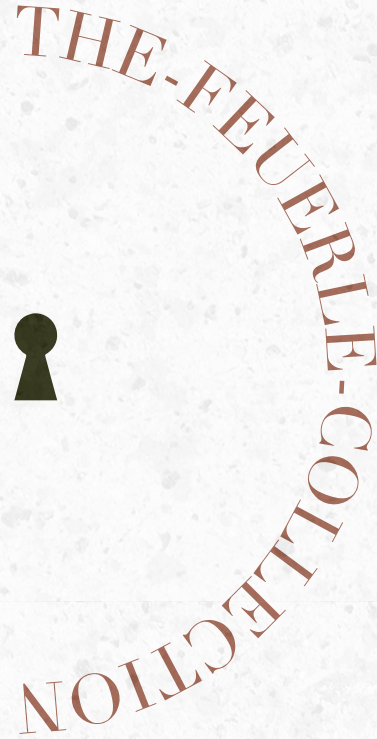
Outdoor of museum in the Hill

contrast to the persistent bunker: the latter becomes the landmark, the starting point of the museum itinerary which, subsequently, develops inside walkways dug and camouflaged in the sandy dunes, in contrast with the one that is the powerful presence of the concrete construction. The invisible museum is spread over an area of 2800 square meters; upon arrival, the vines immediately see the bunker and then, as they approach, the cuts and paths that lead to the center of the museum complex. The central courtyard allows access to the four spaces of the underground gallery. The elegant exhibitions by the Dutch studio Tinker Imagineers, show permanent or temporary thematic experiences. Each gallery has its own rhythm that relates to the story: high and low, night and day, bad and good, hot and cold. The

old bunker, on the other hand, is designed as an element from which to observe the underground intervention and the surrounding landscape through the central haunt, which was most likely designed to house a cannon or in any case the defense weapon of the fortress. The patio houses the spiral staircase that allows you to reach the roof of the bunker topped by a transparent dome. At night the dome is illuminated, performing its function as a landmark even in the absence of natural light. The most interesting element of this intervention, in addition to the antithesis work with the pre-existing bunker, is the re-enactment of its main aspects of a war artifact: on the one hand the need to observe and watch, showing off, on the other the need to hide and shelter.

Case study 6

We are located in Kreuzberg, a district south of Berlin's historic center. Here stands a former telecommunications bunker dating back to the Second World War which is spread over two floors for a total area of 6480 square meters. The initiative started with the collector of contemporary and Asian art Desirè Feuerle, who has been collecting sculptures and ancient Chinese art objects since the 1990s. The project focuses on the dialogue between historical periods and different cultures and offers the possibility of perceiving ancient art from an unusual perspective, immersing the visitor in a synthetic experience. The intervention is mainly based on the set up aspect of the museum path: white walls, mirror effects and soft lighting give the place a dreamlike and peaceful atmosphere, maintaining the importance of the war construction. I. minimalism of the interventions favors the dialogue between the brutality of the concrete walls and the elegance of oriental sculptures. The path consists of a space for



MUSEUM & TOURISM

Culture

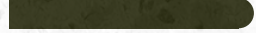
Berlin, Germany

1944 - 2010

Designer: John Powson



RE-use

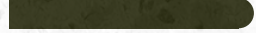


Interiors

temporary exhibitions on the ground floor, but the underground one below is in turn made up of three spaces: sound room, Lake room and Incense room. The sound room is a sensory experience accompanied by the sounds of the American composer John Cage, given the absolute silence of the place despite being in a city, it is possible to take advantage of one of the intrinsic characteristics of the bunker, the acoustic insulation; the Lake room houses a "lake", an artificial reservoir used to heat the museum by laying geothermal heat, here instead the direct and intrinsic contact of the building and its sub-stream is exploited; finally, the Incense room, a space dedicated to the Chinese incense ceremony, a spiritual practice of the millenary tradition. The collection brings together works by international contemporary artists, Chinese furniture from the Imperial Age in stone, wood and lacquered wood, dating back to different dynasties, from the Han to the Quing (200 BC - 18th century) and Khamer sculptures, from the 7th to the 13th century. As for the contemporary works, names of Cristina Iglesias, Adam Fuss, Nobuyoshi Araki, Anish Kapoor, Zeng Fanzhi and James Byars appear.



RE-use



Big glass box in the museum

Society Analysis

Reasons

Now analyzing the reasons that push some members of society to build safety shelters, we specify the transition from the first appearance of bunkers during the wars that involved the 1900s, up to the new millennium. We have the main reason: **War** with 80% of whole numbers of bunker. Most of the bunkers were created during the first two world wars and during the cold war for military reasons. At second place **Law**, During the period of prohibition, the people tried to preserve their rights by establishing underground clandestine spaces where they could continue to be free. At last one, built a bunker keep state secret: Many states erected secret bunkers dedicated to the safety of heads of state but also to information of scientific discoveries dangerous for the state or global balance. The reasons are clearly different thanks also to the results of world balance brought about by the last century, which have almost eliminated wars and lack of freedom. However, new fears are now emerging, especially concerning climate change and

its consequences. Of course **Climate Change** is the primary push to build bunkers nowadays with its over 65% of all the bunker after the Cold War. Tornado, solar eruption, atomic explosion, elevation of oceans, earthquake, eruption, Tsunami ecc... scary people and push to build bunkers to refuge they and their dears. Even distrust in the government and the destruction of that subtle balance that would lead to revolts and popular uprisings frightens the world population, especially in countries such as Brazil or states that have seen severe dictators like those in Africa in power. This places **Distrust of the Government** in second place as the motivation for building a bunker with its 17%. To close the ranking we have protection from others as a result of the close connection between states of the world and the fragile economy that globalization has brought with 12%. And the latest is the **pandemy**, surprising given that one is experiencing one right now, but Global virus, epidemiological bombs, toxic gas, and Covid-19 remains one of the least important causes for the establishment of a refuge with only 6%.

DIS TRUST GOVERNANCY

17%

PANDEMY

6%

CLIMATE CHANGE

65%

PROTECION

12%



Bunker Society Analysis



TODAY

BEFORE

STATE SECRET

4%

LAW

16%

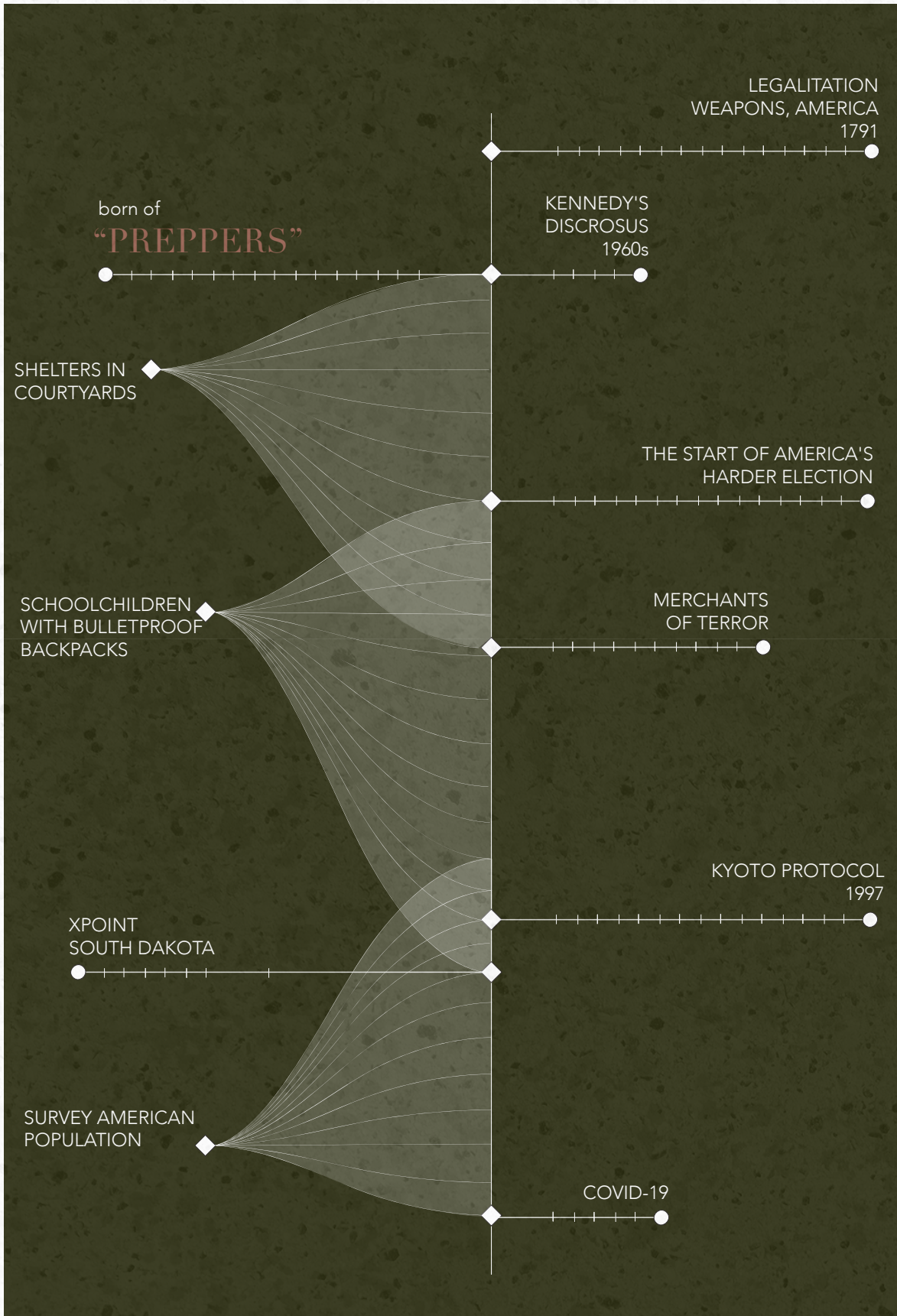
WAR

80%

The American Case

The American situation is the most evident. A series of historical events have led US citizens to be more attentive to what is happening in their nation, from the legalization of Weapon in 1791, through Kennedy's threatening speech of the 1960s emphasizing the government's inability to protect people during the Cold War, threatening events have increased, thus causing an increase in the presence of prefabricated fortified shelters in the courtyards of buildings. In America, a national event such as elections turns every 4 years into a sinister event full of popular uprisings and great discord between republicans and liberals, and always becomes a battleground between citizens. This has repercussions in some consequences such as the presence of schoolchildren with bulletproof backpacks. This has fueled the rise of a demand from the Preppers and a response from the terror merchants. The Kyoto protocol of 1997, which gives way to the control of gas and hydrocarbon emissions in the atmosphere in which the

adherence or not of the various aspects has been a cause of tension in the world panorama. So the way was started for the establishment of real communities of Preppers in real fortified villages formed by bunkers, such as xpoint in South Dakota. A survey conducted in America by Yale University states that out of a truck of 200 people, 40% of them prefer to invest their savings in a shelter rather than a retirement plan. With Covid-19 and the various popular uprisings, what will be the consequences?



Bunker
Society
Analysis



Prepper

Prepper's definition translates into all those people preparing for an inevitable future calamity. The purpose of the prepper is to defend one's quality of life following an emergency. Most of his activity is concentrated in the "pre-event" and aims to undergo as little deprivation as possible in the "post-event". A prepper does not only aim at knowing how to solve a problem, of any nature and type it may be (practical, manual, economic, mechanical, electronic) but above all how to ensure that that problem does not arise. It therefore mainly aims at prevention. Most preppers operate in a family context, so their activities are aimed at protecting and caring for a small group of people who may be entrusted with different tasks and roles. Statistically, in fact, many men begin to take an interest in prepping the moment they become fathers, they have no political purpose and they detach themselves from the government by not dealing with the subject. They are divided into two types. The first is that of accumulators

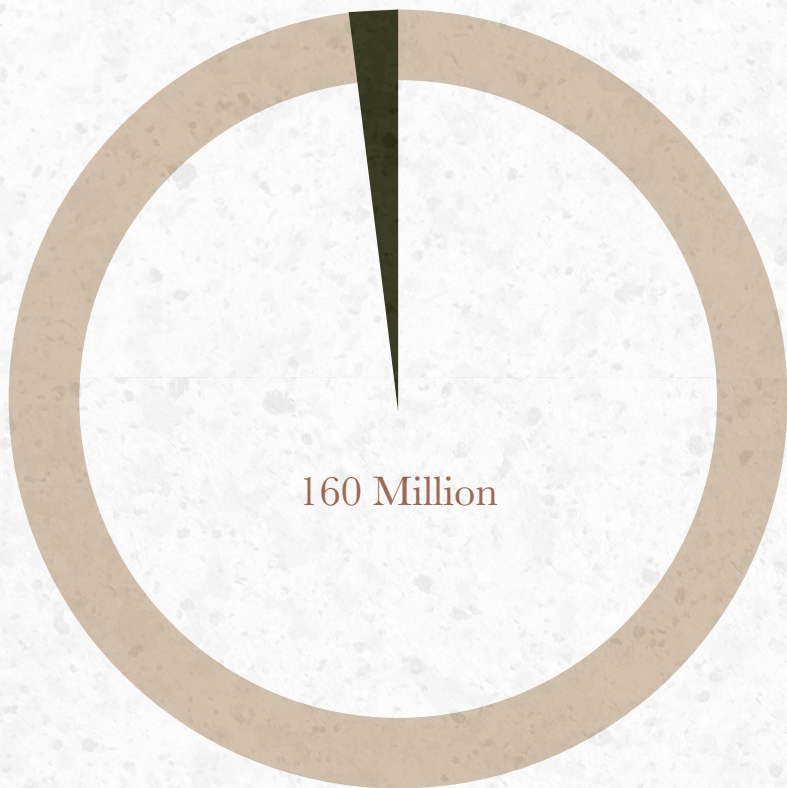
and preparers for sinister but not apocalyptic events which is the lowest level. In the second case, the higher one they are preparing for a catastrophic event that can last for a long period of time like an apocalypse. Usually survivalists and preppers are merged into a single category. However, there are profound differences in the approach, lifestyle and strategies adopted by these two groups. However, these differences must be considered mainly in principle, because in practice there are many overlaps and aspects in common. Each individual in his preparation can be more or less inclined to one approach or the other.



Bunker
Society
Analysis



3.2 Million



160 Million

Number of doomsday preppers in America counted
among a sample

Type of Prepper

Outline of scenarios and outlooks

Survivalism is approached by its adherents in different ways, depending on their circumstances, mindsets, and particular concerns for the future. The following are characterizations, although most (if not all) survivalists fit into more than one category:

Safety-preparedness-oriented

While survivalists accept the long-term viability of Western civilization, they learn principles and techniques needed for surviving life-threatening situations that can occur at any time and place. They prepare for such calamities that could result in physical harm or requiring immediate attention or defense from threats. These disasters could be biotic or abiotic. Survivalists combat disasters by attempting to prevent and mitigate damage caused by these factors.

Wilderness survival emphasis

This group stresses being able to stay alive for indefinite periods in life-threatening wilderness scenarios, including plane crashes, shi-

pwrecks, and being lost in the woods. Concerns are: thirst, hunger, climate, terrain, health, stress, and fear. The rule of 3 is often emphasized as common practice for wilderness survival. The rule states that a human can survive: 3 minutes without air, 3 hours without shelter, 3 days without water, 3 weeks without food.

Self-defense-driven

This group focuses on surviving brief encounters of violent activity, including personal protection and its legal ramifications, danger awareness, John Boyd's cycle (also known as the OODA loop—observe, orient, decide and act), martial arts, self-defense tactics and tools (both lethal and non-lethal). These survivalist tactics are often firearm-oriented, in order to ensure a method of defense against attackers or home invasion.

Natural disaster, brief

This group consists of people who live in tornado, hurricane, flood, wildfire, earthquake or heavy snowfall-prone areas and want to

be prepared for possible emergencies. They invest in material for fortifying structures and tools for rebuilding and constructing temporary shelters. While assuming the long-term continuity of society, some may have invested in a custom-built shelter, food, water, medicine, and enough supplies to get by until contact with the rest of the world resumes following a natural emergency.

Natural disaster, prolonged

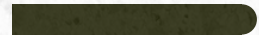
This group is concerned with weather cycles of 2-10 years, which have happened historically and can cause crop failures. They might stock several tons of food per family member and have a heavy-duty greenhouse with canned non-hybrid seeds.

Natural disaster, indefinite/multi-generational

Artistic depiction of a cataclysmic meteor impact. This group considers an end to society as it exists today under possible scenarios including global warming, global cooling, environmental degradation,



Bunker
Society
Analysis



12

C
A
T
E
G
O
R
I
E
S

warming or cooling of gulf stream waters, or a period of severely cold winters caused by a supervolcano, an asteroid strike, or Nuclear winter.

Bio-chem scenario

This group is concerned with the spread of fatal diseases, biological agents, and nerve gases, including COVID-19, swine flu, E. coli, botulism, dengue fever, Creutzfeldt-Jakob disease, SARS, rabies, Hanta-virus, anthrax, plague, cholera, HIV, ebola, Marburg virus, Lassa virus, sarin, and VX. In response, they might own NBC (nuclear, biological and chemical) full-face respirators, polyethylene coveralls, PVC boots, nitrile gloves, plastic sheeting and duct tape.

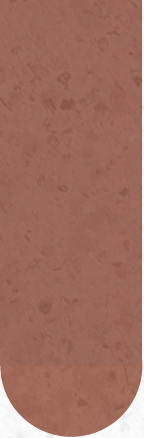
Monetary disaster investors

Monetary disaster investors believe the Federal Reserve system is fundamentally flawed. Newsletters suggest hard assets of gold and silver bullion, coins, and other precious-metal-oriented investments such as mining shares. Survivalists prepare for paper money to be-

come worthless through hyperinflation. As of late 2009 this is a popular scenario. Many will stockpile bullion in preparation for a market crash that would destroy the value of global currencies.

Biblical eschatologist

These individuals study End Times prophecy and believe that one of various scenarios might occur in their lifetime. While some Christians (and even people of other religions) believe that the Rapture will follow a period of Tribulation, others believe that the Rapture is imminent and will precede the Tribulation ("Pre-Trib Rapture"). There is a wide range of beliefs and attitudes in this group. They run the gamut from pacifist to armed camp, and from having no food stockpiles (leaving their sustenance up to God's providence) to storing decades' worth of food. After a decree by the Mormon Prophet, devout Mormons have for decades stored 2 years of food in anticipation of the upheaval of the Second Coming of Christ to stave off famine and pestilence.



Peak-oil doomers

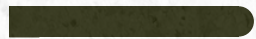
This group believes that peak oil is a near term threat to Western civilization, and take appropriate measures, usually involving relocation to an agriculturally self-sufficient survival retreat.

Legal-continuity-oriented

This group has a primary concern with maintaining some form of legal system and social cohesion after a breakdown in the technical infrastructure of society.



Bunker
Society
Analysis



The influence of military architecture in society

The bunkers, but more generally all the military architecture of the twentieth century, represent the paradigm of the architectural thought of the time. At the beginning of the twentieth century, architecture gradually underwent a change of course: The ornaments of Art Nouveau gave way to the harshness of the stereometric forms of rationalism and the reinforced concrete revolution allowed architectural experiments that a few years earlier were only utopias. In reality this break with the past derives, like all revolutionary artistic movements, from social reasons: the industrial revolution and technological progress have pushed art itself to change course: the issues to be treated are no longer, religion the aristocracy, patriotism, but inventions such as the automobile, the speed, the pulsing of new cities, suppressing the ornamental character of nineteenth-century art for the spontaneity of twentieth-century art. Architecture thus becomes essence, its power is given by its simplicity and maternity. The

expressiveness of the concrete construction, however, in the case of civil architecture, was hidden in favor of an architectural cleanliness (what we usually call "the return to order"), as if this aesthetic could somehow contain and dilute the dramas of the man of the twentieth century, as if the rapid pace of rationalist buildings could give the human being himself a rule to follow, a point of reference, in a society where progress has swept away all security with respect to the future.

From this point of view, military architecture represents the most spontaneous construction of all: in a situation in which the aesthetic aspect had no role or meaning, the very essence of the building takes over, in which every single element and every single form derives from a specific project (architectural or military) One of the most interesting aspects of bunker architecture is certainly the architectural approach: their spontaneous maternity and their shape anticipate the characteristics of organic and especially brutalist.



*Freudenstein castle renovation,
Freiberg 2010*



Bunker
Society
Analysis



The war determines the failure of rationalism, which will leave one satisfied with formal experiments by Scarpa and Kahn, where the construction frees itself from the rigid schemes of the past and gives vent to its essence and its sensory, just as the bunkers had done some time before. Since these constructions have lost their usefulness for years, no one has understood their importance, both historical and architectural, or the role they could have within society, probably because the focus was more on what the war had destroyed rather than the structures it had built. Another fundamental aspect of these constructions is their social weight: the construction of various lines of defense along the borders of Europe and beyond has required the use of resources that are difficult to imagine. Millions of tons of cement and steel and hundreds of thousands of workers employed in the "bunkerization" of the entire continent have weighed heavily on the European economy; to this we must add the

fact that many of these buildings, for various reasons, have remained almost useless; this explains why the bunkers have not yet found a real role in post-war society. A first reflection, at a safe distance from the war, on what is the architecture of the bunkers was their archaeological importance as if they were the remains of an ancient civilization to be preserved and protected for the sole memory of the saddle itself. BUT if on the one hand this operation allows you to tell the story of a certain artifact, on the other it does not allow it to become a new symbol for society. This gesture, although more complicated and a simple "archeologization" since it requires a greater interpretative effort, would represent an important message for the 21st century society, which is not limited to conservation, but tries to give new life to these artifacts, without altering them. identity.



*Restoration of Castelgrande,
Bellinzona 1981*



Bunker
Society
Analysis



Social Communities

Analyzing how the preppers interact with each other even between members of different communities, social networks have re-encountered a lot, especially Facebook which gives the possibility to create private groups. Most of the Prepper communities on social media are private, and you need to write a motivation letter to enter. The topic is taken very seriously, and you have to pass some sort of fairly important selection, they don't accept strangers for the purpose of studying the phenomenon etc. In the more open communities, the shared themes concern procurement, weapons, military equipment, and technical clothing. If you spend enough time on the survivalist internet, you'll stumble upon a number of woman-run blogs specializing in a softer side of prepping, one that combines aspects of survivalism, healthy eating, and home economics. They have names like Survival Mom, Apartment Prepper, and Organic Prepper and can boast Facebook and Pinterest followings in the

tens and hundreds of thousands. Together with a number of online forums and private Facebook groups, they form the basis of a loose-knit community with a shared interest in a constellation of traditional and contemporary domestic practices, including long-term and short-term food storage, growing and preserving food, frugal grocery shopping, family first aid, and basic self-defense. It's a community found primarily online, but it also includes the occasional in-person trade expo or foraging class. Now we are going to analyze various preppers case studies...



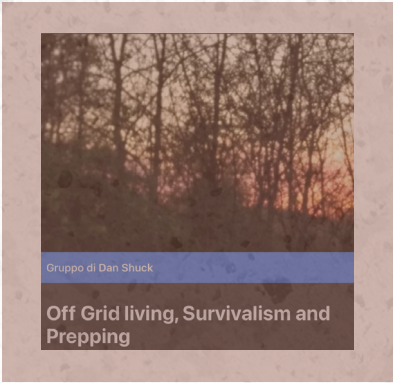
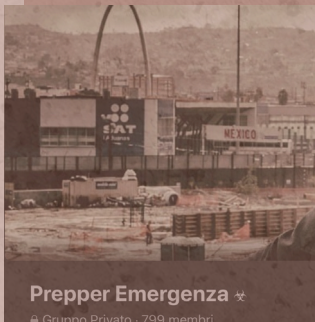
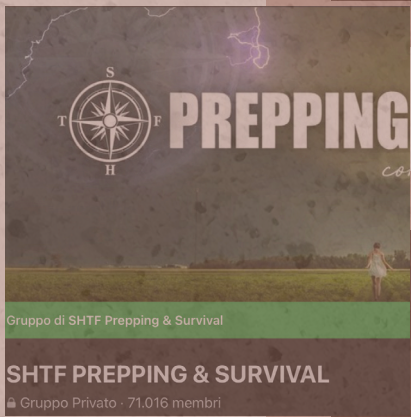


□
□
□
□ Bunker Society Analysis

-
-
-
-
-

-
-
-
-
-

-
-
-
-
-
-



Case study 8

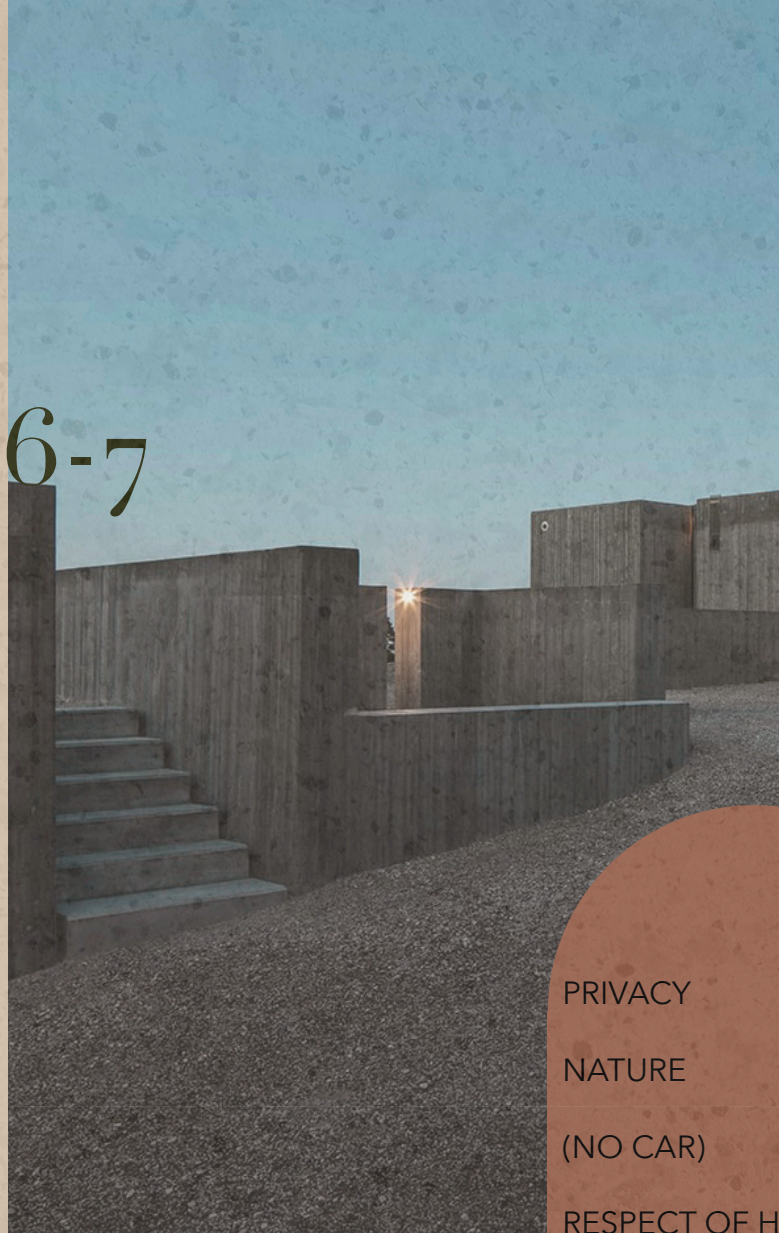
TYPE OF PREPPERS

UDDEN 6-7

Sweden, Bungenas

Skalso Arkitekt

2016



Client Goal

PRIVACY

NATURE

(NO CAR)

RESPECT OF HISTORY

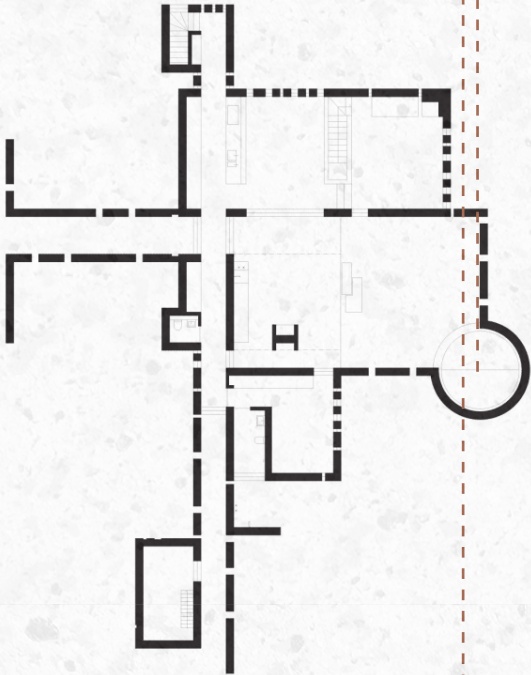
ARTIST COUPLE

SUMMER HOUSE

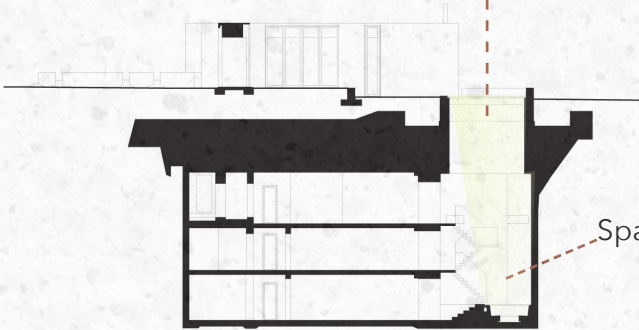
ISOLATION

Since the military left Bungenäs in 2000 the bunker 104 had been abandoned, sealed and covered. The bunker was four stories deep and completely underground. In 2013, Skälsö Arkitekt was commissioned by a private client to put the bunker in order, transform it into a place to live and build an extension, a fifth floor, above ground. The first year of the project was spent on emptying the bunker and inventorying the structure. The extension follows the shape and character of the

entrance maintained
and transformed into a
skylight for spa



Plans | Floor



Section

□
□
□
□ Bunker
□ Society
Analysis
■

□
□
□
□

□
□
□
□
□

□
□
□
□
□
□

plan that lay below, the history-loving owners wanted to respect the place as much as possible. Any exterior changes were first approved by a commissioned format of architects and residents.; cast-in-situ concrete with board formwork, a heavy volume where wall and roof are parts of one solid piece. The existing bunker's loopholes, several decimeters wide, were pulled up to become vertical openings that run from floor to ceiling. The main purpose for the clients is that the isolation that the bunker causes can put them in contact with their inner selves, who, being artists, can externalize their works through them.

Before



-
-
-
-
-
-
-
-
-
-

Bunker
Society
Analysis



After



-
-
-
-
-
-
-
-
-
-



-
-
-
-
-
-
-
-
-
-

Interiors

Case study 9

TYPE OF PREPPERS

INTERVIEW TO JOHN HARTMAN

Everywhere

John Hartman

2017



Client Goal

- SECURITY
- ACCESSIBLE
- FAMILY
- INSTALLATION
- MILITARY
- SELF-MADE

The tutorial start like this: My name is John Hartman, I am a retired member of the United States armed forces and a certified disaster and survival expert. "The Ultimate Solution Is A Survival Bunker" After deciding to provide my family with a survival bunker I sat down and drew up a plan with all of our special requirements. IT have to be Hidden and secretive, impossible to break into, space to fit 5 people comfortably, food and water supplies for 6 months straight, ventilated, source of

renewable energy , durable and solid enough to withstand natural disasters or terrorist attacks. It was at this point that I decided to build my own bunker so I could keep costs as low as possible!r selves, who, being artists, can externalize their works through them. All the methodology on the website.



Screenshot of Application



Bunker
Society
Analysis



"Thanks for making this so simple"

"Hi Jhon, thanks for making this so simple. The diagrams and step-by-spep plans are very easy to follow"

- Ken O.
via e-mail



"The 3D diagrams are very cool."

"Simply amazing! The 3D diagrams are very cool. I learn a lot from your plans!"

- Alex T.
via e-mail



"Hightly recommend this guide"

"Lucky I got this guide. I was going about the cosntruction process entirely the wrong way and this has saved me much more than i paid, not to mention the time I've saved. I highly recommend this guide"

- Karren W.
via e-mail



Same Reviews

Case study 10

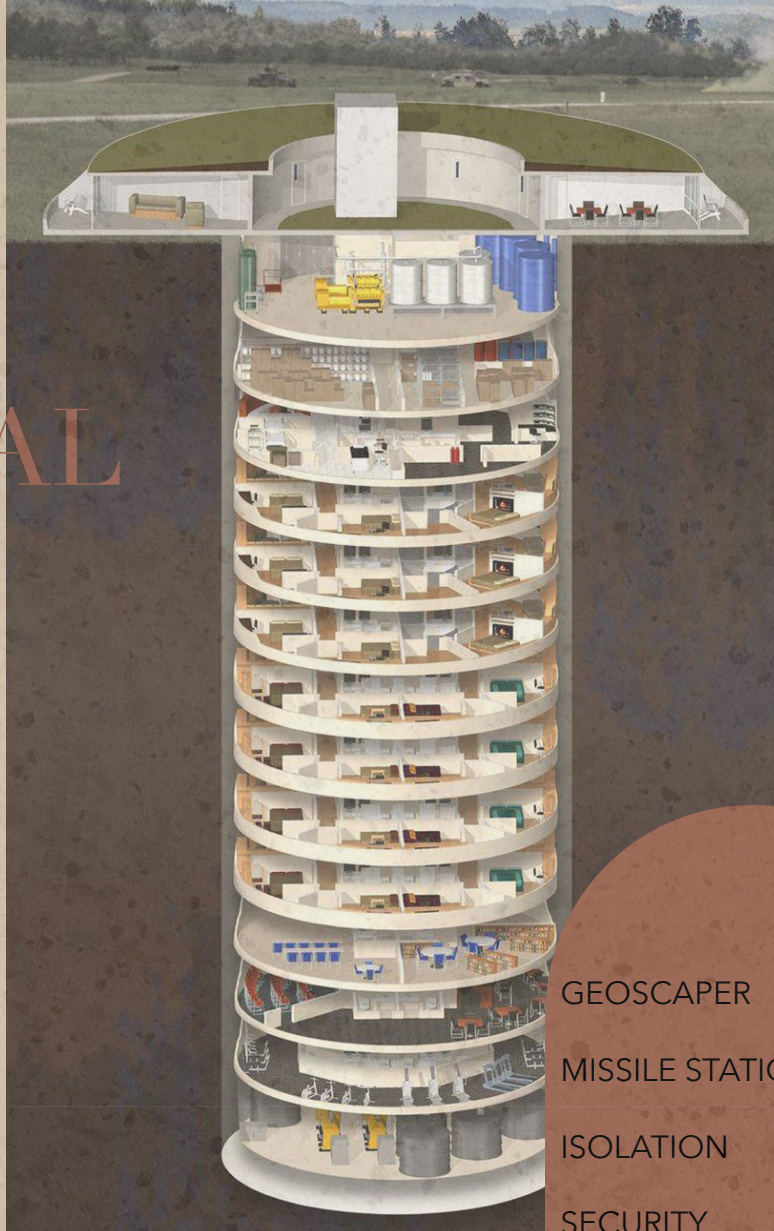
TYPE OF PREPPERS

SURVIVAL CONDO

Kansas, USA

Larry Hall

2008 (work in progress)



Client Goal

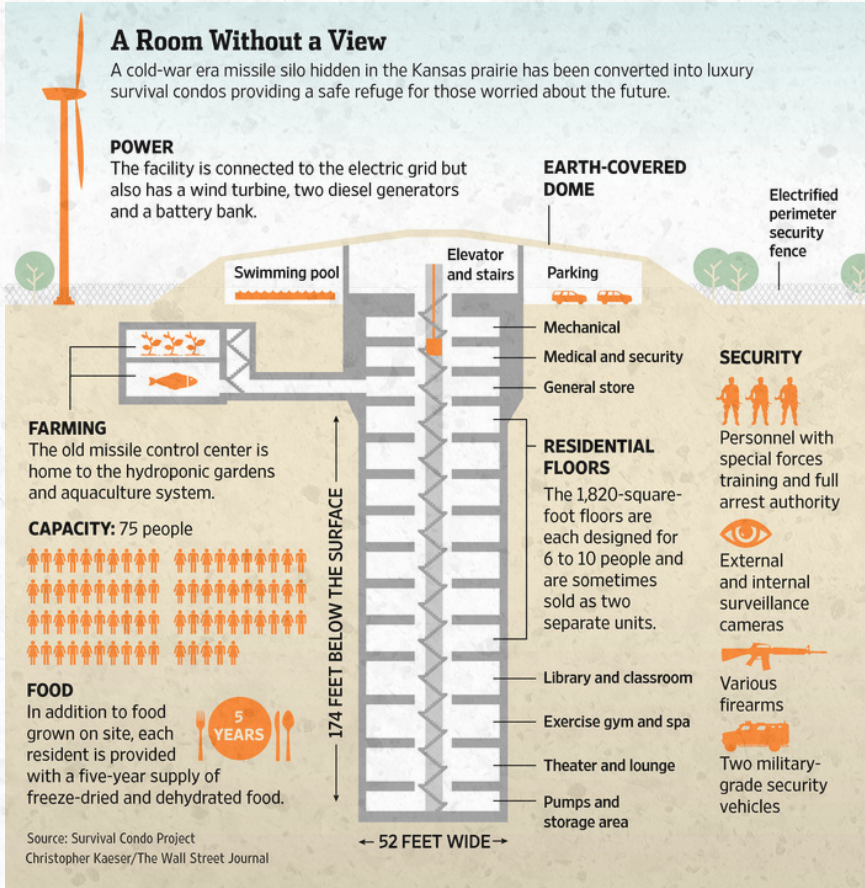
GEOSCAPER
MISSILE STATION
ISOLATION
SECURITY
NOT JUST SURVIVAL
CONDO ARMORED
WELLNESS

This immense structure built in Kansas was built as a fortified missile silo, therefore a government structure that is anything but residential. Purchased by Larry Hall, who identifies with the “preppers” philosophy, he transformed it into a Survival Condo. This is precisely the name of the geoscraper (vertical development) with many private apartments that can accommodate 75 people for up to 5 years. Survivor Condo is a luxury, sealable and self-sufficient habitat

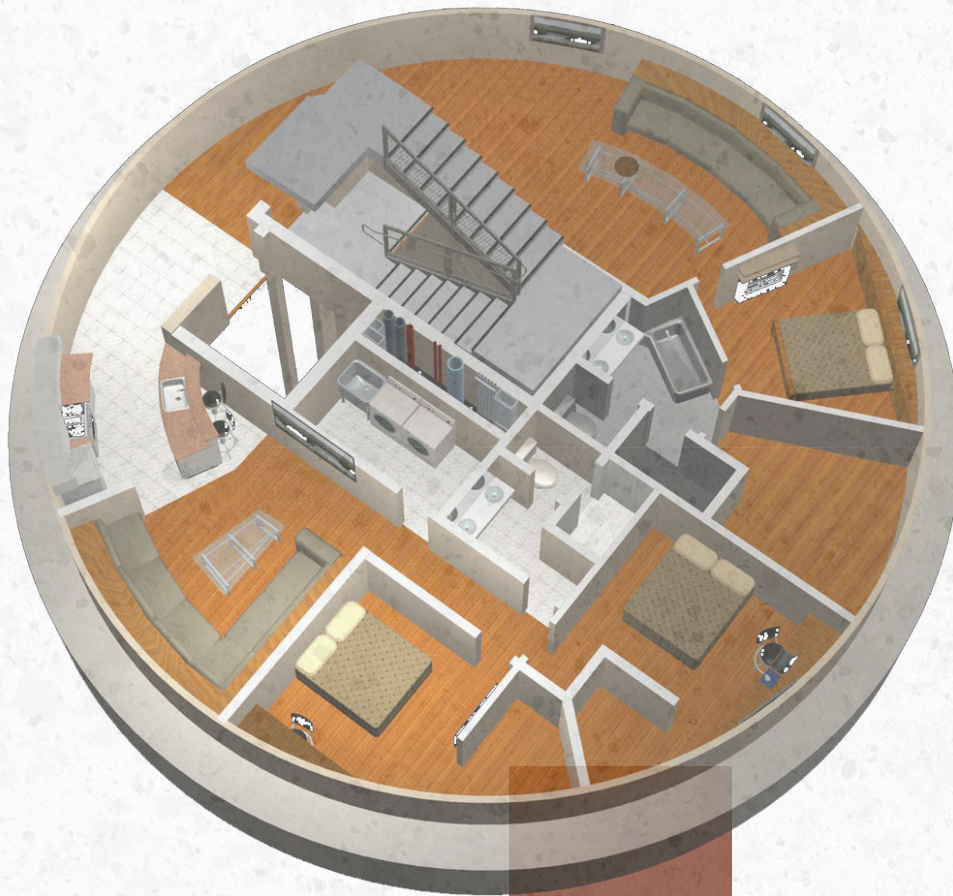
in which to rebuild a society. Here, therefore, a weapon was converted, a building dedicated to mass destruction in the exact opposite. This bunker idea is different from a conventional fallout shelter, which is usable as a second home, strictly available for cash only, which underlines the distrust of the banking system as a government service.



Bunker Society Analysis



Section



170 m²
6-10 people
30 man-year supply of food

Layout full floor

Case study 11

EXPERIMENT

GREENHOUSE ARK

Arizona, USA

Biosphere

2002

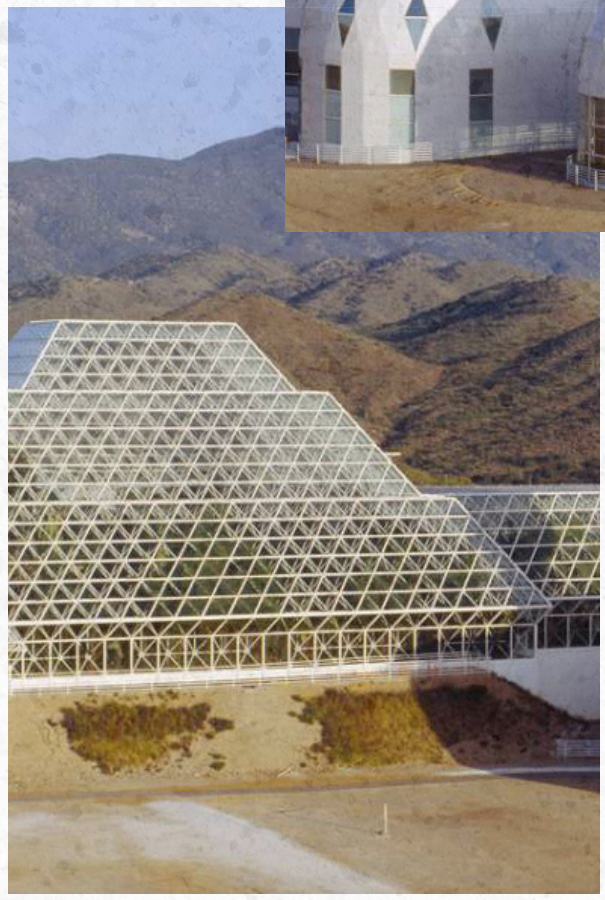


USED AS A CASE STUDY
ON HUMAN **BEHAVIOR** BY
THE CREATOR OF SURVIVAL
CONDO

Not really a bunker but an experiment. One of the first isolations of the design community. The architecture consists of 7 glass domes (horizontal development) in which scientists coexist without any contact with the outside. At the conclusion of the experiment, if there was a lot of internetra and various members of the experiment, I almost had malnutrition.



Bunker
Society
Analysis



Outdoor

MERCHANTS *of Terror*

Given the growing demand for protective structures appointed by the same companies we produce bunkers and shelters. The data confirmed by the interviews of the CEOs, of Vivo, and that of Rising S Company, leading companies in the sector, sales increased by 700% in the medium sector, and by 300% in the highest sector, thanks also to the difficult elections faced this 'year. Now the request has changed, it is no longer a question of creating bunkers, but rather that of customizing them.



WHEN DISASTER STRIKES
THE TIME TO PREPARE
HAS ALREADY PASSED



WE LIVE IN A
DELICATE BALANCE

*Who exploits
this fear?*



Apocalyptic Bunker Project – The Dig

Case study 12

TYPE OF MERCHANT

BOMBNA DO ATLAS SHELTERS



LOW COST

STANDARD

INDEPENDENT

SECRET

INSTALLABLE IN A
PRE-EXISTING -BUILDING

CUSTOMIZABLE

One great feature of the BombNado shelter is its patented design that allows for installation in existing homes. The shelter unbolts into four parts, allowing the sections to clear a 7' tall garage door opening, then each section lowers into the hole for re-assembly under the floor. If the seams are welded after installation, this shelter will be classified as water tight and is acceptable for Florida. (Do not attempt to excavate your garage without an engineer's approval first). New

home construction installation is much easier! It affords for the shelter to be put in pre-slab, which also allows for the secret hatch to be placed in the master bedroom closet, or hidden behind a false wall. The BombNado disaster shelter features an NBC Air Filtration System (Nuclear, Biological, Chemical), plus



Bunker
Society
Analysis



Some examples

hundreds of cubic feet of storage beneath the laminated oak flooring, and collapsible bunk beds & couch that converts into an additional bed! The shelter's sturdy steel engineering is strong enough that you can even park a car on top of the 4' x 4' hatch installed flush with the floor. The shelter includes a custom fabricated ladder entry, an 8-ton hydraulic hatch-lift for emergency egress, and an impressive list of other customized options. All shelters in the Nado Series are priced without the beds, couch and toilet. This is done this way for those who wish to use the shelter for a wine cellar, gun room, panic room, or just for storage. Because BombNado is buried 14 feet below the surface, the average temperature in the shelter is 60° which will make it the perfect climate controlled wine cellar. Optional bed or couch \$575

each. The BombNado is built to FEMA P-361 standards and is an all-in-one fallout shelter, safe room, tornado shelter, and gun vault.

Conformation and Qualities

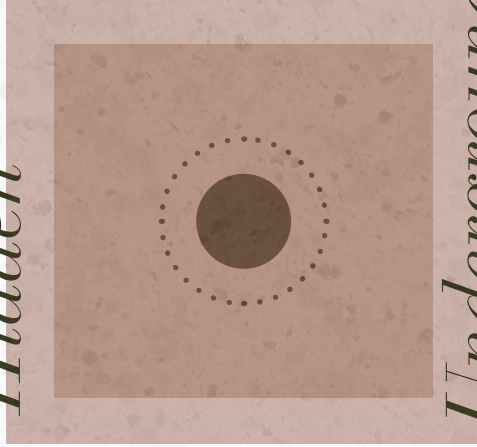
Conformation

The coproduction of a bunker is different depending on why and where it was built. They therefore differ in 4 macro-categories, and the bunkers can belong to one or more categories at the same time depending on their design. Obviously each of this category has points in favor but also flaws.

The four categories is, Isolated The four categories are:

Isolated, which covers most of the surveillance bunkers, and which are camouflaged in nature and away from other buildings; Part of a **complex**, in which a series of bunkers were placed close together as a defensive line against enemies; **Partially underground**, as the name of the category implies, it is a bunker that does not develop totally underground but has points of view with small slits that face outwards; **Totally underground**, it has a different function from the others, it was used to hide artillery or study attack plans on site.

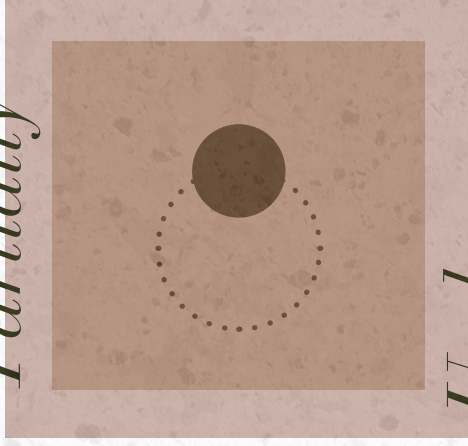
Hidden



Underground



Partially



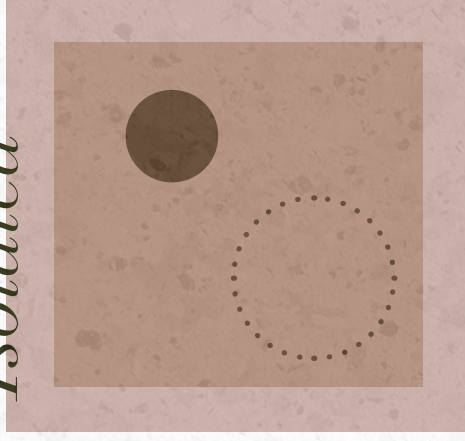
Underground



Complex



Isolated



Conformation
and Qualities

Holiday House

Bungenas, Swedish

The masterplan is developed in order to preserve both the natural landscape as well as the areas marked by heavy military usage and limestone industry. It includes restoration of listed buildings, excavation and transformation of military bunkers and where the landscape and nature allowed for it, the addition of new buildings

Underground House Plan B

Ucrain

Sergey Makhno Architects has envisioned a concrete home built like a bunker for enduring the “unpleasant surprises” that may await in the post-pandemic world. However, instead of creating a typically austere bunker, the studio envisioned a cosy hideout where someone would like to live “even when there is no apocalypse”. In renderings, the home is pictured in a clearing of trees in the Ukrainian forest. A helipad would allow occupants to land while evacuating to their bunker. They were interested in the question of whether it is possible with the help of



architectural solutions to recreate a full life for a long time underground. The first layer, which would sit 15 metres below ground, hosts a series of living spaces designed to comfortably accommodate two or three families. Cylindrical lightwell, backlit to appear as if the sun is shining down from the outdoors, with a faux tree. There would also be a garden room dedicated to growing fresh vegetables and fruit, and a medical room, a planted.



*Above Holiday House
Down Underground house Plan B*



Conformation
and Qualities

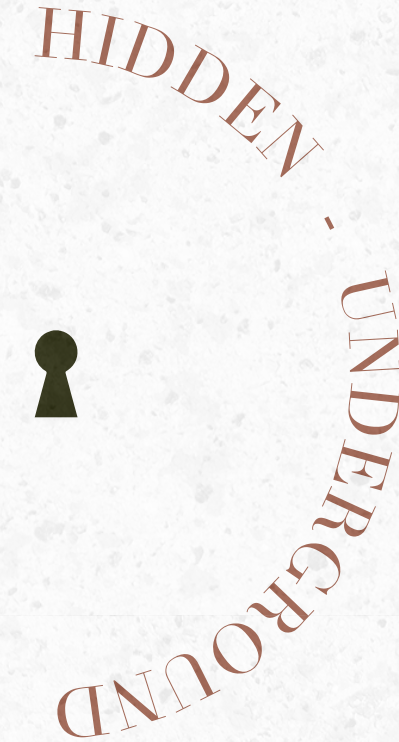


Case Study 15/16

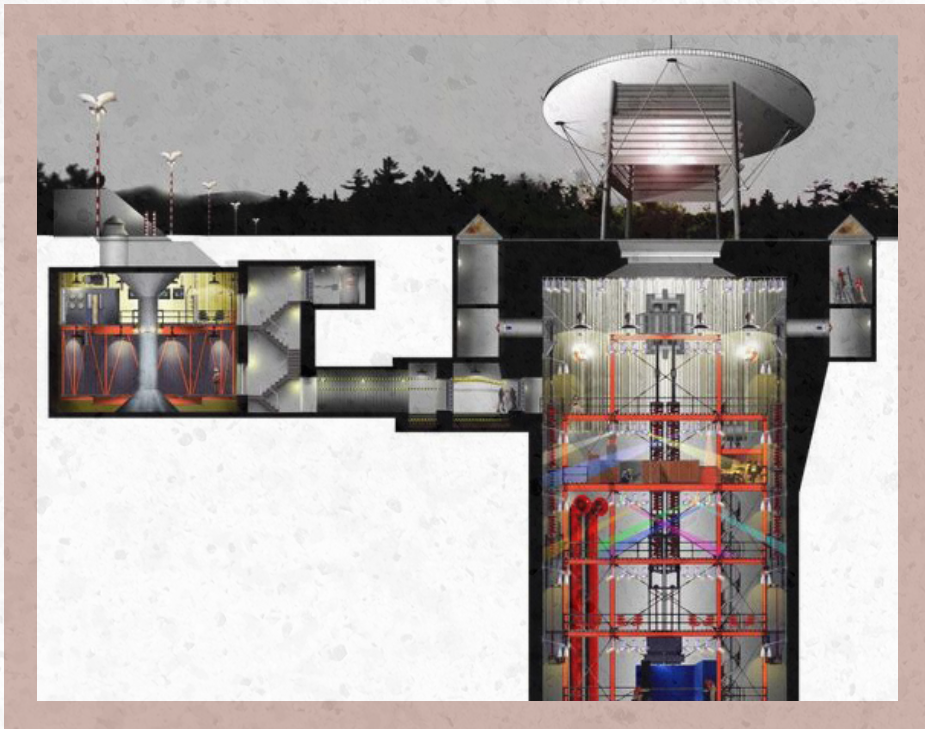
Silo House

New York, USA

He's right: At first glance, the home in upstate New York isn't anything more than a steel door in the middle of the Adirondacks. But it's below the ground that matters. Forty feet underground is the actual residence, set in a decommissioned missile silo. A dozen or so are scattered through the country – one popped up for sale in Saranac, NY in December 2011. Unlike the others silos, explains Dominic, this one remains true to its original function. Dominic said. The missile silo is leftover from the beginning of the Cold War, when the U.S. began developing the Atlas missile system, which placed the missiles in bases throughout the country. In this home, like others, the missile was held in an underground silo connected to the missile launch control center. In the late 1960s, the silos were decommissioned and auctioned off to be private residences. Set between thick concrete walls,



the home is designed to survive nuclear explosions, earthquakes, blizzards and nearly any other disaster imaginable. When you're in the home, you can't hear any noise above ground, Dominic says.



*Above Blåvand Bunker Museum
Down Silo house*



□ Conformation
and Qualities



Case Study 17/18

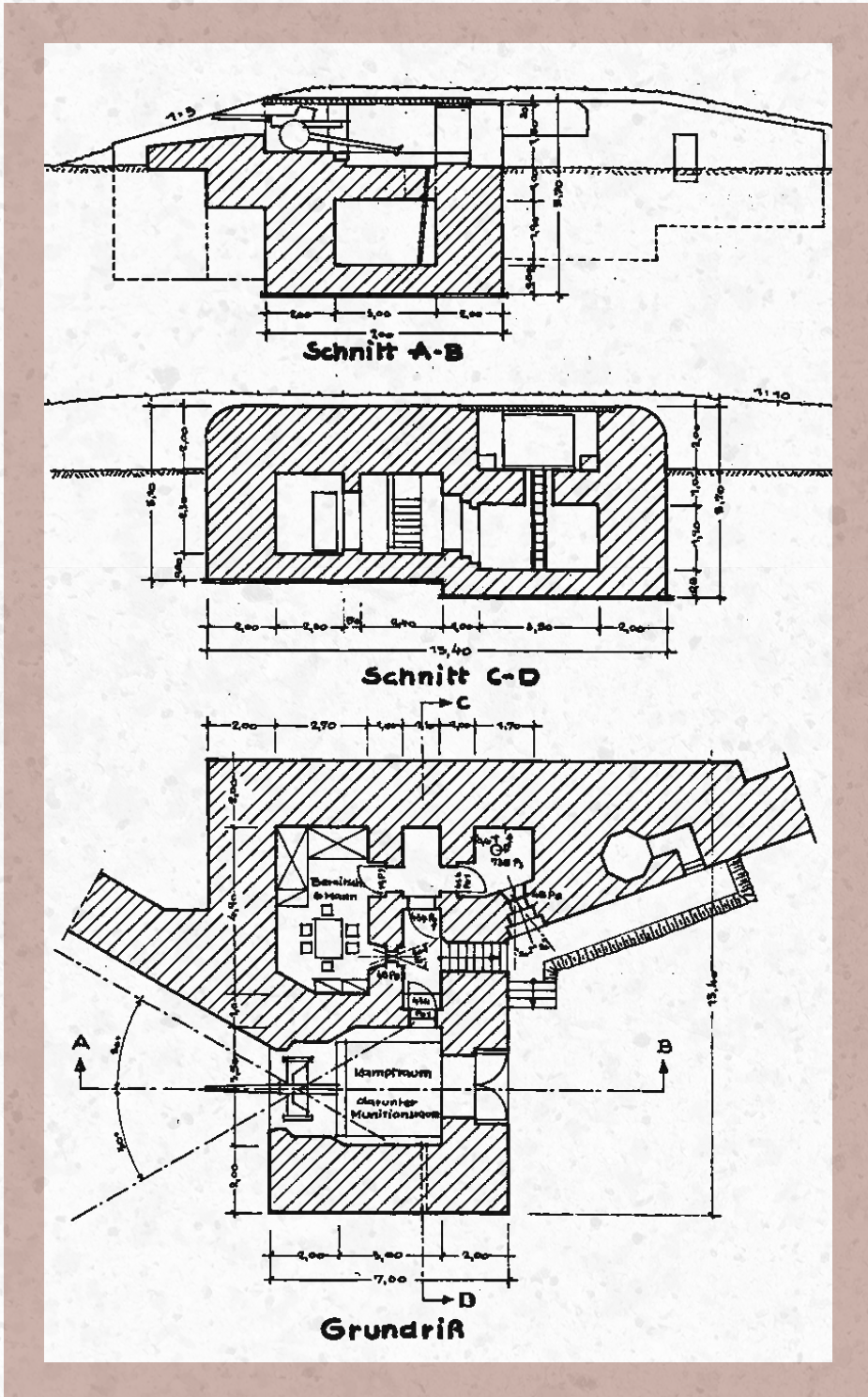
Regelbau 626

Danmark

This bunker model is part of the Regelbauten program. It is a model built on the strength level: Ständig (St). The bunker model was originally designed for the army (Heere). Be it crew bunkers, fire brigade bunkers or others, many of the models have room for the crew to "live" in these while they were on duty. In others, you can't live there directly, but only be there while on duty, while in ammunition bunkers, for example, you don't have room for the crew. In this model there is room for 6 men. The bunkers of the Regelbauten and Bauformen programs were built of concrete with or without iron reinforcement. Here you can see how much concrete there is. 650 m³ were used. About. 1300 m³ of soil.



ISOLATED



Plan and Section of Bunker

-
-
-
-
- Conformation and Qualities

-
-
-

-
-
-
-

-
-
-
-
-

Case Study 19/20

Maginot Line

France

Cross section of a French underground bunker located along the Maginot Line on the eastern border of France. Drawing, 1940.

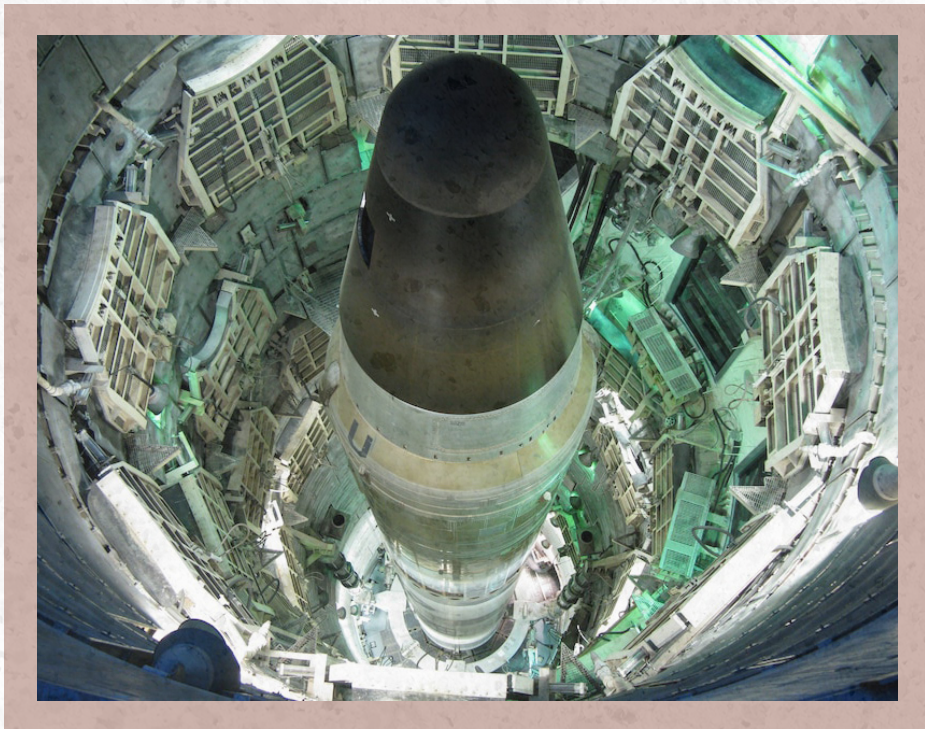
Missile Site

Green Valle, Arizona

It is a national historic landmark and the home of the Titan Missile Museum. The Air Force-owned property houses the only remaining Titan II intercontinental ballistic missile complex left of the 54 that were active during the Cold War. The site became a museum so the public could better understand one of the DOD's biggest missions – nuclear deterrence.



COMPLEX



*Above a Bunker of Maginot Line
Down Missile site*



Conformation
and Qualities



Case Study 21

Concrete Mushrooms

Albania

After the end of World War II, German troops liberated Albania, where the communist minorities quickly took power and established the People's Republic of Albania, a harsh dictatorship headed by the first secretary of the Communist Party, Enver Hoxha. Initially the regime was a satellite country of Tito's Yugoslavia, which hoped for its annexation, but when Yugoslavia was expelled from Cominform in 1948 due to deteriorating relations with the USSR, Hoxha made a quick and quick turnaround, breaking all relations with Belgrade. Hoxha declared himself a Marxist-Lennist and took Stalin's dictatorship as a model; in the meantime he feared an imminent invasion of Yugoslavia, so starting in 1950 he began to build the first defensive bunkers along potentially hostile borders. The pace of construction of the bunkers increased exponentially starting from 1968, the year in which the Sino-Soviet crisis distanced the two communist factions of the USSR and China, determining the exit of Albania from the Warsaw Pact which instead took the side of the Communist China. In this



COMPLEX

period the dictatorship was exacerbated: the state of human rights became critical due to the limitation of some civil rights such as freedom of speech, religion, press and association with the justification that this was necessary to guarantee stability and order. In 1976 the death of Mao Tse-Tung put an end to the relations between China and Albania which led Hoxha to start a policy of repression and autarky, closing all relations with other foreign countries; the construction of the bunkers continued uninterrupted throughout the country until his

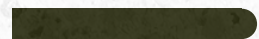
death in 1985. From this moment the communist regime began to weaken, until it finally gave way to democracy, which in 1992 introduced a more liberal and open policy to international relations. Hoxha's plan envisaged the construction of a total of 750,000 bunkers throughout the Albanian territory: on the coasts, in the cities on the mountain passes and in any other place where the enemy could attack. This Bunkerization cost more than double the Maginot line and used three times the amount of concrete compared to the French fortification, resulting not only in a huge monetary burden for the Albanian economy, but also a great social impact. Hoxha's strategy was based on the militarization of the entire Albanian people: every citizen had to be able to use firearms and, if necessary, reach the bunker and defend the nation from the enemy. At the fall of the regime, hundreds of thousands of bunkers that were still part of the Albanian landscape, still undermined the cities and coasts representing perhaps the saddest memory in the history of this nation. To date, the

number of buildings still standing is still under discussion: some sources say that over 170,000 bunkers are still in a good state of conservation; many have been demolished and recycled, but this road has often been abandoned due to the enormous costs it would have entailed on a national scale. However, these artifacts have become a part of 21st century society, adapting to various circumstances. The population, aware of the difficulty but also of the uselessness of eliminating these small buildings that have now become a real symbol of the Albanian community, has somehow tried to use them in various ways; from surfaces for street art or graffiti to shelters for the homeless, from seats to diving boards, and many other makeshift uses, which do not represent a real idea of reuse, but testify to the willingness of the population to want to reuse this resource. So in 2008 Elian Stefa and Gyler Mydti, two Albanian students from the Milan Polytechnic, started an initiative called "concrete Mustrooms", with the shape of these small bunkers

that resembles a mushroom. Their main objective is to raise awareness of the opportunities that these constructions can offer through a series of simple and inexpensive transformations, so that they can be carried out by anyone. But the interesting logic of this idea is to overturn the xenophobic tendency that characterized the communist regime, leaving room for openness to other cultures, hospitality and tourism, which in recent years has been experiencing exponential growth. Although they may all be very similar, Albanian bunkers have various types and sizes, depending on the danger to be faced, from the orography of the landscape, strategic points to many other factors. The coasts and the big cities are the places most populated by concrete mushrooms, but as already mentioned they are visible throughout the national territory. The guys from concrete mushrooms divide the bunkers into 3 different cuts (S, M, L) and also recognize different types



 Conformation and Qualities



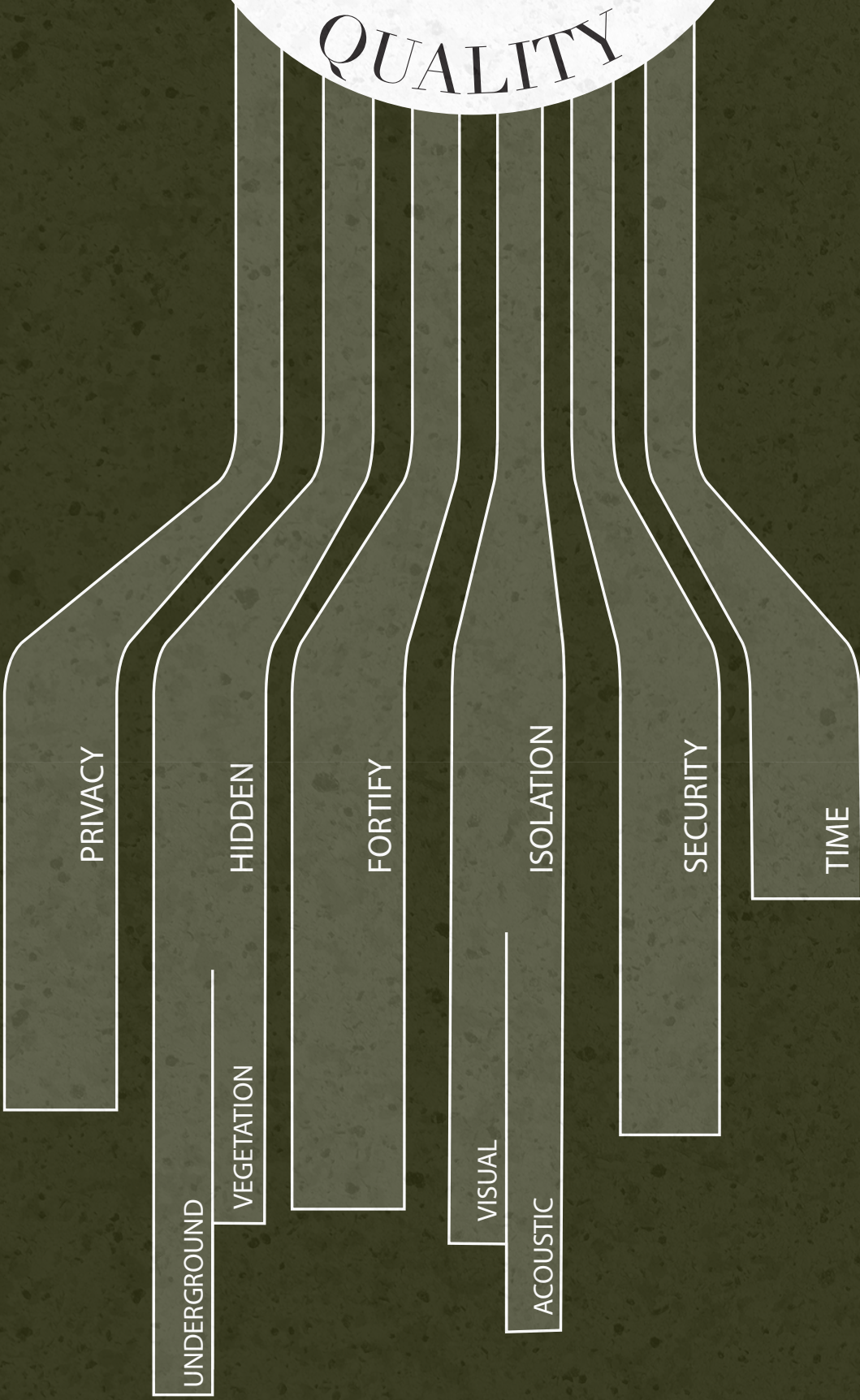
Qualities

After analyzing the various conformations they continue to understand the intrinsic qualities that distinguish a structure like that of the bunker. Listed side we have precisely the main one which is the **Privacy**, which obviously derives from being out of context and from the coverage fields of the electromagnetic waves that are unable to penetrate these fortresses. It thus becomes the only place where it is physically difficult to be controlled and escape the data hunger of the big companies in Silicon Valley. Passing through the characteristic of being **hidden** which in turn is divided into two categories, hidden in the vegetation and hidden in the subsoil. **Fortification** is another keyword that well describes the thick concrete or metal walls of the bunkers. The visual and acoustic **isolation** make it a discreet place that is not easy to penetrate with sounds. **Security** is perhaps one of the main characteristics for which the bunker was built and for which it is now difficult to demolish it. All that is foreign must be eliminated. The building must

be considered the whole, the good and the outside the bad. As for **time** instead, Even if in a dangerous situation inside a bunker you have a lot of free time with not too many amusements, this can allow the approach to the ego, and a greater psychological awareness.

“Bunker as
a means of
transport that
transports in
time rather
than in space”

QUALITY



Conformation and Qualities

Case study 22

TYPE OF BUNKER

PARASITE

Korea

Lee Ha Jun
Bong Joon-Ho

2019



Client Goal

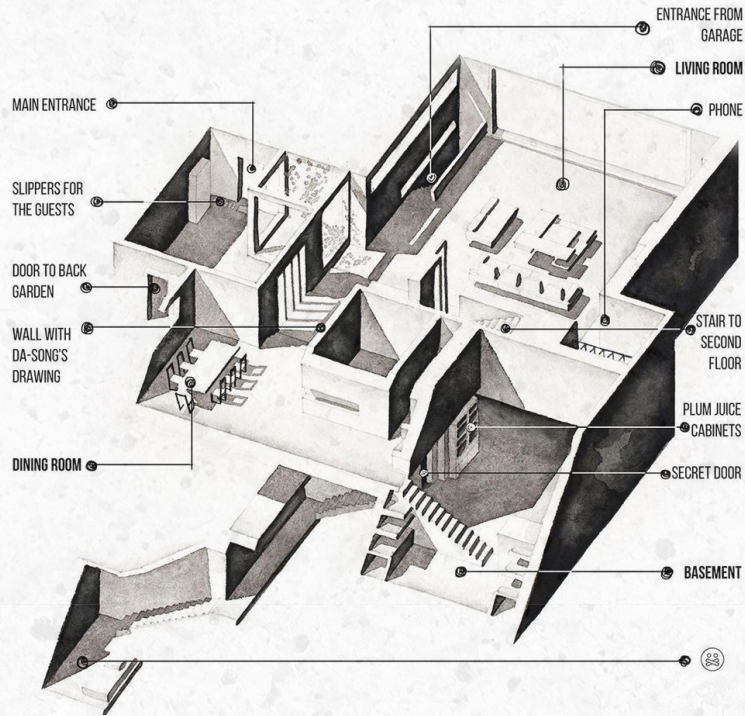
ESCAPE
SOCIAL GAP
HIDDEN
SECRET

Lee said the vertical movement symbolises the different lives between the rich and the poor, which is a theme of the film.

"I wanted to show the increasing and suffocating density that reflects the class difference between elevated areas and lower ones," he said.

Dezeen selected *Parasite* among 10 films to watch during coronavirus self-isolation that use architecture in exciting ways.

Lee Ha Jun: Park's house, Kim's semi-basement house and the surrounding neighbourhood were all sets built for the film.



ISOMETRY



FRAME FROM FILM



Conformation
and Qualities



Case study 23

TYPE OF BUNKER

XPOINT

South Dakota, USA

VIVOS

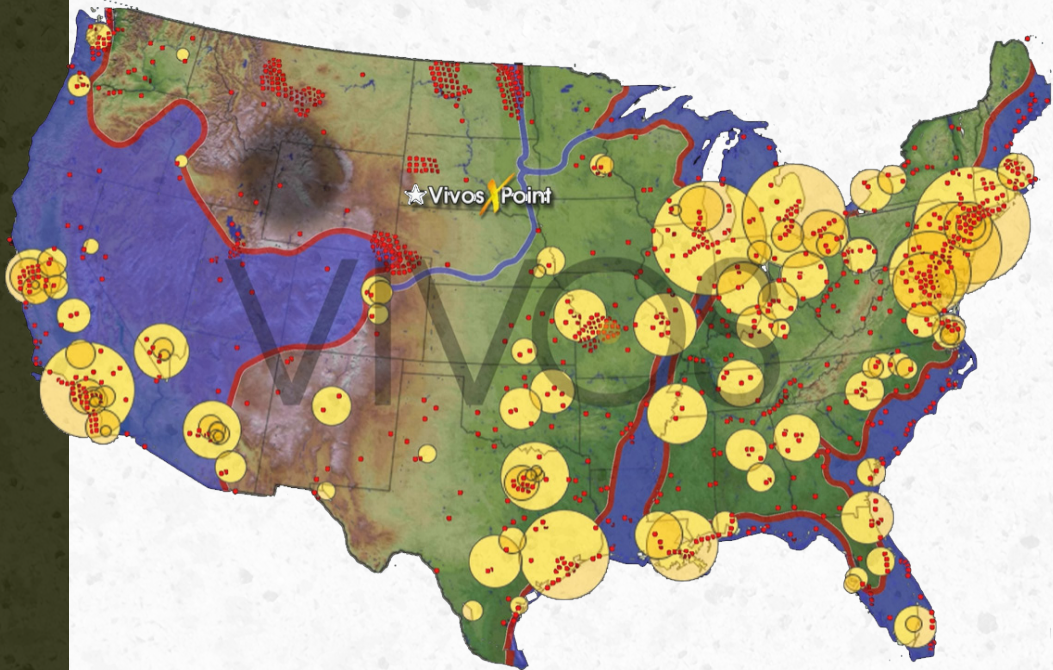
2016 (work in progress)



Client Goal

- COVER
- REUSE MILITARY
- CUSTOMIZABLE
- ACCESSIBLE POSITION
- COMMUNITY

An expanse of 575 bunkers (horizontal development) in a great American plain, they were used in the First World War as a depot for ammunition and then in the military. This camp can accommodate 5,000 people. The peculiarity is that they are outside so set them up as desired by the owners. The wall and ceiling are joined in concrete. Every bunker can host max 20 people



Conformation and Qualities



MAIN DANGERS INCLUDING NUCLEAR TARGETS, PLANT EXPLOSIONS, POPULAR AND ANARCHIST RIOTS, SUBMERSIONS



FRAME FROM FILM

DIFFERENT

SIZE



Small Size

Big Size



Conformation and Qualities



Case study 24

TYPE OF BUNKER

BYGGNAD 8

Sweden, Bungenas

Skalso Arkitekt

2016



Client Goal

FAMILY HOUSE

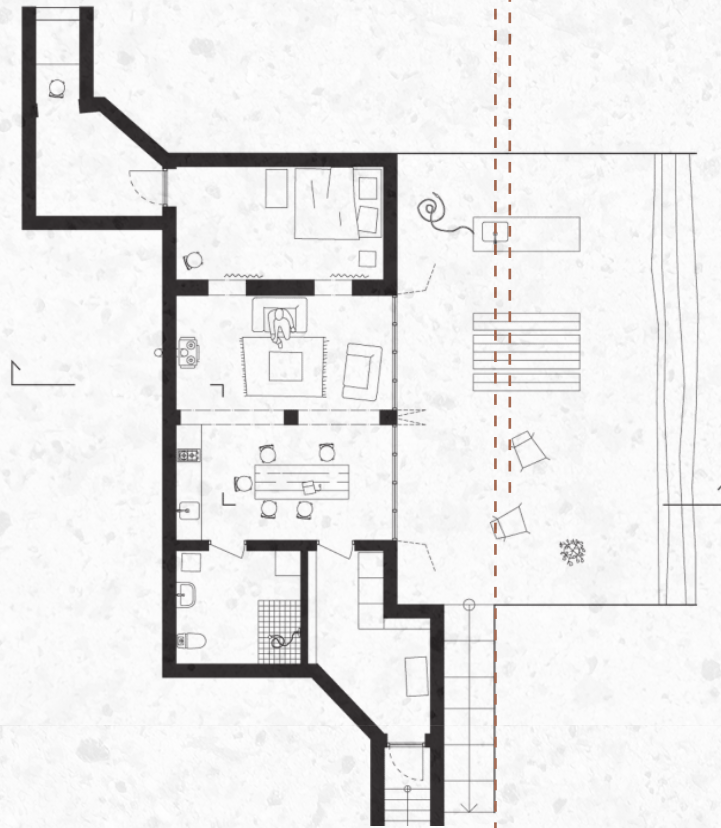
NATURE

PRESERVE

SEMIUNDERGROUND

Byggnad 8 was built as a part of the developing of the Bungenäs area in the North of Gotland. The site abandoned military area, containing many hidden bunkers and secret underground rooms. One of these bunkers was picked to serve as a summer holiday house for a small family. The bunker had been built and used by the military as a mechanical workshop. The bunker was chosen because of its location. To get daylight into the house, holes were cut into the thick concrete

OUTDOORSPACE
ADDED



Conformation
and Qualities



PLANS

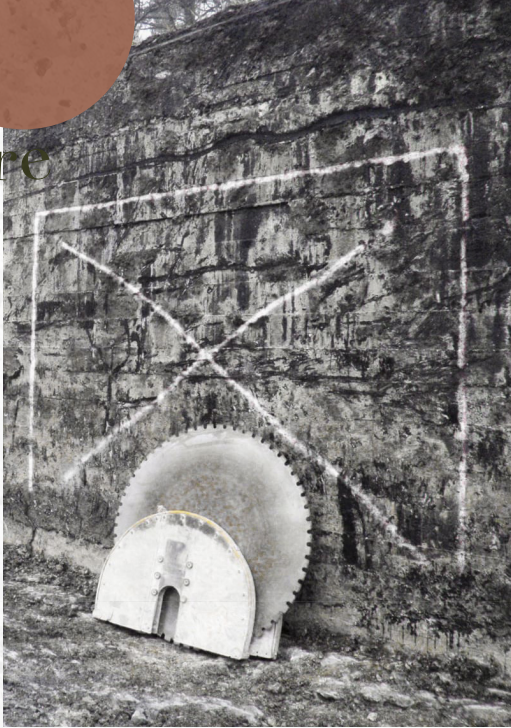


SECTION



walls and replaced by glass doors. In front of the building, an inner courtyard was added by digging out the existing limestone and reusing it to build the surrounding courtyard walls. Regarding the interior, as little as possible has been done. The existing concrete walls, floor and ceiling has been cleaned, but kept. The new kitchen is freestanding and some of the furniture is still remaining from the military. A fire place is added, also a simple but functional bathroom. The house is now being used as a private summer holiday home.

Before



-
-
-

-

□ Conformation and Qualities

-
-
-

After



-
-
-
-
-

-
-
-
-
-
-

Interiors

Architecture

The great differences in the architectural conformation are obviously a consequence of the function that covers the fortified building. Therefore, depending on the reason for which it was built, we can see changes in the width of the opening, the shape of the building itself, the conformation of the roof, the presence or absence of technical elements, but also the size and thickness of the walls etc. The various architectures are divided into: Industrial and it includes mining sites, food storage areas, dumps for materials, data storage, and sometimes living quarters. They were built mainly by nations like Germany during World War II to protect important industries. Some are non-military facilities, such as tests of rocket engines or explosive experiments or store radioactive or explosive goods. The trenches with different characteristics, including small concrete structure, partly dug into the ground, better protection than the open trench, include top protection against aerial attack.

Some bunkers may have partially open tops to allow weapons to be discharged with the muzzle pointing upwards. The artillery, a system to protect artillery installations. Housed the crews serving the weapons, protected the ammunition against counter-battery fire, and in numerous examples also protected the guns themselves. The Storage munition, to securely store explosive ordinance, and contain any internal explosions. The most common configuration for high explosives storage is the igloo shaped bunker. A specialized version of the munitions bunker called a Gravel Gertie is designed to contain radioactive debris from an explosive accident while assembling or disassembling nuclear warheads. The last one is Personal one, Usually purpose-built with a house, the normal location is a reinforced below-ground bathroom with large cabinets. Compressive protection may be provided by inexpensive earth arching. Sometimes also serve the purpose of a safe room.

Permits

When we talk about bunker we generally think of a reinforced concrete construction without any opening to the outside, hermetically closed that serves to hide someone or something, but the great variety of existing types and the different purposes correlate the issue more complex than believe it. The simplest types are the bunkers to protect the soldiers on the front line from attacks from above; they are usually small partially underground constructions that are part of a system of trenches and in the colts they have a portion that can be opened upwards to allow counterattack. A famous example are the coastal ones of the Atlantikwall which suffered the American invasion during the Normandy landings. The artillery bunkers are generally large structures, usually set back from the aforementioned defense bunkers and have a large opening where the weapon with its protective armor was housed. Personal bunkers, on the other hand, are huge structures, usually completely interrupted, built to protect and hidden

particularly relevant personalities and are designed to withstand massive enemy attacks; they are equipped with an entrance system and shortcuts to allow the fugitives to take cover quickly. Industrial bunkers, which are generally large buildings used for the storage of goods, archiving and any other operation that would be risky in other contexts. Another main motif of the bunker architecture are the curved and rounded shapes, this is mainly due to two reasons: the first is due to a static aspect as the dome, for example, resists the vertical forces due to bombing better; the second is the camouflage with the surrounding environment, since most of the bunkers settle in natural and isolated contexts, their organic shape allows a better mimesis with nature. To improve the camouflage they were even covered with leaves and shrubs or, where possible, they were embedded in the rocks of the mountains (alpine valley). Another camouflage technique consisted in making the bunker look like a mountain refuge or a small house, covering the bare concrete with

wood or stone; evidence of this technique can be found above all on the Swiss National reduced, which protected the Swiss borders during the Second World War. Camouflage is a fundamental aspect of these constructions: it forced the designer to study the territory and reinterpret it, trying to apply the solution most in tune with the surrounding environment; a real architectural / landscape operation. Looking at the abandoned bunkers on the coasts of the Atlantikwall, it seems like looking at works of Land Art that could have been created by Michael Heizer: their conformation follows the undulating dunes of the Normandy beaches, and their maternity stands out clearly. The work carried out by Poul Virilio in his "Bunker Archeology" through these territories testifies to their power and their evocative force.



Architecture
Materials
and Layout



Types of Permits

The most important thing to do is to get the proper permits. Permits are used to ensure safety for you and everyone around you during the project. Failure to obtain or comply with a permit can be expensive and sometimes dangerous if you aren't careful. You don't want to start digging and building an underground bunker only to be stopped and forced to pay a hefty fine. In some cases, you'll be forced to remove or undo any project you set out to do. To obtain the appropriate permits, you need to go to your local building department or building official. You will need to show them plans of what you are going to be doing, so make sure you have your blueprint (more on that later) and a map showing where you're going to be working. Permits can vary depending on where you live.

Grading is required when a project may alter the topography of a property due to excavations or fillings. A preliminary evaluation is needed to make sure you aren't building on environmentally sensitive lands and to assess the feasibility of the project you're conducting.

Building is to ensure the construction project complies with local, state and federal law.

Discretionary When a project has the possibility of impacting the surrounding area due to the proposed use, location or design feature, a discretionary permit is needed.

If you're adding plumbing for your underground bunker (more on that later), a **plumbing** permit is necessary.

If you're going to install any **electrical** wiring or equipment, you'll need an electrical permit to make sure everything is wired safely and correctly.

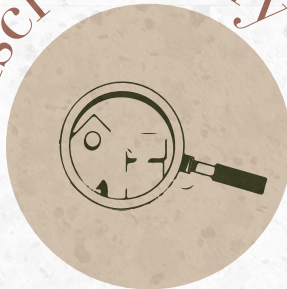
Grading



Building



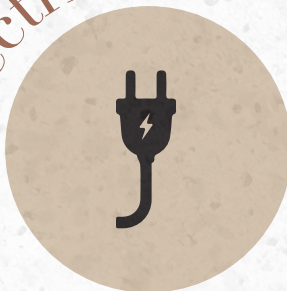
Discretionary



Plumbing



Electrical



Architecture
Materials
and Layout



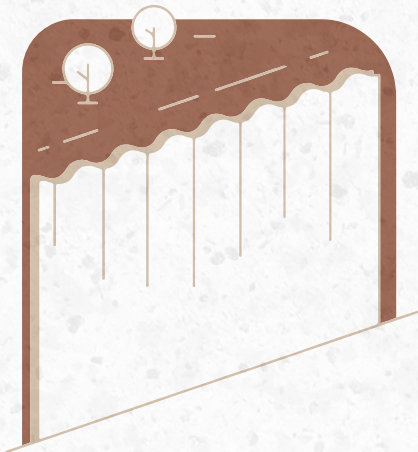
Types of Materials

Make sure the bunker is made of a strong material that won't crumble underneath the dirt. Not all building materials are equal, especially when it comes to dealing with building something underground. The most common building materials are: Metal, Brick, Concrete. Don't use wood, as it's incredibly prone to weathering, rot and can become vulnerable to infestation. You can use wood to decorate the inside of your bunker, but make sure you keep it clean. Shipping container bunkers can be spacious and cost-effective. However, you won't be able to customize your layout as much. Shipping containers would also need to be reinforced as shipping containers aren't built to be buried. When you have your materials for your bunker ready, the next step is to figure out how to dig into the ground.

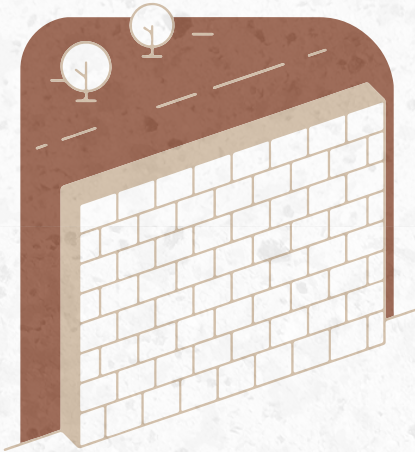
The common feature of this type of construction is the thickness of the masonry generally from 2 meters up to 4 and a half meters of concrete, depending on the resistance it must be able to guarantee; in many

houses the area of the masonry is greater than that of the usable space. This space is for most cases designed well beyond the logic of the existenzminimum; low height (usually under 2.2 meters) narrow corridors, very small rooms, access via seafaring stairs, hatch entrances, etc ... every inch saved decreased the probability of sighting part of the enemy, increasing the chances of survival. Within these spaces, the combat chambers represent one of the weakest points of the structure: they housed the defensive positions and therefore had openings to the outside; usually these cracks were reduced to the bare minimum and were reinforced with steel plates which were then drowned in concrete. Another point of the structure were the entrances: usually iron doors or hatches for grenadiers a resistance equal to that of the external walls with a reduced weight, allowing them to open.

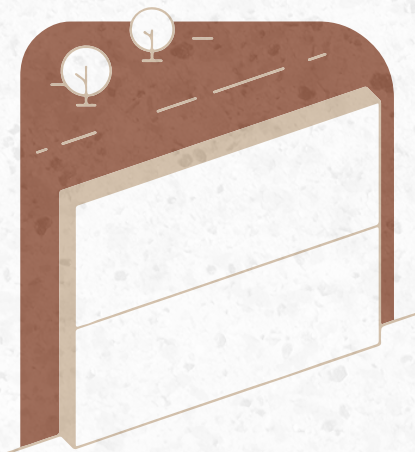
There is three principi types, Metal, Briks, Reinforces Concrete



Metal sheeting is sturdy and water-resistant, but can also be expensive, especially since insulation would need to be added.



Bricks, are sturdy and relatively affordable building materials that are also great insulators and incredibly weatherproof. They can also add style and color to an otherwise dreary situation.



Reinforced concrete can withstand high loads and is relatively cheap. Self-healing concrete is an advanced building material that reduces maintenance requirements and has about a 200-year lifespan.



Architecture
Materials
and Layout



Layout

There's not going to be a lot of space, but that doesn't mean you can't make it work. You want to have enough room that you aren't hugging your knees everywhere, but you don't want to waste space. Think of it as a small house and use the same tips to maximize space. For example: To Combine spaces by using an open area plan. To Utilize vertical space for storage efficiency. To Install wall-mounted furniture like a desk or table to save on space. Whatever you decide to do, make sure you plan for both efficiency and comfort. You may be building a bunker for safety, but that doesn't mean you have to make it feel claustrophobic. To avoid claustrophobia as much as possible while utilizing the limited amount of room that you have, FEMA recommends between 5-10 square feet per person for tornado or hurricane shelters. With this in mind, try to plan for that much private space per person.

Public Area

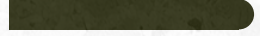
They are necessary for the psychological well-being of the members. They, having no contact with the outside, being a closed system, must focus on exchange and employment between people, if they want to maintain mental health. Mental sustainability is as important as physical sustainability. The crew members of a military submarine or spacecraft are reasoned and prepared in the same way. It is clear to point out that every action in such a restricted environment has a consequence on all the other members. Therefore the social part must be planned. Provide a system of rotating jobs in order to occupy the temp, and to learn all the roles within the structure, in case of criticality or premature death of one of the other members. This creates a community



BALANCE



Architecture
Materials
and Layout



Private Area

This type of area is necessary even inside a very small bunker, in order not to lose self-awareness. It provides various insights to reflect on. More free time to spend means more time to devote to certain activities and to cultivate more interests, as there is less pressure from work obligations. All these positive notes are not part of the general vision of a bunker despite being intrinsic characteristics.



Case study 25

LAYOUT

VIVOS EUROPA ONE

Jena, Germany

Vivos

2012 (work in progress)



Client Goal

UNDER MOUNTAIN

TUNNEL

CUSTOMIZABLE

LUXURY

COMMUNITY

EUROPE

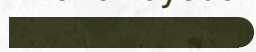
HUGE

The former military ammunition depot, dating back to the period of the cold war in Germany, consists of housing units of 232 square meters (with the possible extension and addition of a second floor up to 500 square meters). The bunker is delivered rough and then set up by the owner. The vivos CEO says that many customers see their bunkers as yachts and in fact they hire their boat designers to design this space as well. Here, in addition to all the comforts of home, there is also a strong community

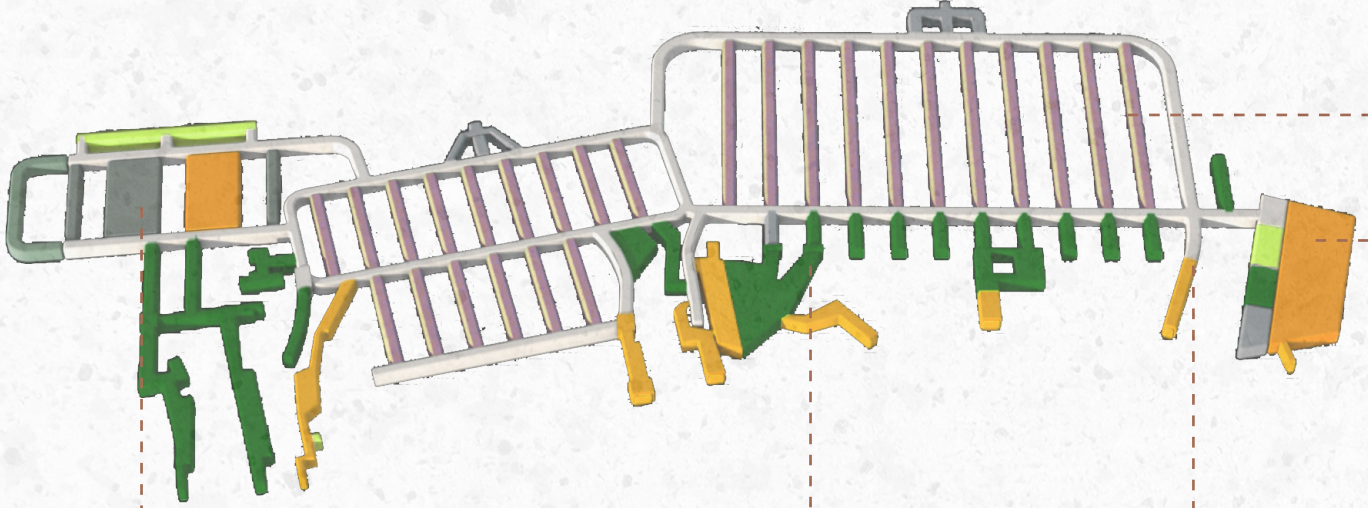
presence helped by public transport and public areas such as the theater, restaurants, swimming pool, cafeteria, play areas ...



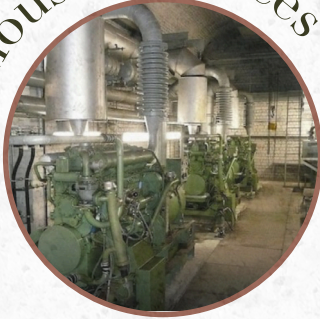
PLANS
example of layout



Architecture
Materials
and Layout



Warehouse / services



Common area



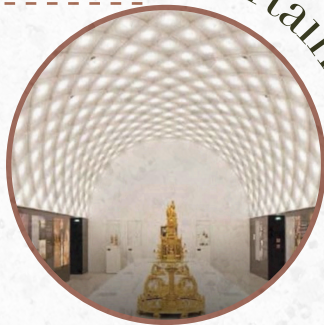
Entrance



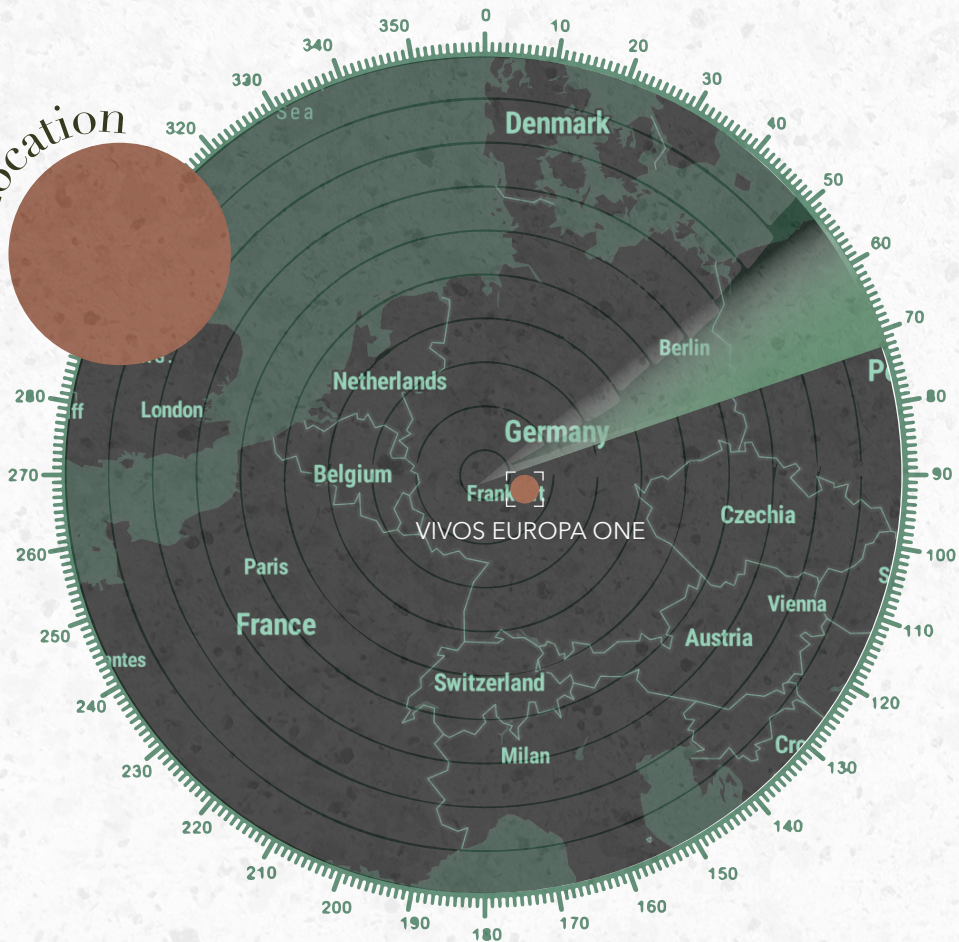
Shelters



Entertainment



Location



Architecture



Materials and Layout



Primary Needs

To survive in a space like that of a bunker, we highlight some strategies for the procurement of primary goods. Laria: At least two **air** vents in case of failure or malfunction of one. It must be filtered through various technologies, biological, chemical and nuclear filters. **Health** thanks to the supply of primary and basic medicines. We proceed with the **healthy environment** thanks to the lack of infiltration of insects or water. Then there is the need to understand which are the necessary **movements** for the supply by armored vehicles. Another very important factor is the **energy** generated by using generators or batteries powered by geothermal or petrol wind turbines, solar is avoided as the lambs are too fragile to withstand a sinister event. Furthermore, the supply of **water** and **food** takes place through well water filtration, rainwater collection system, sterilization by UV filters, paper and carbon, and Secret crops, inside woods, cultivation using special lamps.





Air



Health



Primary Needs



Healty environment



Movements



Energy



Water



Food



Secondary Needs

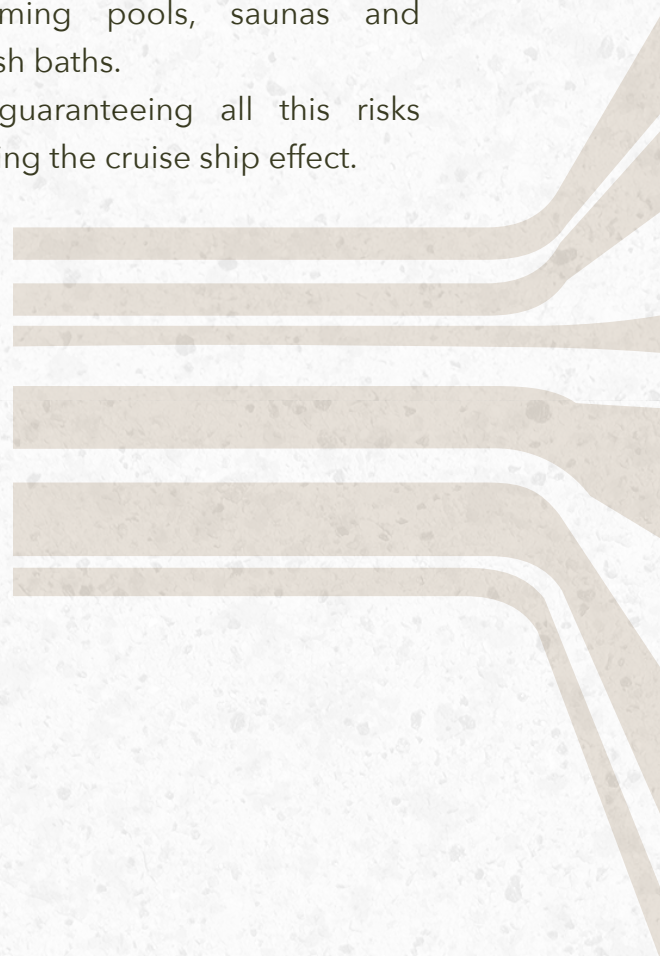
Are they indispensable in an emergency situation?

The answer is yes, because normal activities make our brain feel that the situation is under control, otherwise we would not do those activities, so it does not perceive anxiety and danger, which ensures mental health.

In addition to the primary goods necessary for survival, it is necessary that other elements guarantee mental stability in the longer periods of stay in the bunker. The first necessary condition is to have the ability to be able to **defend** oneself using defense weapons. **Social activities** in larger bunker complexes in places such as bars and common areas foster relationships, but also **cultural activities** such as theaters and bookstores. **Physical well-being** is also important, therefore through the installation of the Swimming pool, shooting range, gym, climbing wall. Attention to **mental health** also depends on many characteristics of the environment including Study of textures, colors and lighting against depression

Perception of time through windows or an at least apparent connection with the sky. Finally, **wellness** is guaranteed by swimming pools, saunas and Turkish baths.

But guaranteeing all this risks creating the cruise ship effect.





Difense



Socail Activities



Cultural Activities



Sport Activities



Mental Health



Wellness Activities



Secondary Needs



PHASE 3



IMPLEMENTATION

Bunker Hospitality

After having therefore analyzed the bunkers for their primary purpose, that is the military one, and the reuse of them in various sectors from the personal one, passing through that of stocking up to those for industrial uses etc. Now we focus on a new method of recovering this type of construction, namely the one dedicated to hospitality. Many people are attracted to the world of war, to the underground world, not to mention the phenomenon that pushes young and old to create their own refuge, especially citizens of chaotic cities, etc. The research brings some examples of how these shelters work in already remote places, with low population density, little noise and little chaos. Swiss Alps, countryside of Denmark, attracted thousands of visitors just for the singular experience of being able to spend a short period or less inside a building that could be considered a bunker and they

declared themselves happy with the idea of the past experience. So it might be a good idea to go in the direction of hospitality in this sector, to give the population the opportunity of an experience that is as unique as it is singular.

Case study 26

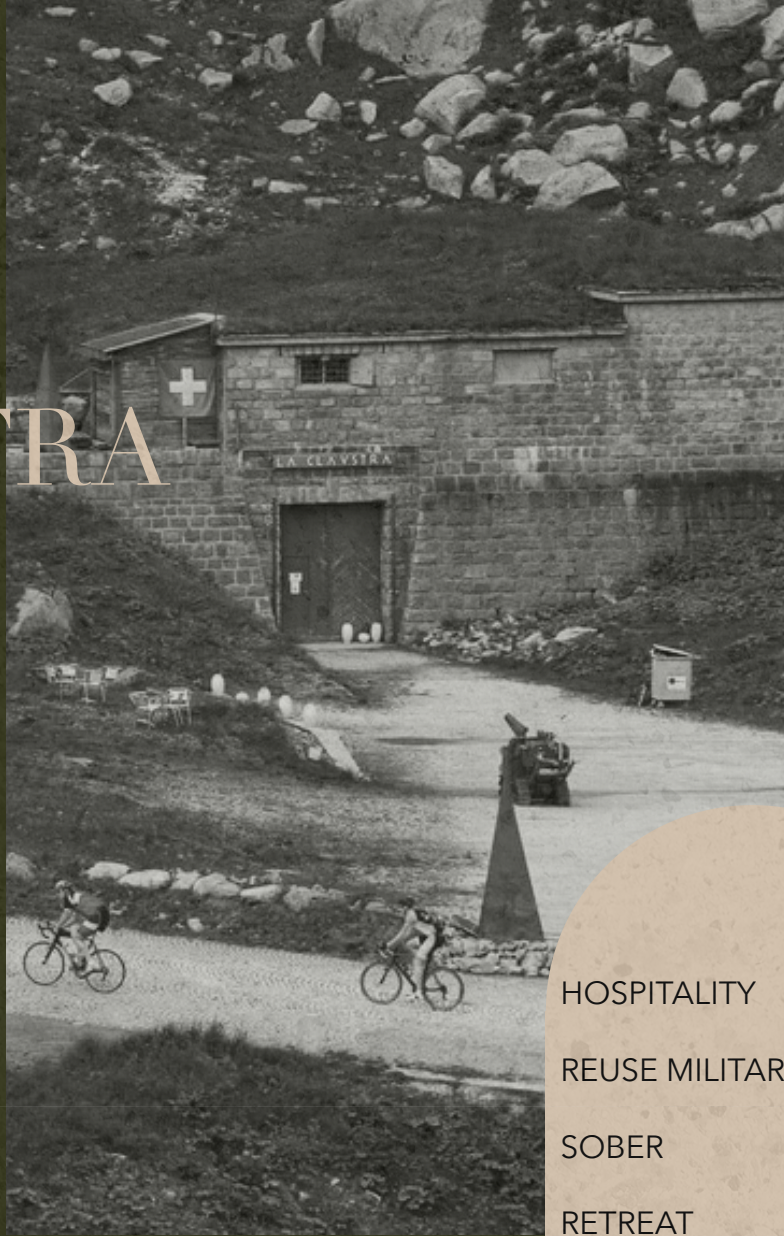
HOSPITALITY

CLAUSTRA HOTEL

San Gottardo, Swiss Alps

Jean Odermatt

1999



Client Goal

HOSPITALITY
REUSE MILITARY
SOBER
RETREAT
AUSTERE
REFLECTION PLACE

Here the Swiss did not entirely live of their own free will. During the Second World War, soldiers had to serve in this artillery bunker under the Gotthard pass, in Airolo (Ticino). Today the "Claustra" is a hotel with restaurant, wellness services and library. The rooms at 2,050 meters above sea level are air-conditioned, have running water and toilets. The feeling of being in a cave, however, remains. It is said that in the windowless catacombs you can smell the mold and see the humidity in the

air. I know I will have a different experience, but I will give you the feeling that it is worth it. Comfort therefore takes a back seat.

SAME REVIEWS OF CLIENTS

" Nel Pasaggio "

**9 Jun 2016, Taunton, Regno Unito
Rolffl19**

"Mia migliore era a un seminario l'anno scorso. Ero solo interessato a com'era e sono rimasto li durante un tour in bicicletta in Ticino. Il vecchio Bunker militare sul Passo del Gottardo è davvero molto speciale. Mi è piaciuto. Le stanze sono funzionali e pulite. La cena buona e abbondante. I vini aver paura dei bunker e sopportare l'umidità. il soggiorno è stato indimenticabile."

" un esperienza unica: in montagna, vuol dire che "

"5000 metri quadrati di bunker di guerra, è stato trasformato in un hotel contemporaneo che puo ospitare 30 ma a volte anche 60 persone. un'esperienza incredibile.

" an experience in the mountain, literally "

24 Jun 2016, Jean-Marie P

"100 m under the surface, which is itseld 2040m aboce sea level, is a bunker. What are you doing there? If it is still covered with snow you can only access by snow lough mobile and clim down a six meter firemen ladder (and climbing back up). What expects you are contemporary boxes of glass and concrete containing a restourant, an event room, a conferenxe center, room for 30 and a mini-fitness area. As the temperature (outside the heated roos is a costant 12 C° the wines havr a wonderful natural celar.



**Bunker
Hospitality**



The door gives access to the bowels of the mountain: visitors go up through long corridors, pass in front of heavy steel doors and finally reach the hotel lobby. The darkness, the cold and the constant dripping can cause a slight sense of oppression. "Even if only for a short time, living here, inside the Gotthard, is something extraordinary," says Rainer Geissmann, owner and manager of the underground hotel, confirming the feelings of visitors. An artistic project is realized through the demilitarization of the Gotthard. The Swiss army built it in the Municipality of Airolo between 1938 and 1942 in reaction to threats from abroad. With the end of the Cold War, tension in Europe subsided: the defense works were abandoned by the army and largely demolished. But this was not the fate of the San Carlo fortress, delivered in 1999 to the La Claustra foundation by the Federal Department of Defense, Civil Protection and Sport (DDPS). The director of the foundation, as well as artist and philosopher Jean

Odermatt wanted to make the San Carlo fortress accessible and "transform it into a communication center in the style of a postmodern convent". He intended to make the former fortress a place for reflection. The transformation of the bunker into an elegant hotel and conference center took four years: the army had to evict 250 tons of material and the artist had to undertake investigations on the waste water treatment and carry out various renovations, such as the installation of steel and glass boxes. Indeed, Geissmann has been able to make the peculiarities of the hotel its strengths. Deep in the rock and sheltered from daylight, visitors soon experience the feeling of being out of time. The lack of connections to the outside world prevents visitors from checking their emails every five minutes and allows them to focus on on-site discussions. The continuous dripping and temperatures of 14 ° C make the stay in this four-star hotel even more special. Given the isolated location, managers

Case study 27

HOSPITALITY

BUNKER PAVILION

Vuren, Netherlands

B-ILD

2014



Client Goal

SEMIUNDERGROUND

MILITARY REUSE

HOSPITALITY

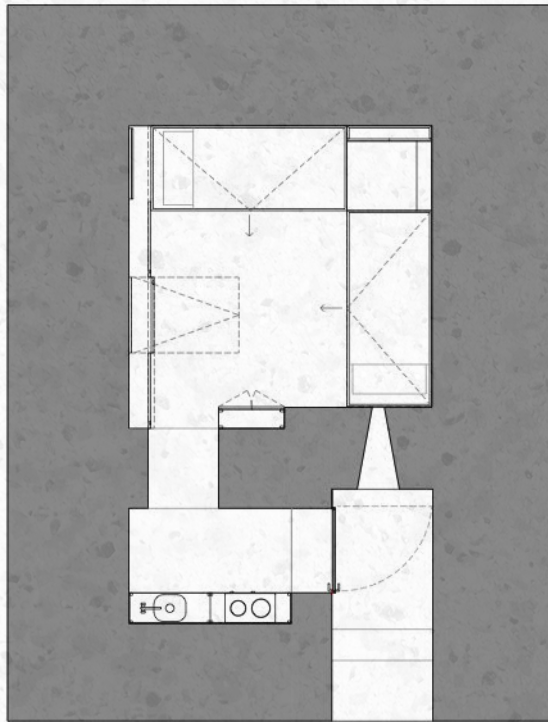
PAVILLON

CONCRETE

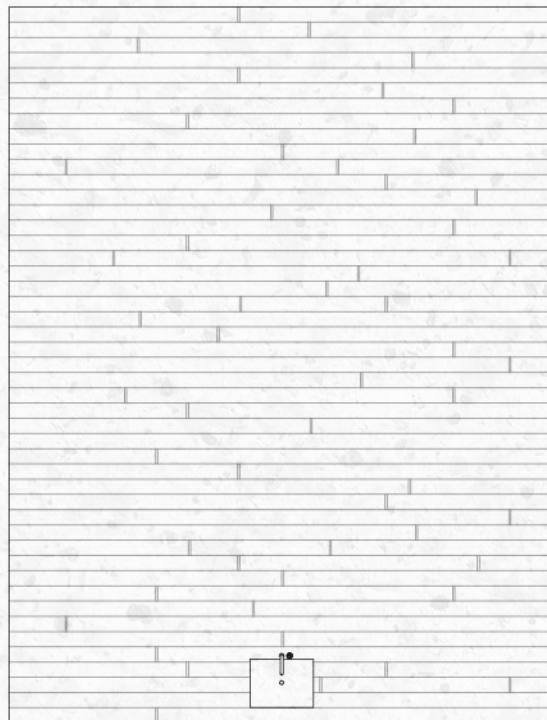
MINIMUM SPACE

ADVERTISING METOD





-
-
-
-
-
-
-
-
-
-



Bunker Hospitality

-
-
-
-

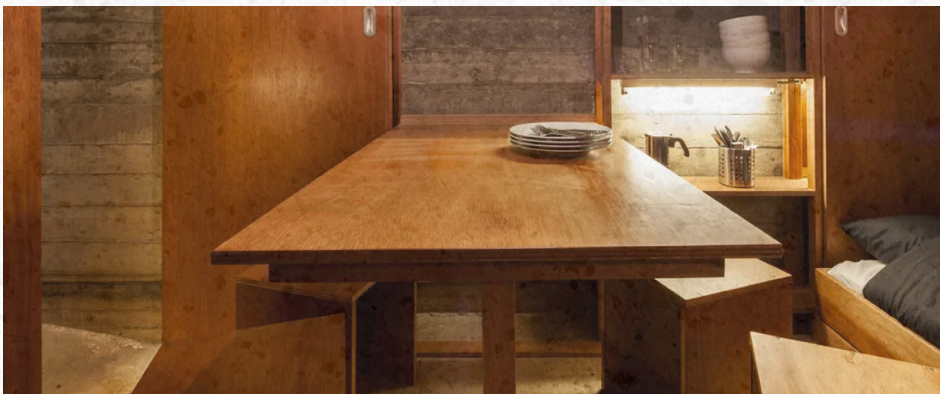
The limited surface of the bunker was extended with an outdoor deck. The perimeter of the deck is an exact copy of the outer circumference of the bunker making all the more obvious how much area is lost in the thickness of the monolithic concrete walls.

-
-
-
-
-
-

other constructions in the line it has been converted into a temporary holiday home. Given the success of the operation, the Dutch government decided not to dismantle it and make it permanent. The building is a small basement reinforced concrete block surrounded by lush greenery; its entrance is marked by a small raised hill and by the concrete front in which the entrance door is carved, according to the canons of military mimicry. Inside there is a minimal space: 30 usable square meters marked by two-meter thick walls for a wall surface that is almost double the livable space. The environments are modulated through modular and multifunctional elements, which exploit the recesses of the masonry masses to guarantee as much space as possible. And so small niches initially designed to deposit weapons and ammunition, or perhaps to shelter from a possible enemy attack, become kitchen tops rather than sliding cabinets. THE main room, 3x3 meters high, 1.80 meters high,

functions as a living room and bedroom, and therefore contains a series of elements that can be adapted to both uses: the stools can be used as bedside dressers, the table can be folded down to obtain more space, the beds can be hidden and so on. The use of wood creates a strong contrast with the hardness of raw concrete. Outside the building, a pair of wood slightly raised from the ground allows you to carry out various activities; a curious aspect is that the size of the wooden platform is the same as that of the bunker including all the walls; this helps us understand the amount of usable space in relation to the enormous mass of concrete that surrounds it. This project therefore interprets this type of construction through a delicate intervention, which faces the complicated challenge of making a hard space like that of a bunker a hospitable, warm and welcoming environment. An interior intervention designed to give quality to every single space in a place where every square centimeter can make the

difference; at the same time it is a landscape type intervention, where through the external wooden deck not only is it possible to experience an outdoor space, denied by the bunker, but its presence within the landscape is signaled, concealed by its mimicry.



Interiors

-
-
-
-
-
-
-
-

Bunker Hospitality

-
-
-
-

-
-
-
-
-
-

Case study 28

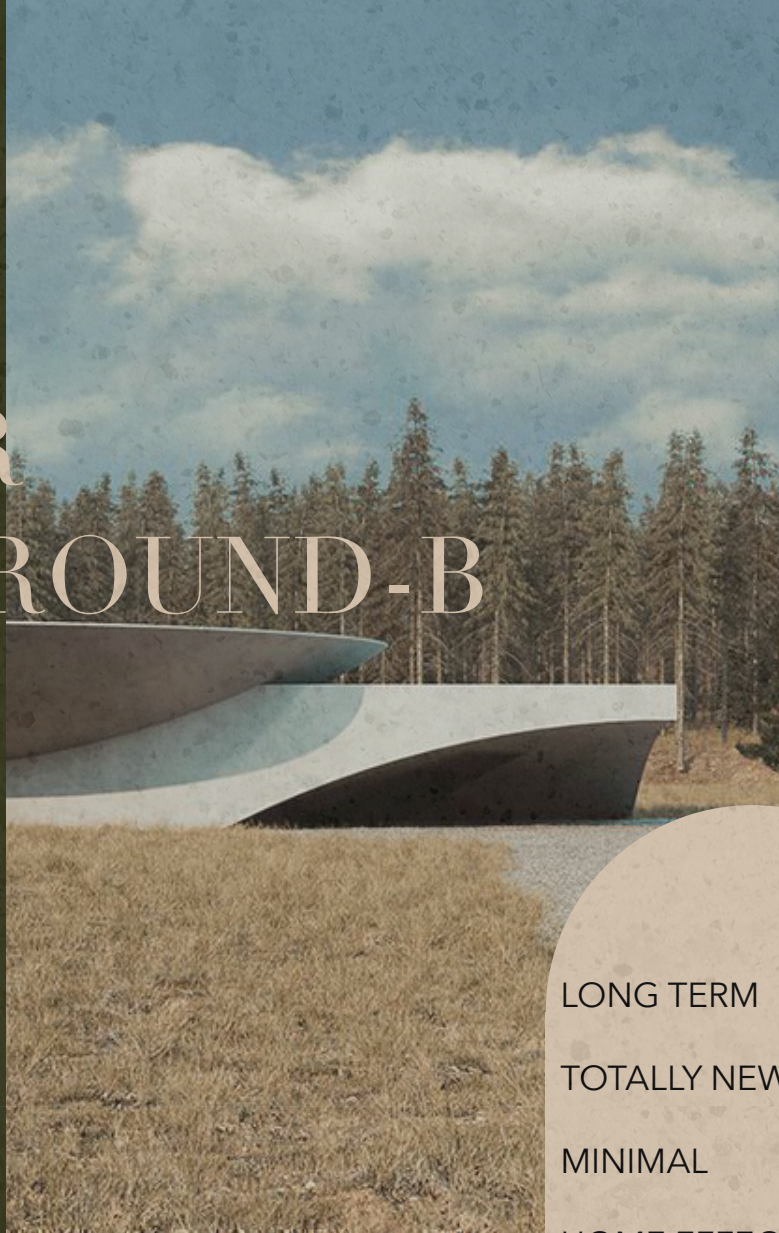
HOSPITALITY

BUNKER UNDEGROUND-B

Vuren, Netherlands

B-ILD

2014



Client Goal

LONG TERM

TOTALLY NEW

MINIMAL

HOME EFFECT

CURVE SURFACE

LIKE AN HUG

MULTI-FAMILY



Renders

-
-
-
-
-
-
-
-

Bunker Hospitality



-
-
-
-

-
-
-
-
-
-

without an engineer's approval first). New home construction installation is much easier! It affords for the shelter to be put in pre-slab, which also allows for the secret hatch to be placed in the master bedroom closet, or hidden behind a false wall. The BombNado disaster shelter features an NBC Air Filtration System (Nuclear, Biological, Chemical), plus hundreds of cubic feet of storage beneath the laminated oak flooring, and collapsible bunk beds & couch that converts into an additional bed! The shelter's sturdy steel engineering is strong enough that you can even park a car on top of the 4' x 4' hatch installed flush with the floor. The shelter includes a custom fabricated ladder entry, an 8-ton hydraulic hatch-lift for emergency egress, and an impressive list of other customized options. All shelters in the Nado Series are priced without the beds, couch and toilet. This is done this way for those who wish to use the shelter for a wine cellar, gun room, panic room, or just for storage. Because BombNado is

buried 14 feet below the surface, the average temperature in the shelter is 60° which will make it the perfect climate controlled wine cellar. Optional bed or couch \$575 each. The BombNado is built to FEMA P-361 standards and is an all-in-one fallout shelter, safe room, tornado shelter, and gun vault.

Metropolis Condition

The metropolises in the world are invaded by chaos, on the streets between the shops in the offices, even sometimes it even takes over the private homes of citizens. Still the new enemy, duqnué, from which to take refuge, are no longer bombs, airstrikes or wars but Chaos. So as already mentioned above, in addition to the simple curiosity of people to know the underground secrets that a bunker hides, the purpose is also to create a space for itself and create its own shelter or shell. The anthropological reasons that would push this are many. Large cities in general cause in citizens a sense of distrust of others, given by a lack of knowledge, and this leads to the creation of barriers for personal defense in the mind of the cosmopolitan. Here his need to be in a safe place (which is the main adjective with which we would define a bunker) is fully satisfied. The project therefore undertakes

to recondition a bunker located in the city of Milan, as a sample for a metaproject in various large European and later world cities. A survey conducted in six European countries: Sweden, Norway, Finland, Denmark, Austria and Switzerland showed that asking an age group between 18-35 years of age, it emerged that 60% of respondents would prefer not to live in large cities, due to multiple factors, distance from family or loved ones, type of work not congruent with their attitudes, loss of contact with nature and the calm of the suburbs, and finally losing contact with oneself.

“ *Need of* NEW SPACE ”

To summarize, until now we have talked about bunkers mainly built for war purposes or around the military world. But today, in peacetime, what do people want to take refuge from, what are they afraid of or bothered by? The answer lies in Chaos. THE Chaos that surrounds the large metropolises, as already mentioned, increases more and more with the increase in population density which, for a variety of reasons, is forced to approach the metropolitan environment from small towns or suburbs. In all this is also reflected the presence of numerous bunkers in a state of neglect even in large cities, which were used above all as shelters for the populations in the event of attacks. These two factors, the stress brought by the chaos of the city, and the end of bunkers may seem very disconnected from each other, but in reality they can be connected by a single solution. The establishment of an isolated urban hotel bunker.

Metropolis



stress

Bunker



isolation

Large presence



of abandonment



Urban
Bunker





Urban Bunker

This illustration is the abstract idea behind the project. A place isolated from the rest of the chaotic city in which you live, where you can detach yourself and take a moment for yourself without considering external influences.



-
-
-
-
-
-
-
-
-



□ Urban
Bunker

-
-

-
-
-
-
-
-
-

Experience Marketing

Experiences in general have a profound impact on the purchasing and booking habits of accommodation facilities, on customer satisfaction and loyalty towards the brand. This is true regardless of the area, whether it is food or clothing. Brands usually provide in-store services and products that are well organized and pleasant to visit. At the base of any significant product and service sales experience there is a strong customer-brand connection. When you build your experience based on the fact that customers will shop with their hearts rather than their heads, you will be able to make each customer feel like a unique person having a unique and therefore valuable experience. The ability to arouse emotions in customers is what will make them come back several times to visit and buy the services and products

of the brand in question. Once they have memories and feelings related to the store, they will be more inclined to choose that particular brand than that of the competitor.

Experiential Marketing is based on Curated Experiences tailored to the visitor.

It is important to consider how these experiences can be incorporated into the customer journey as they pass through the hotel in question.

Another way to create positive in-store experiences is to allow customers to use and interact with products directly. Different people will respond to these experiences in different ways, so it's important to find out what works best for your specific target audience.

To ensure complete detachment from reality and therefore the proper functioning of the experience, only a few personal items will be allowed to enter the cocoon. As we have already said, each visitor is different and each considers some objects important, compared to others. Everyone

will be offered the opportunity to choose which objects to bring to his nest by setting a fixed number, and cramming the others in special boxes that last the time of the visit.

A list will then be provided for the less courageous on which to mark what they would like to bring into the experience.

For the more daring, a kit with gadgets selected by the accommodation will be provided.

Experience Rules

The threats that interfere with our lives are not just those considered as natural disasters and calamities, viruses and pandemics, or financial crises and collapses. Each of us sometimes needs to run to the reopenings for personal reasons that may depend on a stressful life, daily life problems, or simply wanting to change the daily monotony. More and more people have begun to seek experiences in all their purchases from services to products. A detox from the constant annoying publicity and all the city chaos offers an experience that goes against the tide.

RULES FOR DESIGN A BUNKER HOTEL EXPERIENCES

- I FEELING AWAY FROM ALL
- II TAKE YOUR OWN SPACE
- III TAKE YOUR TIME WHEN YOU WANT
- IV FREEDOM OF AUTONOMOUS CHOICE
- V ABSENCE OF ADVERTISING MARKETING OR EXTERNAL INFLUENCES
- VI UNIQUE EXPERIENCE
- VII ACTIVE CHOICE OF YOUR COMFORT ZONE
- VIII TOTAL IMMERSION IN SPACE
- IX CUSTOMIZATION OF EXPERIENCE
- X MINIMUM CONTACT WITH OTHER HUMAN



Experience



The Cocoon

What we aim to create in the chosen place is precisely a point where the visitor can recreate an experience that can remember all the intrinsic and positive characteristics of buildings such as bunkers.

A small space of your own, a nest in your own city or in others scattered around the various areas where the war has left these abandoned places. Depending on their size, the bunker spaces will be set up in a very minimalist way, because in that moment, in that experience, decoration is not important, comfort is not important, but what is essential is complete isolation, leaving your own world behind to hole up in a small environment like a shell. Just like a shell, the environment will give the visitor the opportunity to isolate themselves and be safe. The solitmant bunker with its tactical curvilinear shapes to dampen the impact of the bombs on the surfaces, now seems to envelop the visitor, who does not see sharp corners and feels

that space sewn onto him just like a caterpillar larva does with its cocoon.

Target and Occasion of use

THE TOURIST

18- 45 ANNI

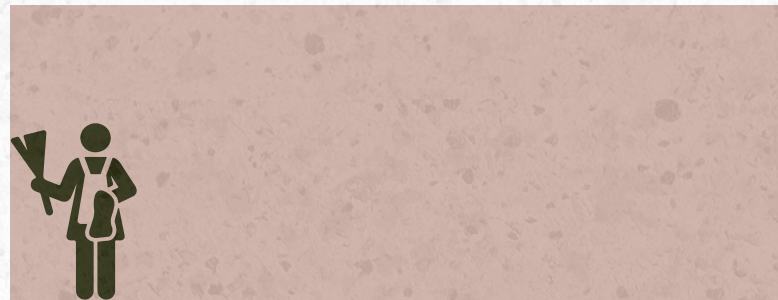
He can live a new experience within his trip / vacation. In order to be able to tell it as a distinctive feature that made his trip unique.



THE HOUSEWIFE

30-55 ANNI

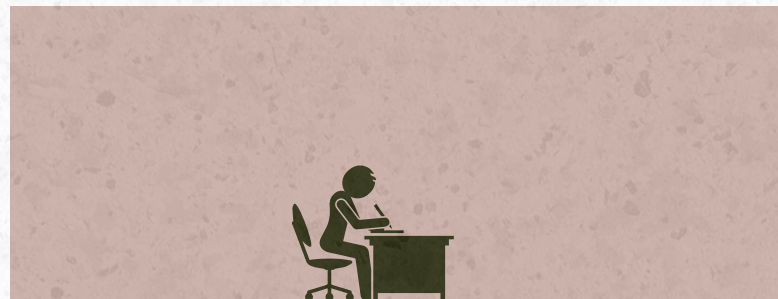
Mom always busy with chores, services and home care, can take a few hours off to devote herself to her person in a special room dedicated to relaxation and self-care.



THE STUDENT

18-30 ANNI

The student can manage to isolate himself completely, to concentrate on studying, in the hard and intense exam sessions, in a place that by definition has no distractions.



THE PROFESSIONIST 27- 50 ANNI

The professional can only enter the room with his laptop and coffee. In order to complete his work without external interference



THE CREATIVE 27- 60 ANNI

Quealche whimsical to be able to want to stay and observe his flow of thoughts and reflect on past experiences so that he can give free rein to his creative ability, in a place that has no influence on him.



THE CREATIVE 27- 35 ANNI

A romantic escape from the chaos of the city to take their space and time with each other and reinforce their spiritual and physical bond, where they can talk and strengthen their memories.



Where

The motivation behind such a large number of rules is a very specific goal, by far the achievement of the customer's goal, whatever it is, from the very difficult examination, to respect a job delivery in a short time. However, not all former city bunkers have the ability to adapt to the indicated purpose, in fact, they must comply with some characteristics that guarantee complete isolation, intrinsic characteristics of the bunker but not obvious. In fact, with the passage of time the city around the bunker has evolved therefore the presence of some kind of activity contrasting with the philosophy of the bunker in the immediate vicinity could compromise the success of the project.

RULES WHERE IT POSSIBLE BUILT A BUNKER HOTEL STRUCTURE

- I Central location within the city, for ease of access by all
- II The bunker must present an isolation from the city context in which it is located. By limiting any external interference as much as possible, for example with a very thick reinforced concrete structure, or buried etc.
- III The bunker must have a separate access from the rest of the structure to which it belongs (in case it is part of a complex of buildings)
- IV The bunker must have strong sound insulation
- V The bunker must be part of the history of the city but the constitution of the hotel must not interfere with its history.

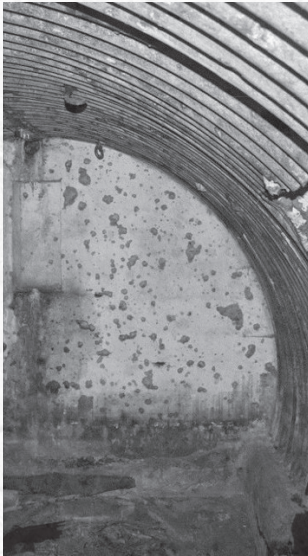


Features

The soft lines were a necessary expedient, so that the shock wave caused by a bomb could pass the surface in a more aerodynamic way than a flat surface. In addition to this need for structures that had greater static, it sometimes corresponded to barrels that would put the weight of the structure more effectively on the ground. These internal and external characteristics resulted in soft surfaces and no sharp lines. Usually, with rare exceptions, the rooms that make up a bunker are very small, just to make room for the masonry which must be as solid and massive as possible. This condition is almost always present, even if with rare exceptions (public emergency bunkers) the spaces increase.



Soft Shape



Manual



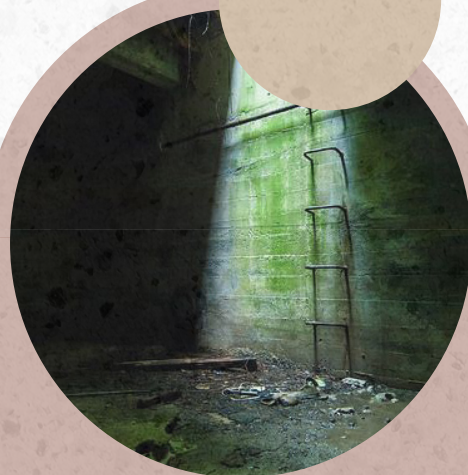
Difficulties

Being no longer greasy in a society like today's, almost all the bunkers have fallen into disuse, with all the problems that abandonment can lead to a building, especially in very close contact with the ground. Moisture molds and infiltrations can be problems to be solved within the project.

Usually, having very thick walls and being designed to hide and protect themselves, the openings are very limited. This does not allow to have a lot of light inside the space, the same goes for the natural entilation of the rooms.

I materiali solitamente utilizzati non permettono facili interventi sulla struttura, poiché molto massicci, e soprattutto, non decorativi ma strutturali. E' sempre difficile dunque procedere ad aprire varchi ed aperture, oltre che ovviamnete ad abbattere pareti divisorie. Dunque la base da cui si parte necessariamente costituirà pressochè il risultato della disposizione finale degli spazi.

Abandonment



Lack of lighting



Hard Material



-
-
-
-
-
-
-
-
-

-
-
-
-

Manual

-
-
-
-
-
-
-

How

The techniques studied by the real Preppers have acted as a guideline for what will be the bunker hotels, in order to survive even in complete isolation (even if in this case for a short period)

RULES HOW REUSE A BUNKER AS HOTEL

Access to the rooms must be independent or at least limit contact with guests to a minimum

unlike a normal hotel, the structure must not have common spaces, relations must be reduced to a minimum

All the rooms must be independent and isolated from each other

The accommodation must present the possibility to get rid of all the unnecessary elements for the stay to put them in safety in a special space.

There must be a portal where guests can monitor the room they are to enter before they arrive.

The environment must be totally neutral, it must not have any kind of influence. from the previous one.

If there are openings towards the sternum, they must be replaced with panels that simulate sunlight 24 hours a day, so that the perception of the passage of time may not be evident.

The bunker must necessarily control and monitor all the factors inside it: quantity of lighting, level of humidity, constant temperature, level of ventilation, noise reduced to a minimum.



Manual



Rule I

Trying to incorporate the various types of buildings into macro-categories, a solution can be found so that rule 1: Access to the rooms must be independent or at least limit contact with guests to a minimum is respected. The types highlighted are 5: Type A, or access from the external perimeter, is the simplest and most immediate solution, and is solved with each room with its own private access away from those of others. In type B, entered from a central access, we need to introduce technologies such as movement sensors that turn on and display a pass light to the customer, but also automated doors that open and close when the common area is cleared. access to cocoons. In type C, with buildings that have a narrow central cordoio that connects the various rooms of the bunker, however, the same method of

type B will be used except for the automated doors which will not be necessary since the rooms do not face each other. In the case of type D, with large and wide corridors belonging to larger bunkers that were dedicated to the population and the community as shelters, the solution would be to divide the corridor into smaller corridors, in order to guarantee independent access to all the rooms. Type E, is the rarest to find, but also the optimal one as it naturally guarantees independent access to the room from above.

Rule II

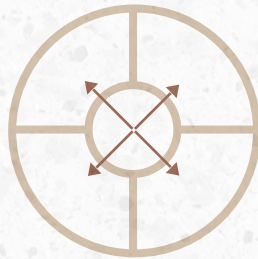
In all the typologies analyzed it is evident that the common spaces have been eradicated and therefore rule 2 is also satisfied.



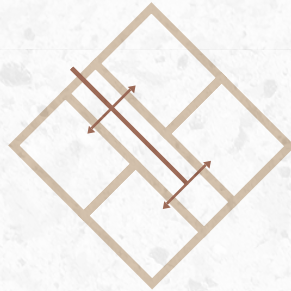
TIPOLOGY A
PERIMETRAL



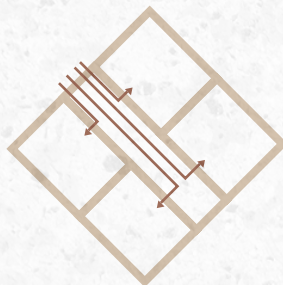
TIPOLOGY B
CENTRAL ENTER



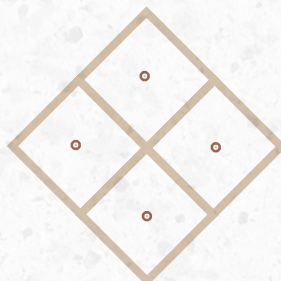
TIPOLOGY C
NARROW CENTRAL
CORRIDORS



TIPOLOGY D
HUGE CENTRAL
CORRIDORS



TIPOLOGY E
ENTER FROM ABOVE



Manual

Rule III

Rule 3 is about isolation, All the rooms must be independent and isolated from each other. The types of isolation depend on the structure and conformation of the building and therefore can be classified, once again, in three categories. The insulation category A is the optimal naturally isolated one with the layout of the building that has the rooms very separated from each other, or interspersed with service rooms, this guarantees almost zero intervention. Category B includes thin walls of the structure, which are basements and shelters usually from historical periods. In this category it is necessary to intervene with an additional layer of walls and with tactical insulation in the cavity between the two layers of walls, the underground and the new one. In category C, there is usually a massive structure typical of military

bunkers, suitable for withstanding aerial attacks with very powerful bombs. This large masonry guarantees considerable isolation between one room and another.

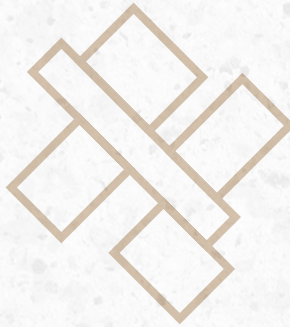
Rule IV

Rule 4, The accommodation must present the possibility to get rid of all the unnecessary elements for the stay to put them in safety in a special space, is satisfied in all the rooms through the installation of a time-controlled locker, which guarantees security but also desontification as required by electronic devices.

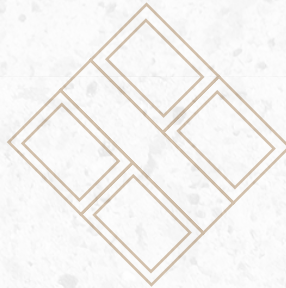


-
-
-
-
-
-
-
-

TIPOLOGY A
NATURALLY
ISOLATED BY
LAYOUT



TIPOLOGY B
THIN INTERMEDIATE
WALL



-
-
-
-

TIPOLOGY C
HUGE CONCRETE
STRUCTURE



-
-
-
-
-
-

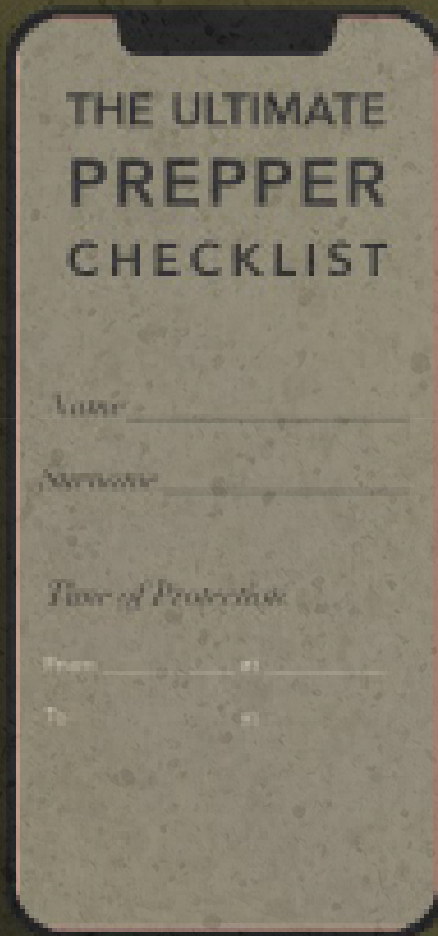
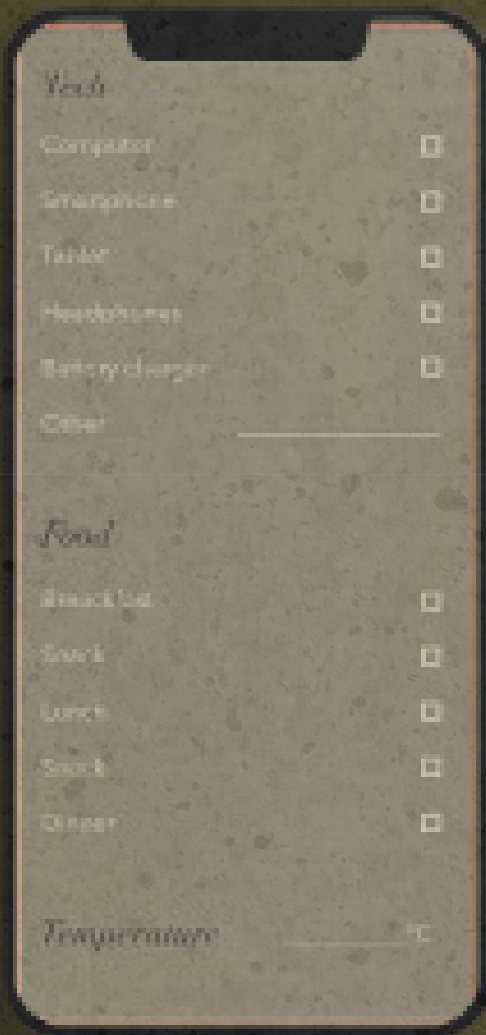
Rule V

The conformation of the personalized service to the guest will determine the final price of the stay. Obviously, the more services the guest uses, the more the price is increased. This guarantees a customization of the price therefore and therefore embraces different social targets, thus expanding the pool of users who use the Metropolis Escape service. The Cleaning service is the only one to be done by individuals. In fact, the room is totally autonomous. Once the booking is successful, just before the guest's arrival, the room adapts and changes its shape according to the requests made by the customer.

This obviously cuts down on personnel costs, guaranteeing the customer an experience sewn onto his skin. in this way rule n 5, There must be a portal where guests can monitor the room they are to enter before they arrive, is respected



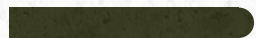
Manual



App Screenshots



Manual



App Screenshots

Rule VI

Rule 6 which consists of The environment that must be totally neutral, it must not have any kind of influence from the previous one. in turn it is divided into various areas. The first is that of the non-decoration of space. The space must not in any way influence the mood and sensations of those inside, it must be a blank canvas on which to build one's well-being and relaxation, therefore any object in the room that does not have a necessary function for the customer must be omitted. Another aspect belonging to rule 6 are Soft shapes trying to avoid sharp corners, so as to remember a real cocoon, we have already analyzed. The last facet of rule 6 is the detachment from history. The customer in his living room is not invited to feel and experience and remember dark moments of humanity such as wars or catastrophes, but takes refuge precisely to escape from the

surrounding world. The story and its tale would negatively affect the stay of the guest.

Rule VII

Rule 7 is to check for openings towards outside, they must be replaced with panels that simulate sunlight 24 hours a day, so that the perception of the passage of time may not be evident. This allows customers to get away from reality and the time that passes, so as to devote themselves completely to the activity or relaxation they are looking for.

NO DECORATION



SOFT SHAPE

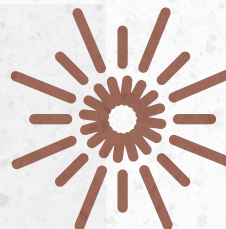


NO INFLUENCE BY HISTORY



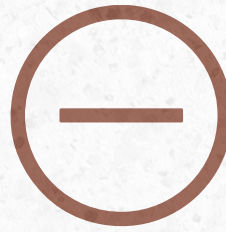
Manual

FAKE WINDOW
WITH LED PANEL



Rule VIII

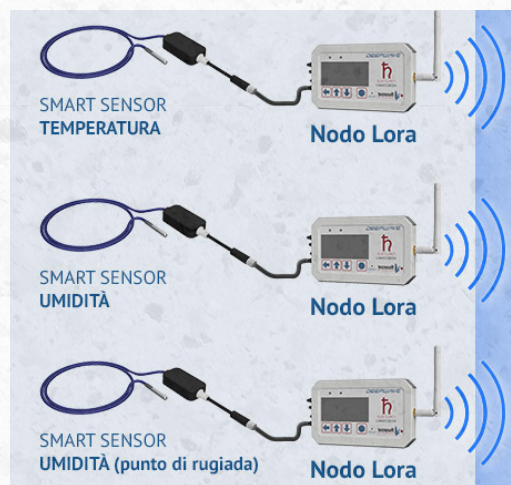
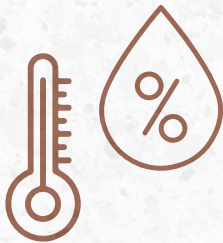
Rule 8 provides that the bunker must necessarily control and monitor all the factors inside it: quantity of lighting, level of humidity, constant temperature, level of ventilation, noise reduced to a minimum. The regulation of the light is obtained through the use of dimmable backlit panels with adjustable ° K. in order to adapt the warm color to a relaxing environment and a cold light suitable for more productive moments. The monitoring of humidity and temperature are solved by Technologie which produces control and modulation systems for humidity and temperature keeping them closely related to each other by a single system linked to a software. Constant ventilation of the internal environment, have positive repercussions on the thermo-hygrometric behavior. Filtration of air released into the internal environment with obvious benefits for subjects suffering from allergies and diseases borne by the respiratory system.



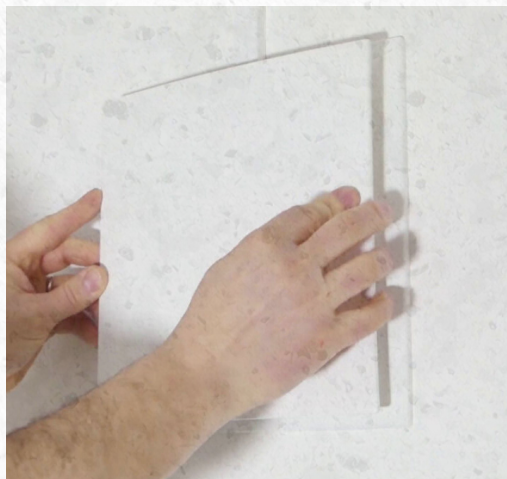
QUANTITY AND
COLOR OF LIGHT



HUMIDITY AND
TEMPERATURE



VENTILATION



Manual



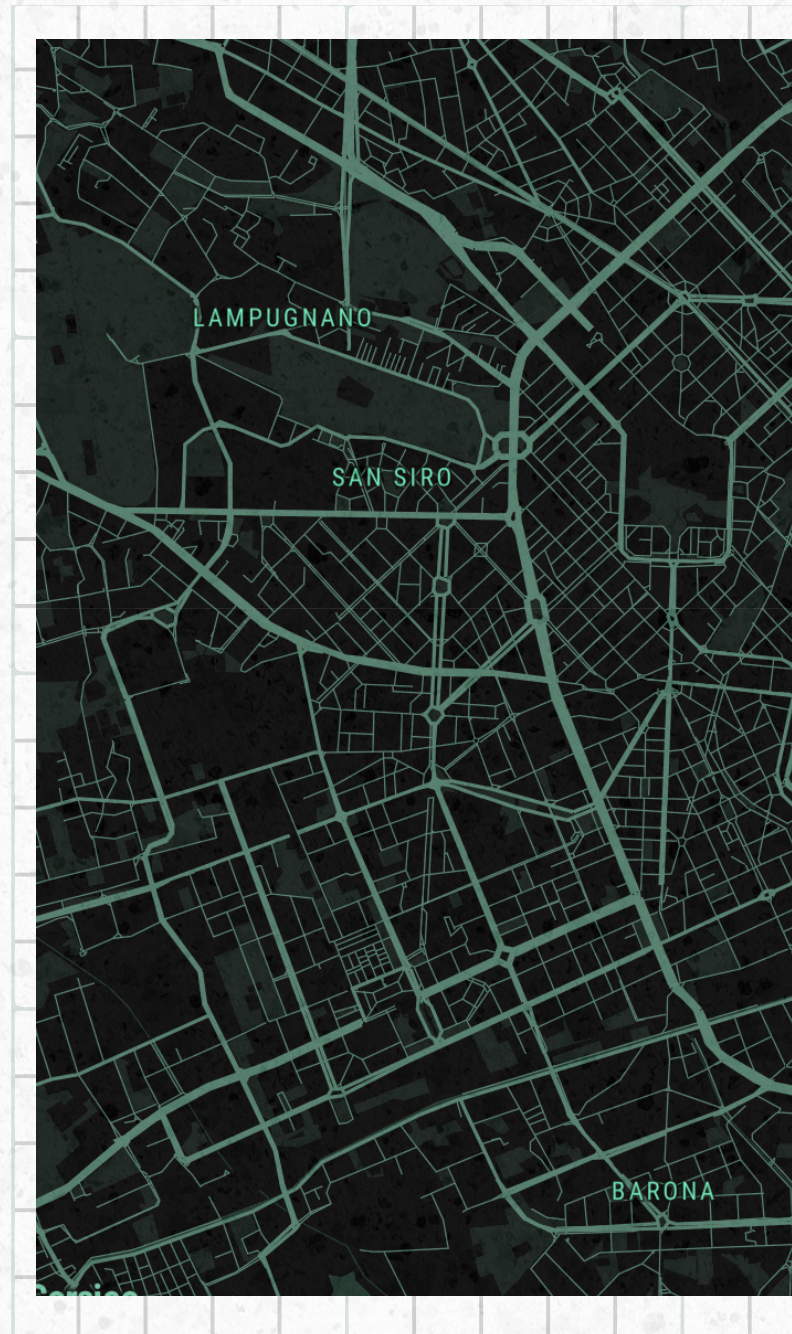
PHASE 4



DESIGN

Context Analysis

The context in which the Aereo Refuge 87 is located, in Via Luigi Bodio 24, is neither a context of full centrality with respect to the city nor of an extreme periphery. In fact, it is located near the second ring road of the three in Milan. This position is optimal to be reached from the rest of the city without being bottled up in the confusion and stress that a more central position entails. It is located in a transit area between two districts of Dergano, Derganino and Bovisa, the latter seat of the University of Engineering, Architecture and Design of the Milan Polytechnic. The area is therefore strategic to create our Metropolis Escape. The building under which the Bunker stands is a school building of a first grade primary school. The complex to which the bunker is part also has a courtyard so access is set back from the street side, all of which allows the ideal accommodation for the bunker hotel in question.



Allies and Enemies

The activities surrounding the air-raid shelter are different. They can be considered allies or enemies depending on their level of noise production, the presence of crowds. In fact, we find various activities such as restaurants and pubs. Although this type of activity can be an advantage for the economy of the area, their presence does not affect too much on the location of the 87 air-raid shelter, for the simple reason that in any case, they are not usually very crowded places, even in peak conditions. they do not create confusion. Moving on to the allies Instead we find two very important activities, one is a large parking lot, very useful to always have the possibility of being exploited by the staff and customers of the bunker, so as not to cause further stress to the already fatigued metropolitan citizens. As a second ally we have the Milan Polytechnic, which largely corresponds to the target group to which METropolis Escape is aimed.

- Rifugio Antiaereo 87, Viale Luigi Bodio 24

ALLIES

- Car Park
- Politecnico di Milano (University)

ENEMIES

- Scuola Primaria
- Il Ristoro Risto & Pizza (Restaurant)
- Blues Cafè (Cafè)
- Garden Cafè (Cafè)
- Spank Osteria della Birra (Restourant and Pub)

RIFUGIO ANTIAREO 87

Viale Bodio 22, Milano

5 ottobre 1940



HIDDEN
SEMIUNDERGROUND

DIFENSE REUSE

HOSPITALITY FOR
CITIZEN

BRICK

HUGE SPACE

CENTRE POSITION

In the basement of the Giacomo Leopardi primary school there is still today, immersed in silence and suspended in time, one of the air-raid shelters for public use in Milan, described by the director Ermanno Olmi in the book *Boy of Bovisa*, where you can grasp the traces of history and stories of the more than 450 people who found protection within its walls. It was the years of the Second World War, when Milan experienced one of the most dramatic pages of its history: British and American

bombers dropped such a quantity of bombs on the city that, at the end of the war, Milan counted a third of the buildings canceled and a third damaged. even in a serious way. During the bombings, which took place both day and night, the population was forced to take shelter in shelters, generally

| IMPLEMENTATION



interiors

-
-
-
-
-
-
-
-

-
-
-
-
-

Context Analysis

-
-
-
-
-

organized in the cellars of the city, of which the anti-aircraft shelter No. 87, in Viale Bodio, is one of the best preserved and the only partially refurbished. Recently cleaned and equipped with illustrative panels to allow visitors to immerse themselves in the drama of those years of war, the visit to Refuge No. 87 is a real journey through time, where the emotions of fear, hope and courage that still echo in the air trigger an ever-current reflection on the events of the contemporary world. In the basement of the Giacomo Leopardi primary school there is still today, immersed in silence and suspended in time, one of the air-raid shelters for public use in Milan, described by the director Ermanno Olmi in the book *Boy of Bovisa*, where you can grasp the traces of history and stories of the more than 450 people who found protection within its walls. It was the years of the Second World War, when Milan experienced one of the most dramatic pages of its history: British and American bombers dropped such a quantity

of bombs on the city that, at the end of the war, Milan counted a third of the buildings canceled and a third damaged. even in a serious way. During the bombings, which took place both day and night, the population was forced to take shelter in shelters, generally organized in the cellars of the city, of which the anti-aircraft shelter No. 87, in Viale Bodio, is one of the best preserved and the only partially refurbished. Recently cleaned and equipped with illustrative panels to allow visitors to immerse themselves in the drama of those years of war, the visit to Refuge No. 87 is a real journey through time, where the emotions of fear, hope and courage that still echo in the air trigger an ever-current reflection on the events of the contemporary world.



-
-
-
-
-
-
-
-
-

-
-
-
-
-

Context Analysis

-
-
-
-
-

Site identity

Request

Central location within the city, for ease of access by all

Answers

🗝️ Viale Luigi Bodio 24, Milano 20158

The bunker must present an isolation from the city context in which it is located. By limiting any external interference as much as possible, for example with a very thick reinforced concrete structure, or buried etc.

🗝️ There is Courtyard before the entrance of the complex where it is the bunker

The bunker must have a separate access from the rest of the structure to which it belongs (in case it is part of a complex of buildings)

🗝️ The bunker have a separate access from the ustair school from the outdoor courtyard

The bunker must have strong sound insulation

🗝️ The bunker is underground and it has vere huge external wall

The bunker must be part of the history of the city but the constitution of the hotel must not interfere with its history.

🗝️ The bunker was an WWII bomb shelter

The bunker must necessarily control and monitor all the factors inside it: quantity of lighting, level of humidity, constant temperature, level of ventilation, noise reduced to a minimum.

🗝️ The bunker must necessarily control and monitor all the factors inside it: quantity of lighting, level of humidity, constant temperature, level of ventilation, noise reduced to a minimum.



The bunker does not lose its function as a refuge, but the danger changes that there are no longer shadows and natural disasters, now the threat is the City Chaos.

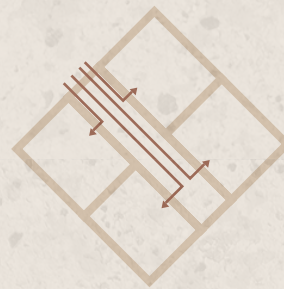
Context
Analysis



Site Relief

Access to the bunker is via a long corridor that connects all the rooms on the two left right sides. The connecting corridor is very wide and exceeds 3.5 meters in width. This type of bunker therefore falls within the type D described above. Therefore, the solution will be the subdivision of the broad corridor into more narrow corridors. There are two entrances, and they overlook a hall and stairwell that belongs to the building above. The first entrance therefore takes place by descending the stairs from the main building, the school. This entrance will not be used by the activity. The second entrance starts from the internal courtyard of the building, therefore separated from the main structure. This entrance is the one that will be used by customers in the bunker.

TIPOLOGY D HUGE CENTRAL CORRIDORS



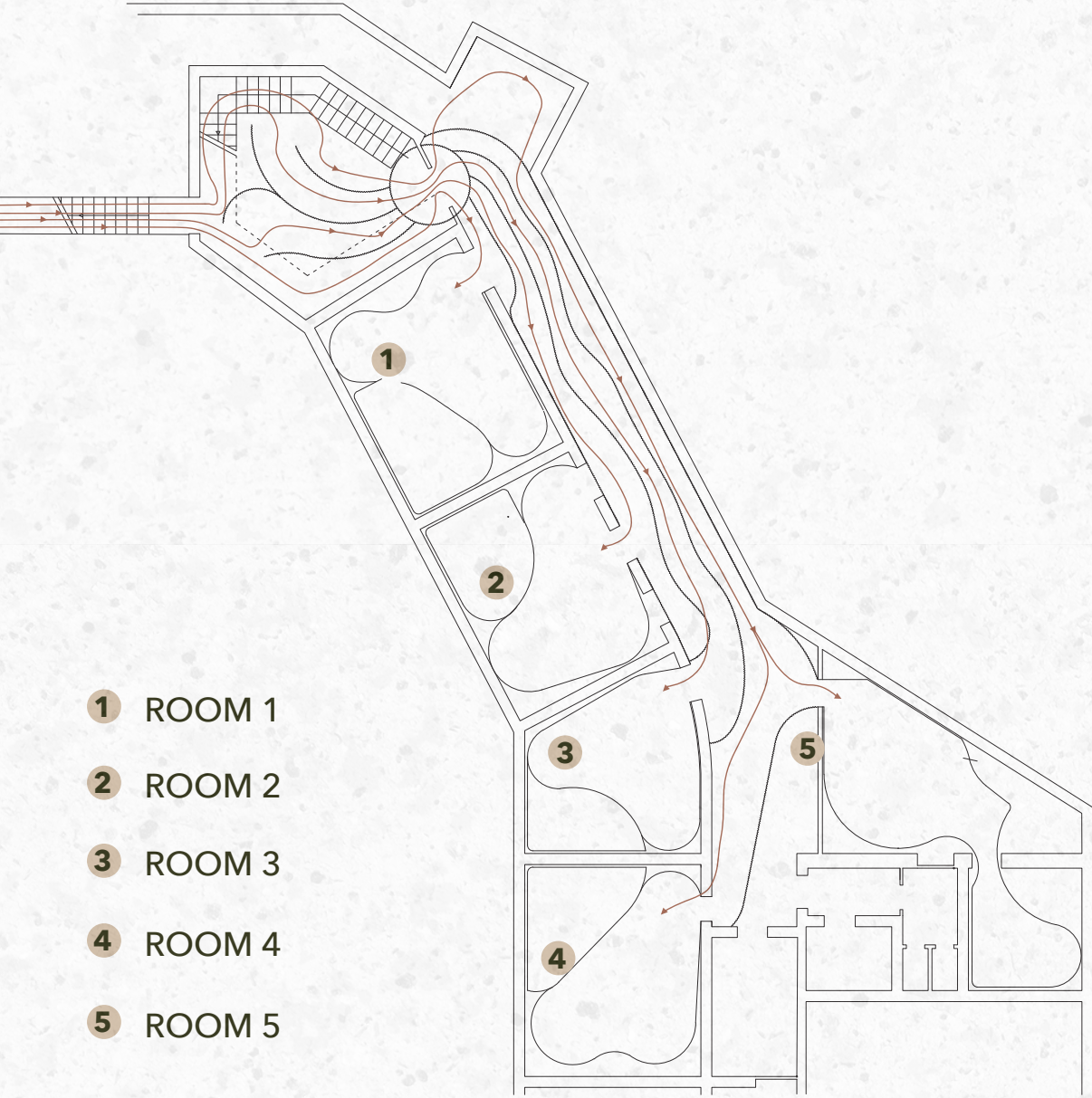
Site Scanning

Dirifingendosi in loco sul sito è stato possibile fare uno scanning 3d dell'ambiente in modo tale da percepire più informazioni possibile in una volta sola, (possibilità concessa dalla direttrice dell'istituto di viale bodio e dalle sue collaboratrici scolastiche) dopo l'accesso dall'androne delle scale principale dell'edificio al piano sottostante si è trovato un lunghissimo corridoio, il quale da un lato è finestrato e dall'altro presenta le aperture verso le stanze, molte tubazioni corrono per tutta la sua lunghezza a servizio dell'edificio sovrastante. Le stanze come il resto della struttura hanno la caratteristica di avere dei soffitti con volti a botte e numerose nicchie tra le mura, oltre un intricato sistema di tubazioni che servono i piani sovrastanti. Lo stato è ovviamente uno stato di degrado del sito, nonostante sia spesso utilizzato dall'istituto scolastico sovrastante come fonte di conoscenza e esplorazione della storia, attraverso piccoli lavoretti.



Client flows

Since the space is versatile due to the presence of non-fixed textile separators, the flows of customers are therefore known by narrower corridors, which, on the other hand, does not hinder the service ones. The corridors are punctuated by heavy ceiling curtains with non-reptilian but curved tracks, in such a way as to play with space. From the entrance to the room set up, no guest will be able to see the other in any way. You go through separate entrances, until you reach a common interchange. This curvilinear junction is automated and allows you to open only one passage at a time, thus making the corresponding curtains slide. Then after the junction we continue in the corridor where we will have real independent paths up to the room itself.

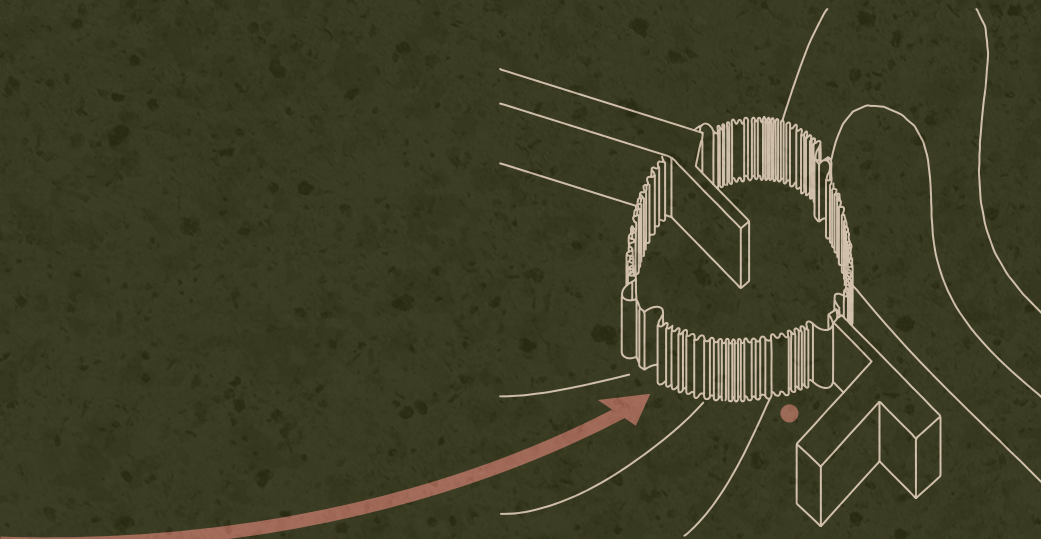


- 1** ROOM 1
- 2** ROOM 2
- 3** ROOM 3
- 4** ROOM 4
- 5** ROOM 5



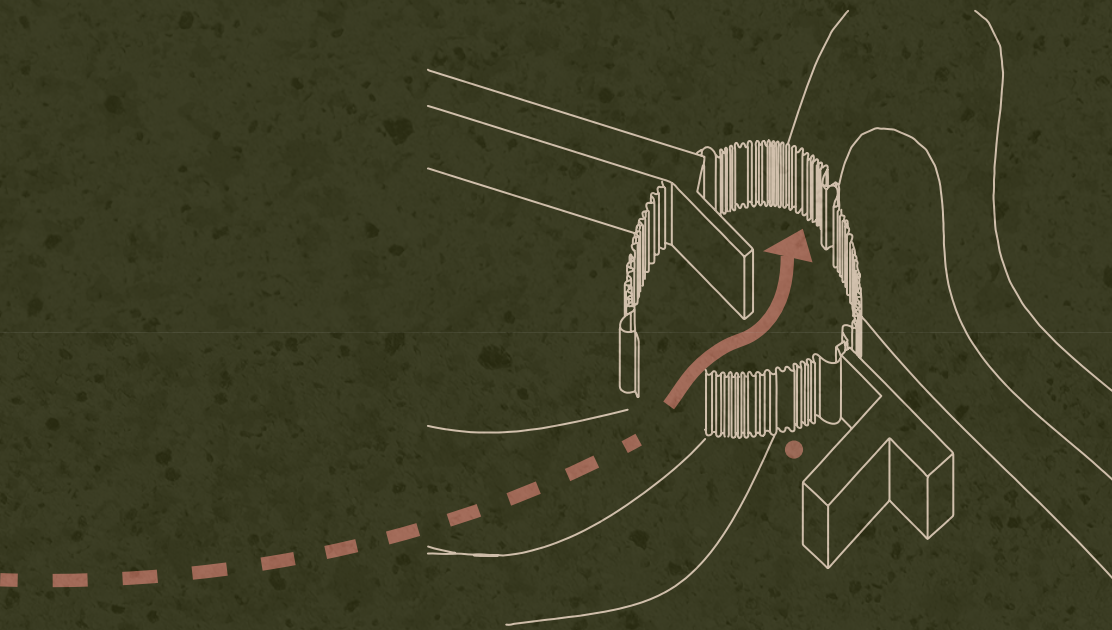
Flows

Clients Flowes plan



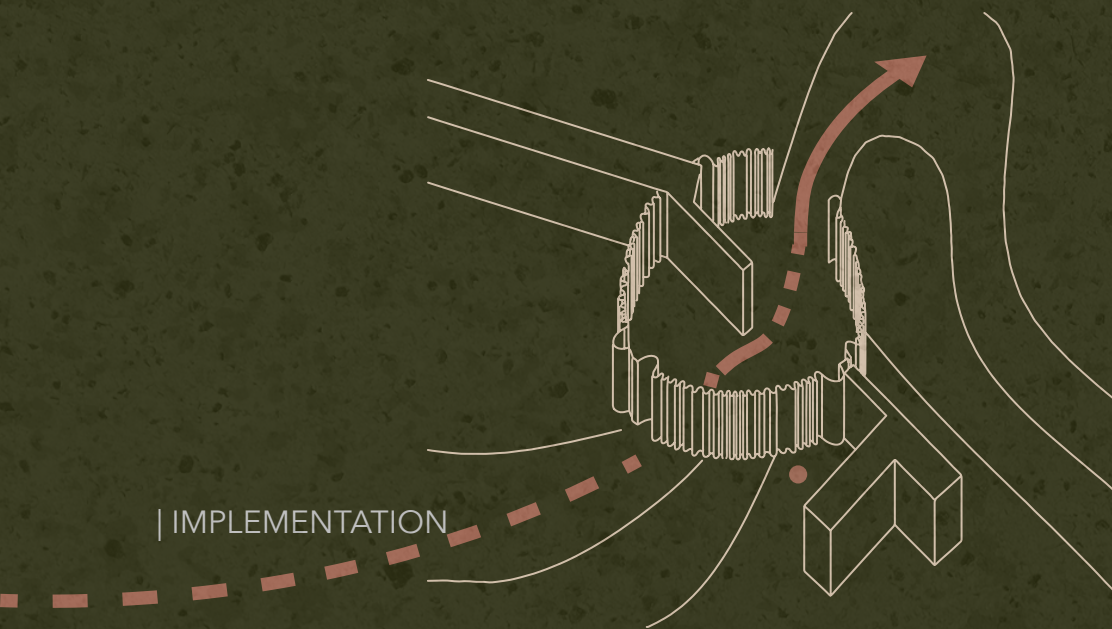
1

client enter in the
space



2

curtain open and
client goes on



3

curtain behind
close and curtain
in front of client
open

| IMPLEMENTATION



Moodboard corridors



Floues



Service flowes

As already mentioned, all the curtains that start from the ceiling and come to touch the floor run along the tracks and can be moved. The tents are composed of several sheets, which make you have more ease and comfort in moving them during the cleaning phase. The curtains do not touch the floor for hygiene reasons being a place of passage to get dirty or to trip customers away. All this facilitates the total cleaning of the environment which would be much more difficult in very narrow corridors. With this method the curtains can be completely moved to have a continuous surface to be cleaned in an easier and faster way.

Curved Rails

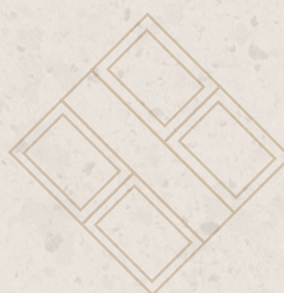
The construction of the layout and positioning of the tracks, on the other hand, is quite intricate in itself but has been made simple by architectural tricks.

The construction of tracks is based on the constitutions of circles that will be useful both to ensure a certain visual order, therefore in the chaos of the survey lines, always maintain a certain design, but also to ensure easier installation during the installation phase by the staff. specialized. Even if the circles therefore seem not to follow an order, they are regulated by modules, which guarantee 5 standard dimensions of radius different from each other, so that by combining them concentrically or in a tangent way it is still possible to obtain a single curve.

Curved Wall

Following the manual of the previous chapter, before analyzing the interior furnishings, it is necessary to understand the isolation of the rooms in order to understand how to act. In this structure, despite being the floor of the foundations of the building above, the walls are very thin, so it is necessary to adopt the expedient of category B of rule number 3. So now an additional layer formed by curved panels is added. The sinuous curve defines the spaces, has a dual function. That of preserving the historical envelope of the site, so that the history is not affected but protected by this curvilinear membrane respecting rule 6; the second is to resume the curve that is almost always present outside the anti-atomic buildings, used to dampen the impact of any bomb that would have hit the building. It is therefore present, as already mentioned in the corridors, but also in the rooms. which do not have a real defined a and its own shape but which take on organic forms adapting and dividing the rooms.

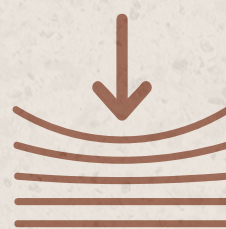
TIPOLOGY B
THIN INTERMEDIATE WALL

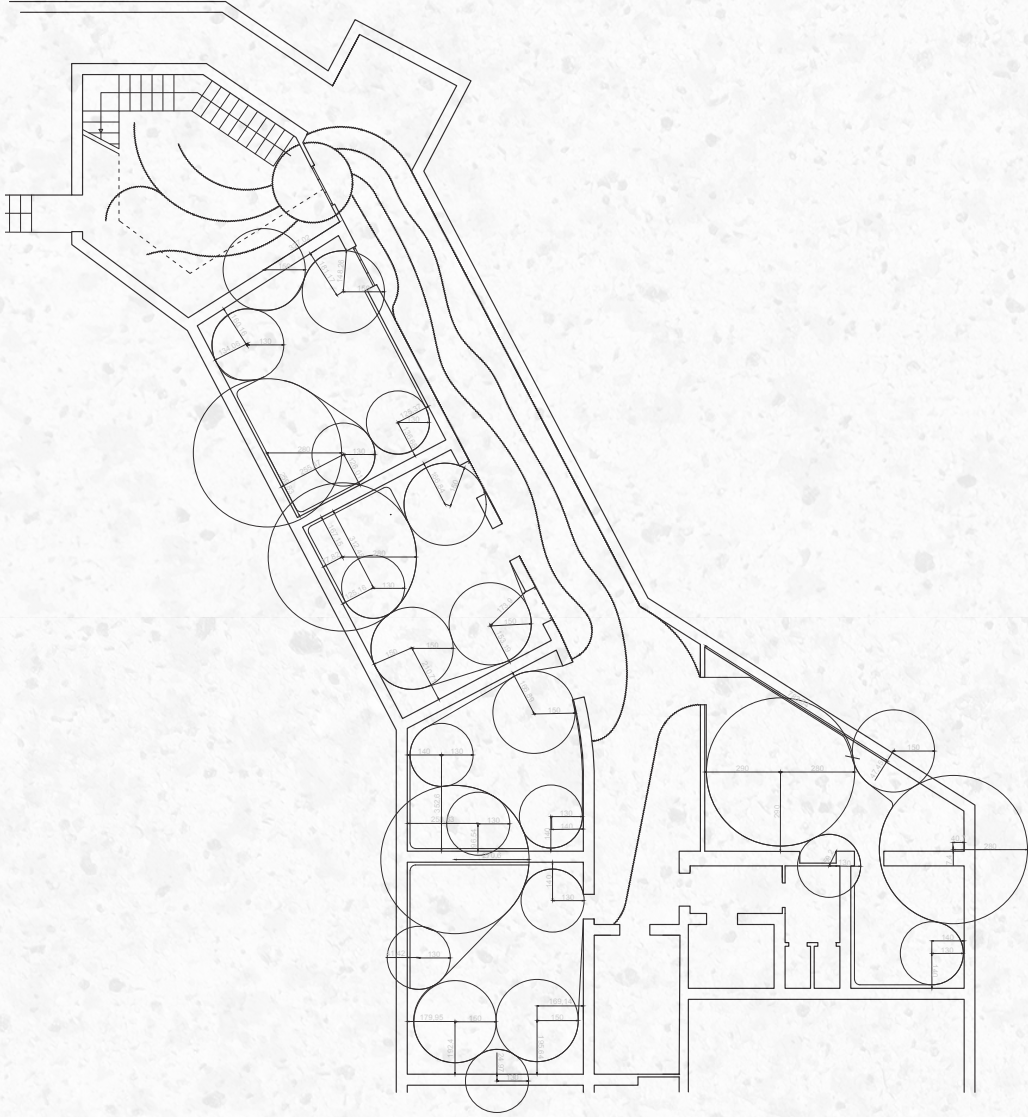


NO INFLUENCE BY HISTORY



SOFT SHAPE



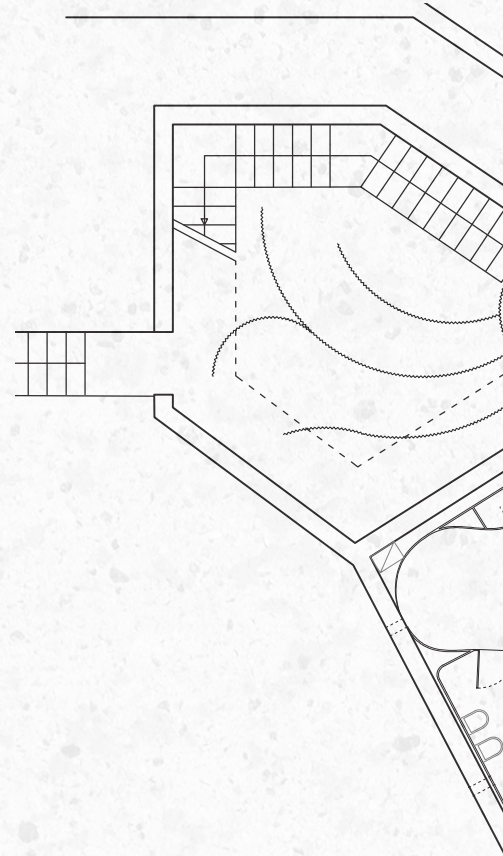


Layout



Construction guide

Planimetry





Layout



Moveble Forniture

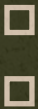
The gap between the structural wall layer and the new one of the paneling will be fundamental for multiple functions. The first, as already mentioned, is the isolation, but in addition to this it also acts as an expedient to incorporate the furnishings and make them disappear in the masonry, in such a way as to clear the whole room, in addition the lighting and all the lighting systems are born. filtering and monitoring of temperature humidity and all aspects previously analyzed.



Totally Close



Totally Open



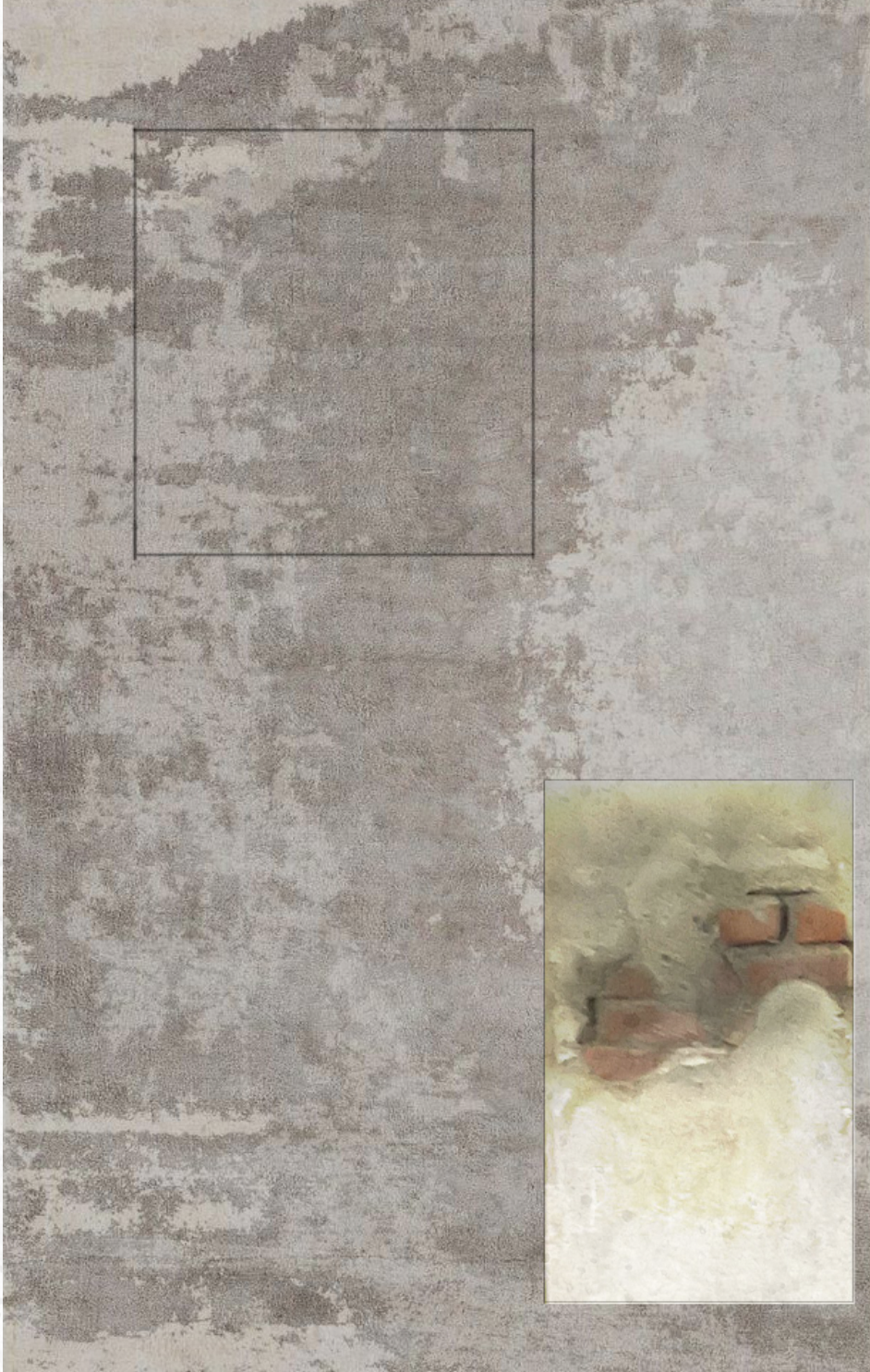
Project



History Glimpse

Small windows have been cut out inside the new walls and flooring of the Cocoons but also in the corridor. This action has a specific purpose to create points of contact between the most curious guests of Metropolis Escape and the dramatic history of the place where it is located. These small hatches can be found randomly as they are completely integrated and coplanar with the walls, and the customer will decide whether to open it or not, depending on his mood and his curiosity. Behind them will be hidden the highlights of the historic site of the previous bunker, the various layers of ruined masonry between brick and plaster. An unusual bunker will therefore be created with windows which, instead of facing outwards, will tell fragments of its history. To dare

more emphasis on this element, once opened an automatic LED placed on the internal frame of the wall will illuminate the repertoire, in order to enhance and appreciate it better.



Example of History Glimpse

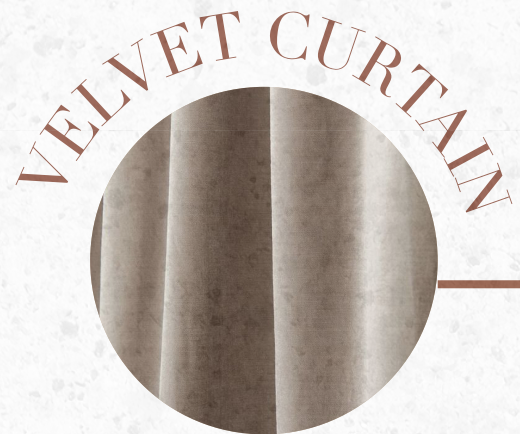
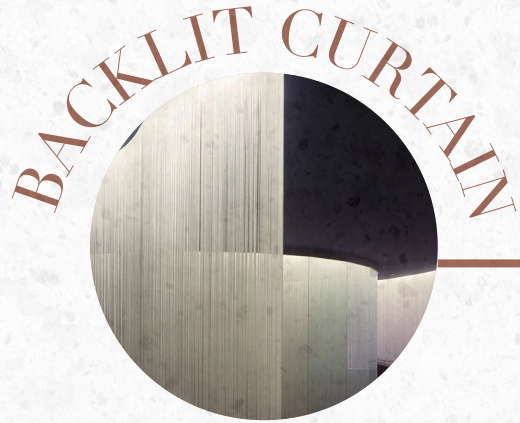


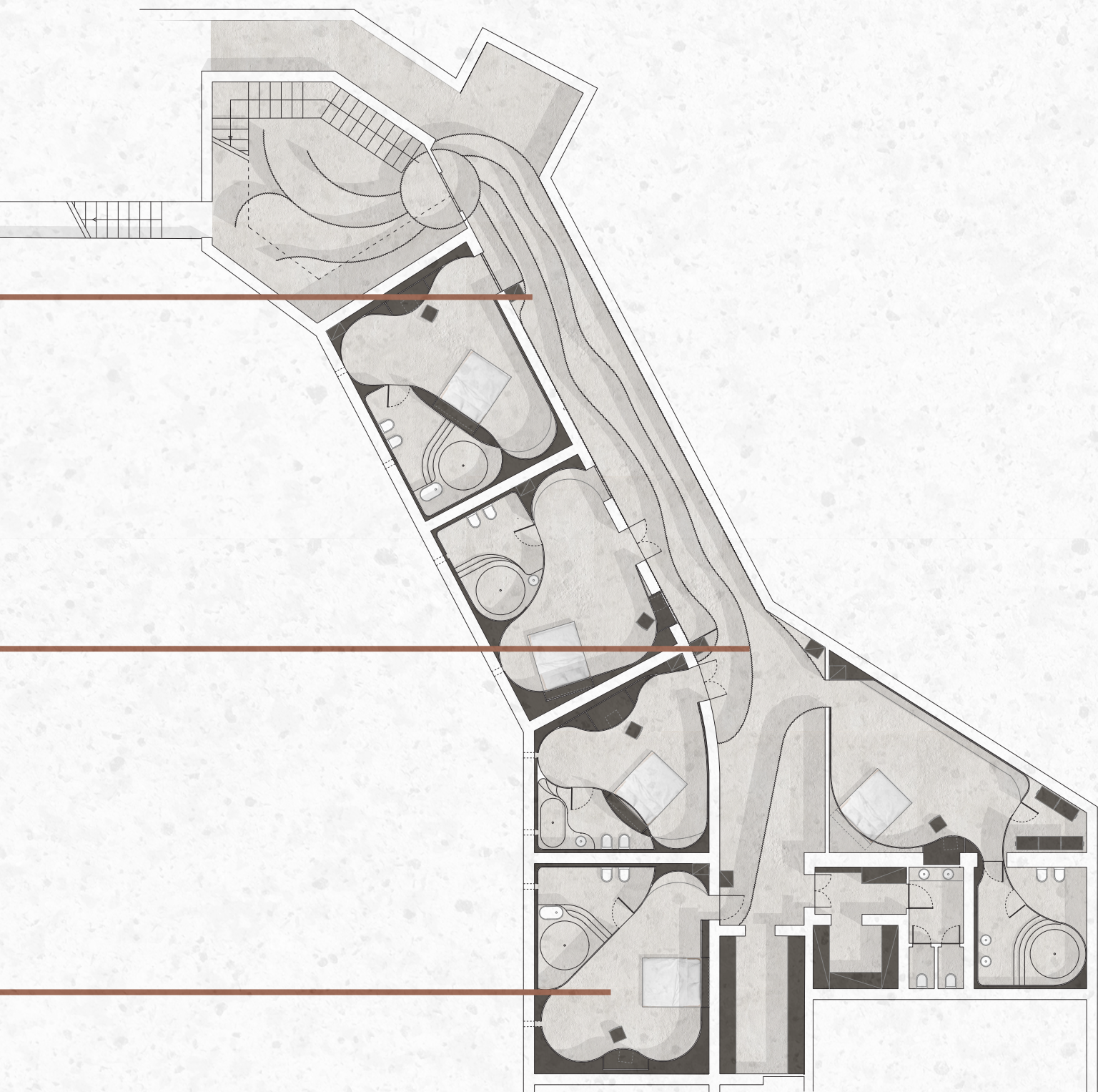
Materials

The environment will be mono-material like a real cocoon, so the choice of having few materials, applied on most of the surfaces, can be satisfied by the few materials described here. The non-roughness and softness of the materials is essential to ensure a higher standard of comfort, given that the environment has very few elements.

A special technique for backlit curtains, the curtains are not transparent but opaque in such a way as to perform their function but will be lightened and emphasized by led rails.

Some special carpet collections reinterpret the theme of recovery and imperfection. This type of carpet can also be applied vertically, and takes up the idea of recovering the place. but in a softer and more comfortable way.



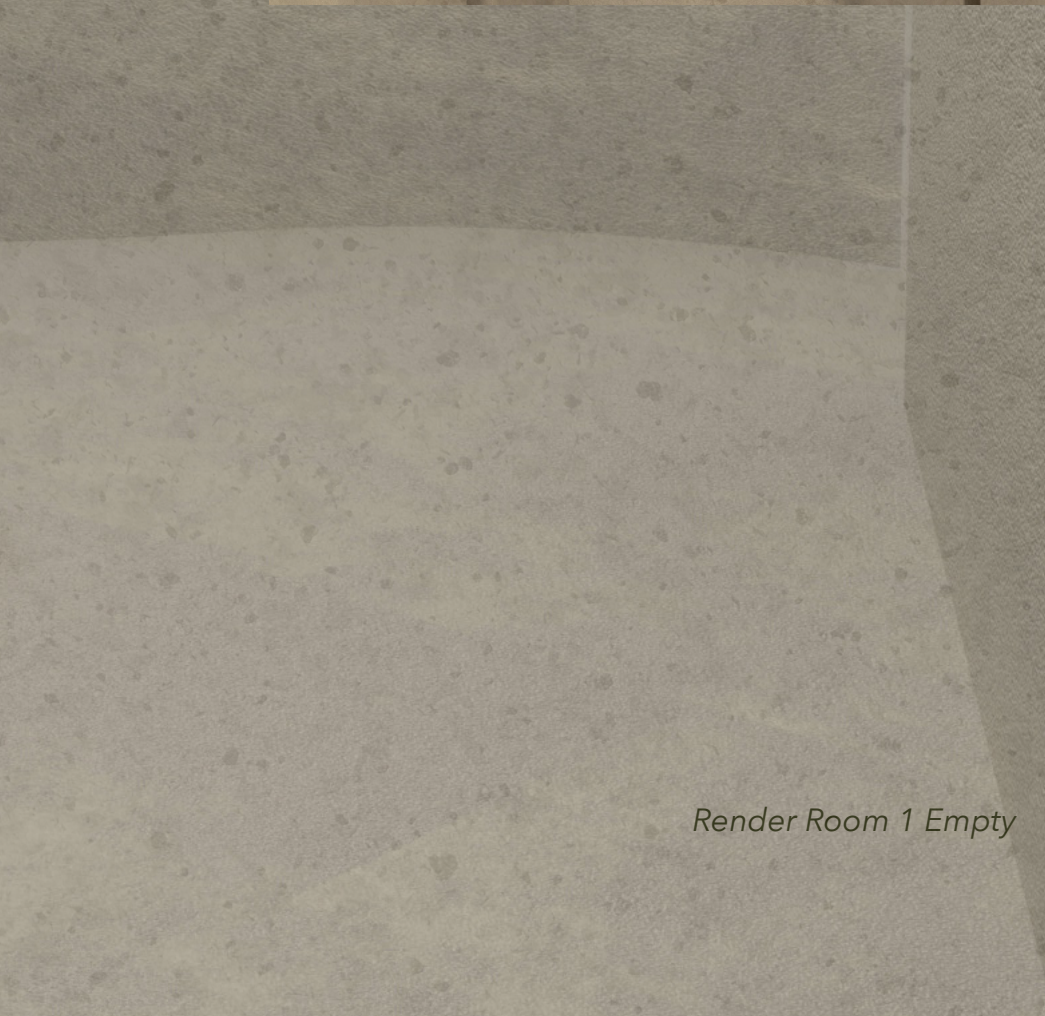


Materic Plan





Render Corridors



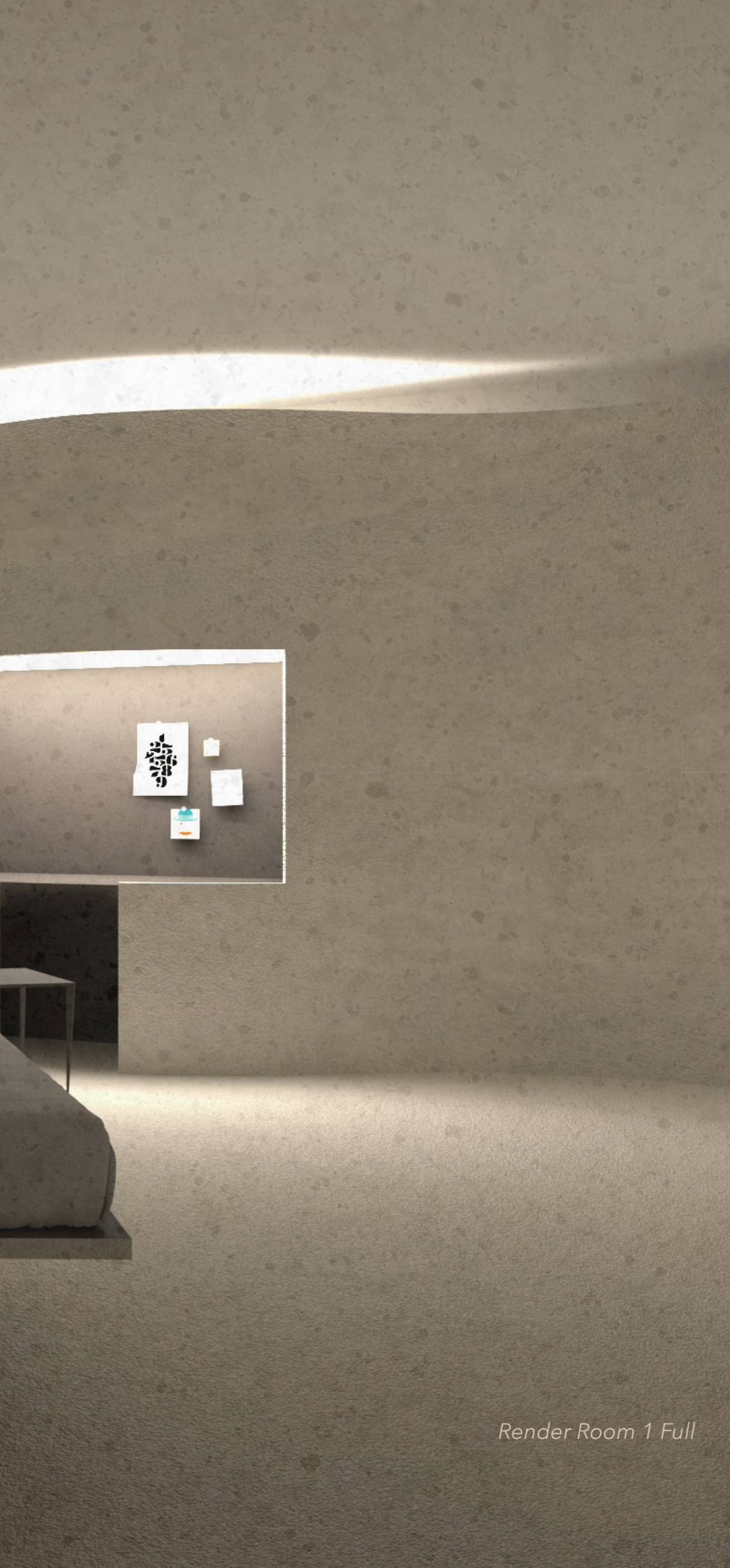
Render Room 1 Empty



Project







Render Room 1 Full

-
-
-
-
-
-
-
-
-

-
-
-
-
-

-
-
-

Project

-
-

Story telling about Experiences

the environment can be used in various ways depending on the purpose and needs of the customer. On the side we find opportunities to use the same room during the day, in the cartoons we perceive the dynamism of the space that adapts to everything the customer needs to do inside.

In the first panel there is an activity like that of meditation and yoga, with relaxing music.

In the second, a very intense activity like that of creation, but without any kind of external influences.

In the third cartoon, we find the one who instead relaxes, running a marathon of his favorite TV series just released without having spoilers of any kind from social media or third parties.

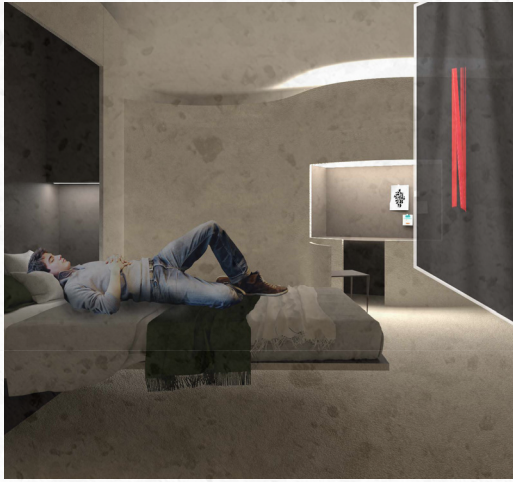
The fourth room hosts the

unleashing of a persona who dances listening to her favorite playlist and setting the lights in such a way as to create the right mood to go wild.

In the fifth scene with a reading light, the girl finds her comfortable position between the curved walls to be engrossed in her book.

In the last cartoon we find a worker who has to complete his task and manages to concentrate on his work without letting his colleagues or distractions waste time

These are just some of the many uses with which the user can take advantage of the room, but it enjoys multiple uses and facets.



Storytelling

KPI

The Key Performance Indicators are key performance indicators, it is necessary to put in place all systems of culture and control here so that they can bear their true fruits. Too often, organizations blindly adopt industry-recognized Key Performance Indicators and then wonder why that index doesn't reflect their business and impact any positive change. One of the most overlooked aspects of Performance Indices is that they are themselves a very important form of communication. As such, they respect the same rules and best practices as any other form of communication. They therefore need to be very concise, clear and relevant for them to be absorbed and implemented. In terms of developing a strategy for formulating KPIs, the team should start by understanding what the organizational goals are, sharing how to achieve them and who could act based on this information.

This should be an iterative process to involve project managers, executives and managers. You need to carefully choose which business processes should be measured with a dashboard or performance monitor and with whom this information should be shared.

KPI Analogical

Total rooms available: 5

Annual opening days: 365

Number of rooms available annually:
1825

Daily occupancy rate:

First year employment rate:

Average Daily Entry:

Average revenues first year:

Metropolis Escape possible
Publications: 4

Elle Decor

Domus

HotelMag

GuestMagazine



Feedback

KPI Digital

Social media Impression (accounts reached): Tripadvisor positive reviews:

Booking positive reviews:

Booking negative reviews:

Impact on the value of the building:

Impact on the value of the neighborhood:

New activities in the neighborhood:

Restaurants

Parkings

Copy shop

Acceptance by neighborhood residents:

Hight because is a new service but very quiet and discreet



Feedback

Bibliography

Bunker Building for the End Times,
Bradley Garrett, USA 2010

Bunker Archeology, Virilio P., Princeton
Architectural Press, New York, 1960

*Concrete Mushrooms, reusing Albania
750.000 abandoned bunkers*, Stefa
E., Mydyti G., DPR-Barcelona, 2012

The Atlantikwall linears Museum,
Postiglione G., The Archive, Litogl,
Milano, 2005

*The atlantikwall as a military
archeological Landasacape*,
Postiglione G., Bassanelli M.,
LetteraVentidueEdizioni, 2011

Lecture d'Interni, Lanz F., AA. VV,
Milano 2013

*Modern European Military Fortification
1870-1950*, Kauffman J. E., Donnel C.,
Prager Publisher, Westport , 2004

Le Blockhaus de l'illusive, Gamelin P.,
Edition Daniel, Paris, 1974

*Le Fortificazioni del Vallo Alpino
Littorio in Alto Adige*, Bernasconi A.,
Muran G., Temi, Trento, 1999

*A partire da ciò che resta: forme
memoriali dal 1945 alle macerie del
muro di Berlino*, Pirazzoli E., Diabasis,
2010

*Il Bunker del Soratte - Una montagna
di storia*, Paolucci G., Bunker Soratte,
2015

*Führebunker. Luogo diventato
simbolo come una parabola*, Ongaro
M., 2011

*Albergo Diurno Venezia. Storia,
Architettura e Memoria nel sottosuolo
di Milano*, L. Borromeo, E. Scarpellini,
R. Dulio, S. Della Torre, Ed. Effigi, 2017

*Sensefullness. New paradigms
for Spatial Design, Barbara, A.,
Postmedia Books, 2018*

*The hidden interior, F. Murialdo: N.
House, Interior Educator, 2019*

*pag 36 - 46, Dialogues on Design.
Notes on Doctoral Research in
Design 2018, L. Guerrini, P. Volontè,
Contributo di Giovanna Piccinno,
Franco Angeli, 2018*

Documentary and Film

*BBC Documentary Bunker builders
preparing for doomsday
Apocalipt Bunker, Project the Plan
CNN, Elizabeth Stamp article
Parasite
Snowpiercer*

Sitography

www.wikipedia.org/wiki/Bunker

www.tmarstudio.wordpress.com

www.picryl.com

www.dailystar.co.uk

www.cambridge.org

www.euractiv.com

www.langsvlaamsewegen.be

www.awesomeadelaide.com

www.sulinformacao.pt

www.showcaves.com

www.fodors.com

www.miesarch.com

www.designboom.com

www.miesarch.com

www.today.com

www.gettyimages.it

www.defense.gov

www.regelbau.dk

www.domusweb.it

www.survivalcondo.com

www.bunker42.com

www.thefeuerlecollection.org

www.archdaily.com

www.designboom.com

www.time.com

www.terravivos.com

www.atlassurvivalshelters.com

www.Dezeen.com

www.vivos.com

www.gqitalia.it

www.bigrentz.com

www.Tripadvisor.com

www.blog.sbbcargo.com

www.afconsult.com

www.ilfattoquotidiano.it

www.milanoincontrotemporanea.wordpress.com

www.issuu.com

www.designboom.com

Bunkerlife group on facebook

Published

DETAIL 10/2018

Divisare 07/2017

Forbes, Bunker article

pag 167-164 , Time-based design per l'habitat del futuro prossimo. Time-based design for the habitat of the next future, Barbara, A.; Paoletti, I., TECHNE, 2020

*pag 5-13 temporal dimensions in
the mediation between machines,
humans and spaces, Barbara, A.,
SPOOL, 2020*

*Pag 30 - 38, Teaching to Ddesign
Futures in Cities, Barbara, A.; Scupelli,
P., TECHNE, 2021*

Interviews

John Hartman (Veteran)

Larry Hall (founder of Survial Condo)

VP of Business Development

Clients of Survial Condo

Ceo of Vivos Group

Ceo of Rising Company

*Bong jhon Ho (movie director of
Parasite)*

*Lee Ha Jun (scenography director of
Parasite)*

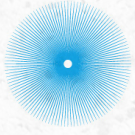
Elon Musk

*Rainer Geissmann (property of hotel
Castra)*



POLITECNICO
MILANO 1863

SCUOLA DEL DESIGN



POLI.DESIGN
FOUNDED BY POLITECNICO DI MILANO

Project developed within the Thesis Incubator Studio - Politecnico di Milano
in partnership with MUSE

CORSO DI LAUREA MAGISTRALE IN INTERIOR AND SPATIAL DESIGN
THESIS INCUBATOR STUDIO | A.Y. 2020-21

#TIS_polimi TEAM

Giovanna Piccinno, coordinator and professor

Anna Barbara, professor

Cristina Morbi, professor

Giulia Pellegrino, communication consultant

Daniele Mazzinghi, assistant

Alice Zingales, assistant

#TIS_CLUSTER 2020 | 21

Bizzotto Italia

CremonaFiere

MUSE Factory of Projects

Teatro degli Arcimboldi Milano

The Ocean Race

Pierluigi Angelo De Pace

POLIMITIS

S

I

T

#

THESIS INCUBATOR STUDIO



PROJECT/THESIS
METROPOLIS ESCAPES

