

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING, PULCHOWK CAMPUS
DEPARTMENT OF ARCHITECTURE



**THESIS REPORT ON
MEMORIAL CENTER**

Materializing Memories of People's war (1996-2006)
AT GOKARNESWOR, KATHMANDU

BY:
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074-BAE-227

IN PARTIAL FULFILLMENT OF REQUIREMENTS FOR
THE DEGREE OF BACHELOR'S IN ARCHITECTURE

MAY, 2023

APPROVAL

Date: April 24, 2023

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Subject: Approval for Final Thesis Presentation

Dear Sir/Madam,

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(Materializing Memories of People's War (1996-2006))
Project Location: **Gokarneswor, Kathmandu**

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074/BAE/227

May,2023

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074 BArch 227

ABSTRACT

“When a person disappears, everything becomes impregnated with that person’s presence. Every single object as well as every space becomes a reminder of absence, as if absence were more important than presence.”

(Doris Salcedo, 1992)

Time, space, and emotions are the abstract components of human lives which are endured and experienced in varied ways by individual or collective groups of individuals. When certain events occur in the human timeline, in which humanity stoops down to its lowest, such moments are frozen in time. The emotional whirl felt by humans are imprinted in lives. The act of recalling those time, event and lives is remembrance. The selective mechanism that exists between memories and forgetfulness, is natural. Architecture of Memories; Memorial is created to give physical existence to people and their stories to keep them alive even when they are absent. About 25 years ago, Nepal, an emblem of peace, underwent a brutal internal conflict, leaving one of the many scars in Nepalese history. This project is an attempt to bring those flashes in terms of Memorial Architecture.

This report consists of the ways how such architecture is created, their components and emotions generated through them. This study employs a case study approach to analyze Memorial architecture projects from all round the world that express sorrow and remembrance of war and loss, Mass shooting and violent conflict.

Keywords

Memory; Memorial language; Places of memory; narratives; emotion; experience; symbolism; phenomenology; war; violence; victims

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Chapter-1:

1 THE PROJECT

1.1 PROJECT TITLE

Memorial Center (Materializing Memories of People's War (1996-2006))

1.2 BACKGROUND

Nepal's path to becoming a Federal Democratic Republic was marred by conflict, creating a society divided by hierarchies and geographical boundaries. The desire for equality between rich and poor caused the People's War, which devastated the futures of Nepalese citizens and delayed prosperity for decades. From the CPN (M) declaring war against the government on February 13, 1996, to the Comprehensive Peace Accord on November 21, 2006, thousands lost their lives. However, under close observation, Nepal's unity and sovereignty appear to be a facade.

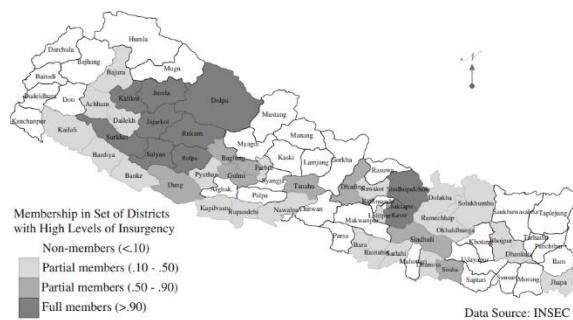


Figure 1: Map of districts showing high level of insurgency in initial period, (1996-2000), (Source: INSEC)

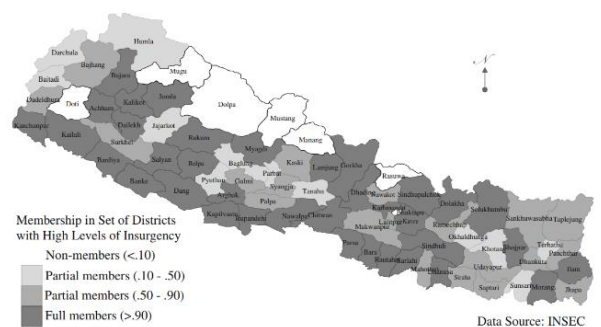


Figure 2: Map of Districts showing high level of insurgency in maturation period. (2001-2006), (Source: INSEC)

“The war left over 17,800 people dead. About 1,530 people went missing and more than 8,000 were injured or suffered physical disability.” (Adhikari, 2019)

The events of the past, marked by what-ifs and uncertainties, are now a part of history that cannot be revisited. With the passage of time, these events may become blurred by more recent occurrences, but they should not be forgotten as they have contributed to our current situation.

1.3 INTRODUCTION

“Monuments, history museums, memorial museums, public sculptures, grave-yards, commemorative sites, and memorial landscapes are created and dedicated to people, places, and events. At an unrivalled moment in history, spaces dedicated to the memory of the past are found throughout the world and seem increasingly to commemorate a past involving mass death.” (Shannon Davis and Jacky Bowring, 2011)

This significant event deeply affected many, creating a sense of emptiness for those left behind. While some have accepted the outcome and moved on, others are still hoping for change, fighting for justice, and longing for their loved ones. Sadly, many have already forgotten the horrific events that transpired.

"Gross violation of human rights" refers to specific actions that were carried out during the conflict aimed at unarmed individuals or the civilian population, or that were carried out systematically. These actions include murder, abduction and hostage-taking, enforced disappearance, causing injury and disability, physical or mental torture, rape and sexual violence, looting, damage or burning of public or private property, forced eviction, displacement, and other inhumane acts that are not consistent with international human rights or humanitarian law or crimes against humanity. (Truth and Reconciliation Commission, Nepal, 2020)



Figure 3: Candles at Maitighar Mandala form number 13,246 the official count of Nepalis Killed as of May 2006, Memorial event was organized by citizens' peace group Himsa Birodh as a part of a monthly candlelit

“Through the revaluations of philosophers like Deleuze and Derrida, the terms absence and presence have lost their binarized distinction. Instead, absence can be thought of as a kind of presence and presence as a kind of absence.” (Amanda Bell, 2022)

Making intangible memories tangible is crucial to honor those who sacrificed and suffered. This can be done through mediums such as stories, documentaries, interviews, and books, allowing people to feel connected to events even if they were not witnesses.

1.4 PROJECT JUSTIFICATION

The stories of grief and pain intricately reside in the hearts of Nepalese, making them go back to this time frame without them realizing it.

The 75-year-old Junsara Sunar has spent 18 years onwards crying over the memory of her deceased son, Chandra Bahadur. "I cannot ever forget. The army took him to the jungle and shot him. I have not been able to dare to go to that place." (Budhathoki, 2022).

One mother's tragedy in a Maoist stronghold, Mahat villages in Rukum, is just a glimpse of the countless other stories of suffering from all over Nepal. We, the youth, tend to take our current freedom for granted. To remember and honor the loss with empathy, it is essential to look at the Civil War from a neutral standpoint, devoid of any political, racial, class, or gender bias.

In the report prepared by Seira Tamang et. al, it is noted that one of the ways to reflect the sorrows and truth of the victims is through Memorialization, by acknowledging their diverse experiences, and the respect and justice they deserve. Need of a physical form that vocalizes their true stories, justice and reparative measures sought by the legitimate victims to be heard at national and international level. (Tamang, Manandhar, & Sherchan, 2017)

1.5 IMPORTANCE OF RESEARCH

This project will represent the narratives of stories and a place to experience emotions of pain and also a place to heal. It will be a center for people who research on the field of history of political events and for architecture fraternity to understand the spatial requirement, amenities, and other requirements for academic studies.

1.6 PROBLEM STATEMENT

Current memorials in Nepal, such as parks, statues, and structures, provide physical significance but fail to create an emotional connection with the end-users. They do not offer a design that can capture the experiences of mass loss in one place. These memorials seem to lack the concept of "Experiential architecture," which is necessary to create a psychological impact on visitors.

1.7 OBJECTIVES

This study aims to investigate the creation of memorial sites and their relationship with humanity. The main objectives of this dissertation are:\

- To understand the concepts and terminology associated with the formation of memorial spaces.
- To explore the physical manifestation of memories through architecture.
- To comprehend the emotional responses of visitors to memorial sites.

1.8 SCOPE AND LIMITATION

This paper focuses on analyzing the designs of memorials within the local area through literature reviews and case studies, along with some international designs that may not be accessible for self-visits. The study is limited to available historical studies of the Nepalese Civil War. The paper does not aim to propose a new theory regarding Experiential Architecture and memorial architecture, but rather provide a conclusion based on the findings.

1.9 METHODOLOGY

The research will consist of three phases: Literature Review, Case studies, and Design development. It will begin by identifying the project's needs, addressing the issues, and providing adequate research justification.

1.9.1 Literature review

The literature review phase consists of two parts:

- A. The first part of the study focused on the Peoples' War, including its background and sequence of events, and was conducted using various sources such as reports, books, and internet materials. As a primary source, interviews were conducted with Madan Paudel, the Director of INSEC, an organization working for human rights and social justice, and Suman Adhikari, the former president of Conflict Victims Common Platform CVCP Nepal, who has personal experiences and painful memories of the war.
- B. The second phase focused on the "Architecture of Memories," involving the analysis of previous works of scholars to understand its vocabulary, theories, and concepts. The study utilized peer-reviewed journals and reports to understand the philosophy of memorialization, as well as design aspects that were used as guidelines for the case studies and design phase.

1.9.2 Case Study Methodology

Phase two of the research involves analyzing different types of memorial architecture through case studies. The cases are categorized as primary, secondary, and tertiary. Primary cases include studying entire memorial sites, while secondary cases focus on specific features or projects. National projects are researched through field visits and interviews with architects, while international projects are studied using various sources. Tertiary data collection involves examining national and international guidelines and standards.

Table 1: Framework for Data Collection

Main objective	Specific objective	Research questions	Data sources
To explore current scenarios of creation of places of memory and its relationship with human race.	To understand terminologies and concepts behind the making of them.	Role of memorial?	Literature review (Journals, reports, other electronic sources)
		Historical development of memorials	
		Types of memorials	
		Has there been any change in the ways of expression? Why? How?	
To know methods of memorialization of sorrow caused by the conflict, violence, mass shooting, or a war into physical form.	To understand what types of emotions are evoked by memorial sites to its visitors	What are the elements that are considered during design of memorials?	Literature review and Case study framework Observation Interview with Architect Architectural drawings Secondary sources:
		How are materials and spaces used to express specific memories?	
To understand what types of emotions are evoked by memorial sites to its visitors	To understand what types of emotions are evoked by memorial sites to its visitors	Can memorials and their languages create awareness about the victims and conflict?	Literature review Interview with stakeholders like Victims and their relatives Visitors Secondary sources
		Does memorial architecture heal or open the wounds of conflicts?	

1.9.3 Design phase

The third step will involve developing a conceptual framework, determining space requirements, and developing architectural form and spaces in detail using conclusions drawn from literature surveys and case studies.

- Development of conceptual framework
- Working out with space requirements
- Detail design development of architectural form and spaces
- Final design drawings and final reports with conclusion

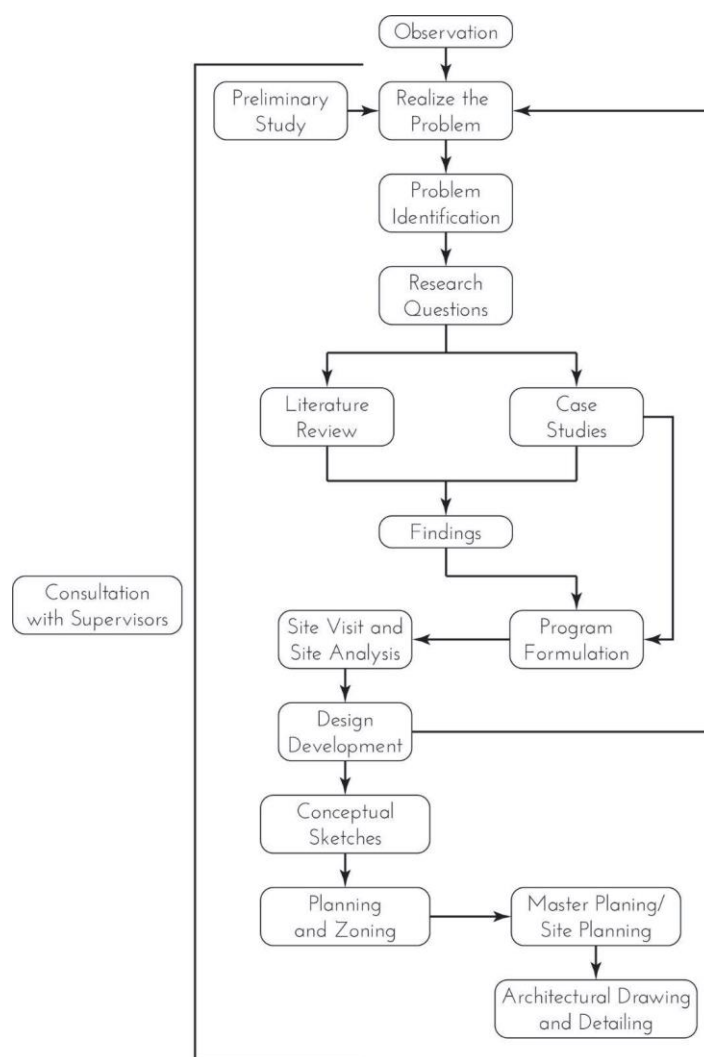


Figure 4: Research Method Flowchart

Architecture of Memories

Chapert-2:

2 LITERATURE REVIEW

2.1 BACKGROUND

Why do people feel a connection to buildings that weren't created by them? Why do they get upset when something breaks that wasn't made by them? What gives it eternal existence? I often wonder.

The intangibility of the architecture is hidden in the stories it carries. They continue to be testaments to the era in which they were constructed, although making a space specifically intended to preserve the Memory has been a tradition of human civilization for eons in an effort to be remembered, or more accurately, to not fully be forgotten. Danijela Miodrag Dimkovic claims that the process of encoding memory as compressed images linked to a specific area has been since the beginning of time and is known as the "Art of Remembering." This has somehow evolved into the basis for the realization of the "Architecture of Remembering."

2.2 STORIES OF PEOPLE'S WAR, JANAYUDDHA

Even after the Rana Regime was overthrown in the nation, the country's internal conflict's roots continued to fester. The class system was still having an impact on society. Those living close to the palace were further separated from the villagers. The general public's exclusion and lack of engagement in politics, along with a monarchy in power in Kathmandu, prevented Nepal's rural societies from being reached.

The marginalized group lost access to the economy, politics, agriculture, and employment prospects. They felt abandoned and powerless since the nation lacked a steady governmental figure to watch over them. People's lives were terrible because of poverty, hunger, prejudice, injustice, a lack of jobs, and illiteracy, and they were willing to struggle to put an end to these difficulties.



Figure 5: Nepal's Traditional Caste Pyramid (Source: DFID/World Bank, 2006)

2.2.1 Beginning of People's War

Baburam Bhattarai and Puspa Kamal Dahal broke away from the formal, Communist Party Nepal, United Center (CPN UC), and in 1996 formed parallel, CPN (UC), taking the name, Communist Party of Nepal, (Maoist). Even during Multiparty system, same people from the Panchayat system came to power that created **frustrations** as no political change could be witnessed. (Dixit, A People War, 2006)

Suppression from the Bhramins High class, became **intolerable**, and in Rukum and Rolpa, Sija Campaign (named after Sisne and Jaljala mountains) was started, in 2051 BS, that included trainings to propagate Maoist ideology to the Janajati Yuwa, (Low caste) Youths. This led to make Rukum, Rolpa as Strongholds of Maoists.

They found a **hope** and saw chance to do something for themselves and called themselves the **Revolutionists**. In 1996, February, Baburam Bhattarai submitted, 40 points demand to establish single party communist republic, with and ultimatum, to which the government showed **negligence**. Had they been patient and waited 3-4 years emerging faces in politics could have come. (Dixit, A People War, 2006)

The limbs of democracy were cut down by Maoists and head by the government.

2.2.2 People's war

The Maoists launched a low intensity insurgency and targeted ill- trained and poorly armed police, from 1996 to 2000. During war, both sides, Government and the Maoists had to face loss. In between their fight, the innocents lost lives.

Innocent lives:

On May 9th, 2004, on the mountains highway near Maina Pokhari, a public bus was caught in cross fire of army troupes and Maoist guerillas, with in quarter of hour 6 **innocent** citizens lost their lives along with death from both sides.



Krishna Maya holds her 20-day-old grandchild at the Army Hospital in Chhauni, Kathmandu. The infant luckily survived when 14 people including her father died in a Maoist attack on a bus in Mainapokhari, Dolakha on Sunday.

POST PHOTOGRAPHAL CHITRAKAR

Figure 6: Maina Pokhari bus attack, (Source: Nepali Times)

Families torn Apart:



Amrita Lamsal, a journalist shared, how children were following the maoist, and even 10 years old spoke in Maoist jargon saying, “When the revolution is successful, we will also be rich and powerful.” (Times, 2021)

Figure 7: A father trying to stop his young son who has decided to join the Maoists, Khotang, 2004, Nepali Times

Children at war:



Figure 8: Two Siblings with burns during firebomb attack in bus, Nepali Times

Rabina and Rabin Regmi lost their mother, during the petrol bomb attack, in a bus 20 years ago in Lakhanti bridge still carrying the **scars of war.**

Unlawful killings:

Muktinath Adhikari, a teacher at Lamjung was brutally murdered, tying his hands, the Maoists threatened the villagers not to remove his body from there. A person who worked for social reformation, never deserved the death without dignity. (Dixit, A People War, 2006)



Figure 9: Muktinath Adhikari, at Lamjung, Nepali Times

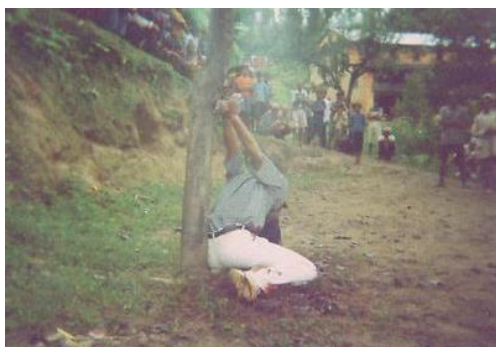


Figure 10: Gyanendra Khadka's body a day after his murder in Jyamire, Sindhupalchok, A people war

Gyanendra Khadka, who was a journalist, was tied at volleyball court, pool of blood on the feet, head severed from the rest of his body. **State of shock** for all the relatives and villagers. (Dixit, A People War, 2006)

2.2.3 People After war

After a decade long wearing war, it ended with Comprehensive Peace Accord, CPA, 2006 leaving scars and memories of it among the fighters and all non-combatants.

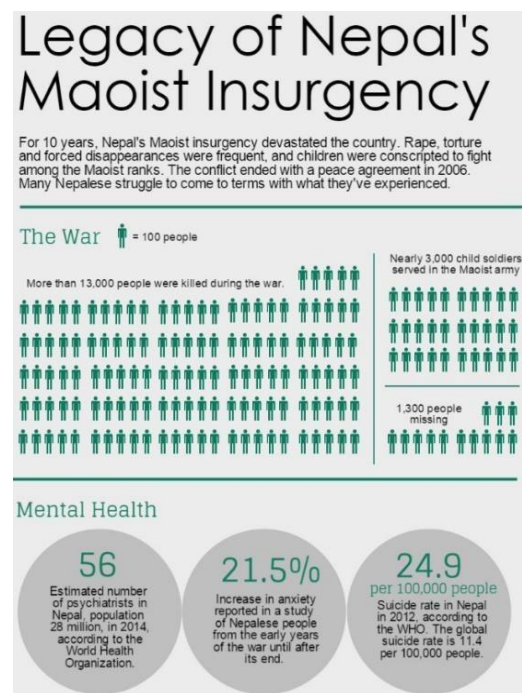
Even after the moment of exposure, lives must go on. The reality of war, which is beginning to fade in people's memories, needs to be recalled through the creation of places. While it triggers memories of our own suffering, seeing another person suffer causes people to become very moved. Nevertheless, **is remembering enough?**

Even while the memory of hurt is always deeply personal, we can overcome this and promote non-violence as a community.

By keeping in mind, the conflict in order to foster future peace, we assist avoid its recurrence, sorrow, and agony.

By reducing “the people” to individuals and their families recording their own sorrow, stories and photographs aftermath might reach out to fellow citizens to meet communal catharsis. We frequently speak of “the people” in generic terms, which makes it meaningless.

In some ways, the perpetrators—Army soldiers, police officers, and former guerillas who observed the conflict—were also victims. The loss of a man who supported the family was more precarious than ever since the family was forced to continually anticipate and look toward the future, and the hopes and goals that the youth had battled for back then were marred by injury. They continue to look for justice and compensation. (Dixit, People After War, 2009)



2.3 PLACES OF MEMORY

2.3.1 Place

What is *place* exactly? Is it just one specific location in space, or are there several degrees of experiences that people accumulate through time, or might there be anything else?

To this question, Y. Walker, a place can be defined as a distinct location with its own unique character, where interactions taking place inside it can create a sense of rootedness, identity, and belonging for individuals. Places in existential space serve as sources of intention and meaning, and they do not need to have the same significance for all cultures or clearly defined physical boundaries. However, they must possess an interior that distinguishes them from their surroundings. (Walker, 2020)

2.3.2 Memory

Memory refers to the brain's ability to encode, store, and retrieve information and past experiences. Rather than bringing a fully-formed image of the past to mind, it involves a process of exploring different perspectives until events are relived in their chronological context. Memory is constantly evolving and subject to the interplay between remembering and forgetting, and can be easily manipulated or go dormant before resurfacing. It forms the fabric of human existence, impacting everything from daily routines to personal identity. Unlike history, which is a partial reconstruction of the past, memory is a perpetual reality that connects us to the present moment. It shapes our sense of self by helping us recall who we are, and cultural memories are narrated through the process of recollection. (Walker, 2020)

2.3.3 Places of Memory

“If a man was able to live in the memories, he would not have to create spaces in the name of these memories.” (Pierre Nora)

Places of memory are an essential aspect of localized memory, providing social practices, significant materiality, personal experiences, and collective imaginations. Particularly for those who have undergone significant suffering and trauma as a result of war, the memory of places is critical. These experiences can have a profound impact on our relationship with the environment and our sense of self. It is necessary to consider ways to reconnect individuals with their memories, roots, and past in order to facilitate healing and move forward. (Walker, 2020)

Memories connect past events to the present, while events themselves are consigned to history. Unlike history, memory is rooted in psychological principles rather than historical ones. The motivation for creating memorials is to revive the memories of absent people whose traces have been lost and simulate their presence. Politics, power, and memory all shape our understanding of events. Remembering not only the heroic deeds of soldiers, but also the hidden pain and suffering of individuals, and any violations that threaten humanity is crucial for condemning wrongdoing. (Dimkovic, 2016)

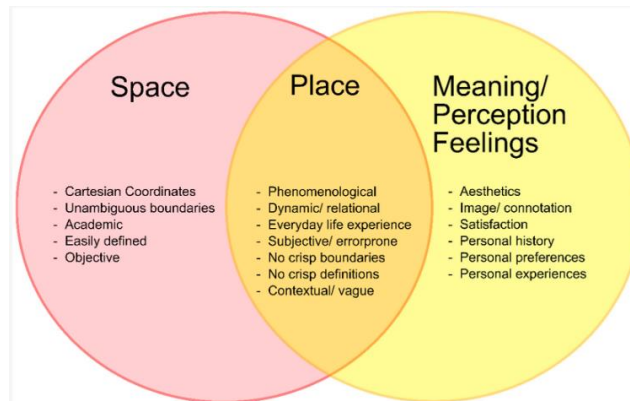


Figure 11: The notion of place in relation to space and meaning (Source: <https://www.mdpi.com/2220-9964/7/9/364/htm>)

In his article, Dimkovic discusses Pierre Nora's concept of "Lieux de Memoire" or sites of memory, which refer to places with significant cultural and historical importance. However, it can be challenging to precisely associate a memory with a specific location. Instead of focusing on material objects, the symbolic value of memorial sites is more crucial. Memorials are public spaces that evolve over time, providing insight into the past and a glimpse of the future through exploration. (Scitaroci, Sargolini, & Zaninovic, 2017)

2.3.4 Sense of place

Memorial languages and designs can help create a connection between memory and a sense of place in trauma sites. This connection can provide resistance to the dehumanizing effects of mass disasters. It requires more than just linking tragic events to a particular location and time; it necessitates empowering survivors and visitors to interact with the site in meaningful ways that allow them to remember the past while forging enduring links between memory and place. A new narrative that embraces a more sentient, subjective, and all-encompassing sense of place can help us rethink our relationship with nature, art, and community and inspire us to reconsider how we live and lead. (Walker, 2020)

2.4 MEMORIALIZATION

Creation of Public memorials can be termed as memorialization. Such public memorials are landscapes which help to remember events and experiences felt while those events took place, such as civil war, terrorism, genocide etc. Society in which these memorials are built reflect the psychological and sociological requirements. The rationale of these requirements is democracy, human rights, social commemoration rituals, education and preservation of historical facts, continuation of information and culture among generations. (Gurler & Ozer, 2013)

2.4.1 Creation of Memorial architecture in remembering pain

The horrors of the Jewish Holocaust during the Second World War, that took lives of over six million innocents, is heavy burden and a responsibility to the generations of humans. Remembering those pain and consequences it brought to the world is to raise awareness. Memorials to mark such events in the history of human civilization, has become important places where national memory is preserved and shared. One must be cautious while designing such places as, authenticity of the information is necessary to convey what might have happened in the minds of the suffered. Starting to remember horror which most people prefer to forget is a major challenge. Preservation of such crimes through historical documents and artifacts, transfer of experience from the witnesses without losing the emotional value is necessary to inform the future generation and to give them hope to create a better world for themselves to live in. (Dimkovic, 2016)



Figure 12: Robert Peraza pauses at his son's name on the 9/11 Memorial during the tenth anniversary ceremonies at the site of the World Trade Center.

2.4.2 A brief History from monuments to memorial

Figurative sculptures and grand objects that were constructed to remember individuals, heroes, and personalities distant from commoners are the monuments whereas memorials are rather in human scale that connects the collective memory of social groups remembering certain events, people, or circumstances of past to present and future generation as well. (Attwa , Refaat, & Kandil, 2022)



Figure 13: Pyramid of Giza, (photo:WitR via Shutterstock)

History of monumental designs dates to construction of Pyramids, in the form of tombs of Pharaohs, wealthy and powerful people. They express monumentality and hope for the better afterlife. Taj Mahal is another example of monumental architecture dedicated to distant personality. Other monumental designs include pedestals, statues, obelisks, and columns raised above the ground larger than life figures. (Attwa , Refaat, & Kandil, 2022)



Figure 14: Arc de Triomphe, (Photo: Beijing Hetuchuangyi images.co.)

Counter Monument

It claims to deny the presence of any imposing, authoritative social force in public spaces. and seeks to disrupt dominant historical narratives, provide a voice for those whose stories have been marginalized or excluded.

In the late nineteenth century, memories were expressed keeping human scale and user experience in the spatial character of the memorial design. The change from the conventional monument to memorial spaces was first seen in the Vietnam Veterans memorial, designed by Maya Lin in 1982. Use of abstract form in a landscape setup and engagement of visitors with intimate and sensual experience was its main feature. Since then, similar contemporary memorial designs have gained popularity. Instead of honorary reasons, the commemorations of victims of World war I and II and other tragical events were expressed in the memorials. (Attwa , Refaat, & Kandil, 2022)

Memorials are a multidisciplinary topic that incorporates social, artistic, architectural, urban, and political elements as well as psychological concerns. (Scitaroci, Sargolini, & Zaninovic, 2017)

The impact of memorial architecture is undeniable. By virtue of its strength and character, it produces sensations that reach the level of catharsis. In this case, "catharsis" refers to a state in which people elicit dramatic experiences. (Pesterac, 2016)



Figure 15: Vietnam Veterans Memorial, Maya Lin (Photo: Q. Stevans)

2.4.3 Contemporary memorial Landscape (CML)

According to Attwa and colleagues, CML is a landscape space, built in the urban space, for the active engagement of public in their daily lives for place attachment and memory of the past. They encourage user's participation through occupying, touching, hearing and commemoration. CML also tends to enhance the nightlife culture of the cities and bring in touristic and economic value to that place as it imparts historical value as well as provides recreational and utility spaces.

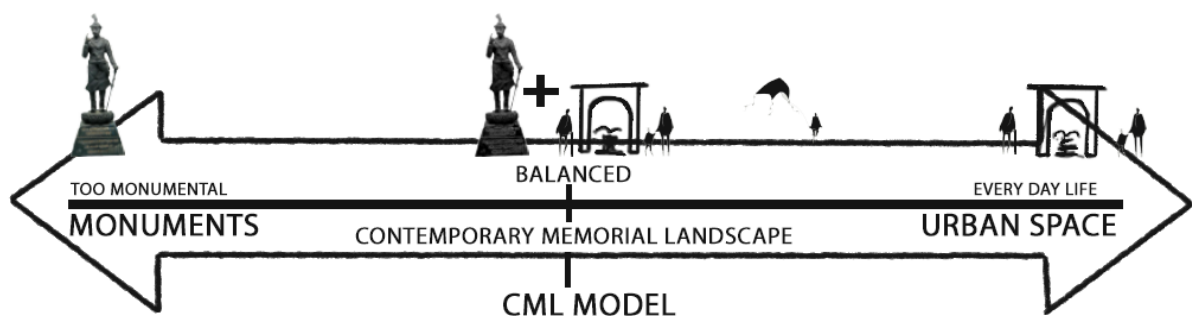


Figure 16: CML urban physical configuration and user Perception

2.4.4 Monument and Memorial in context of Nepal

The act of remembering the loss of loved ones, our society have certain memorial traditions and values, which have been passed on for generations.

In context of Nepal, Pujas, Jatras, Shraddhas, parvas and various cultural acts are done. And one way or other the methods vary from traditions, the purpose remains the same, some acts are done individually, with family and some with the community.

A monumental gate located on the way to Singha Durbar, between Bhimsen Stambha and Bhadrakali temple, lies Sahid Gate at the middle of the road. Constructed in 1958, it is a monument that glorifies the heroic deeds of four Martyrs and King Tribhuvan. Every year Martyrs’ Day is celebrated here but in normal days it seems to have been neglected as people are not able to access it easily.

Many memorials have been built, which carry the national collective memory. Located in Newroad, Kathmandu, a memorial park dedicated to huge earthquake in 1934 was built. It performs as an urban park nowadays, where people at different times of the day can be seen, enjoying open space within chaotic Newroad. Memorial pillar with inscription of the event is written in marble stone. On the top of pillar is a globe, (Bhugol) and above is the statue of lord Shiva depicting creator and destroyer as only one. It symbolizes lord Shiva providing stability to the earth.



Figure 17: Shahid Gate



Figure 18:Gaijatra at Bhaktapur (Source:flicker)

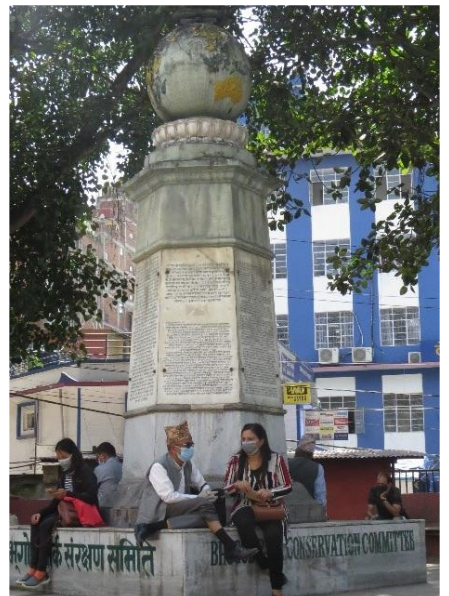


Figure 19:Bhugol park, site study

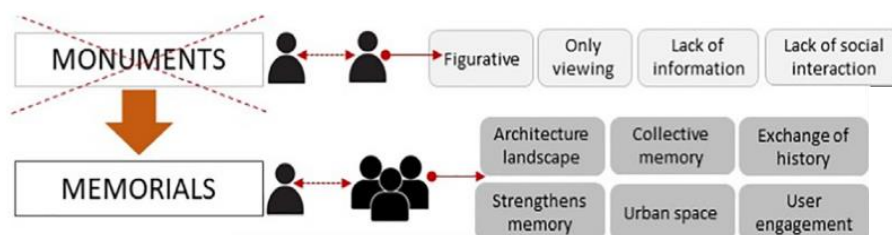


Figure 20: Memorial VS Monument

2.5 CONVEYING MEMORIES

The concepts absence and presence have lost their binary difference because to philosophers like Deleuze and Derrida's revaluations. Instead, consider absence as a type of presence, and presence as a type of absence. (Bell, n.d.)

Material objects are the Semiotic Signifier, that helps to express Memory of an important event in the history of humankind. Memorial Building is a Signifier that stands the test of time, tangible evidence of the past. To create a memorial architecture, one must understand the approach to structure the space of remembrance, that will justify the magnitude of memory and remembrance. (Dimkovic, 2016)

Major conveyor of the memories is of two kinds: **The subject witness and symbols.**

This can be understood with the help of model communicational and cultural memory, set by Aleida and Assman. Communicational memory is passed on to another generation by sharing experiences about the event that occurred in the recent past through their Subject Witness, and it remains only if the mediator exists. Whereas cultural memory is transferred by the means of Symbols, which comes from the distant past, and exceeds longer than their creators. (Dimkovic, 2016)

2.6 MEANINGS OF MEMORIALS

A memorial's primary purpose is to express ideas, evoke feelings, connect present and future generations, and bring back memories of certain occasions. The different applications and compositions of the mass, space, and surface aspects of memorial architecture are used to create this meaning. In general, memorials rely on two strategies to communicate the message intended: didactic and symbolic meaning-making.

2.6.1 Didactic meaning

Some memorial components employ literal message-conveying techniques and are intended to instruct, disseminate knowledge, and impart moral precepts. Use of textual and direct messaging to convey a memorial's significance is a didactic meaning builder. It includes the use of marker stones, inscriptions, monumental statues, signposts, etc. (Norden, 2003)

2.6.2 Interpretative meaning

Because it was believed that conventional memorials limited the significance of the past with their own self-glorifying figurative icons, the idea of interpreting the meaning of memorial components arose. However, in this instance, monuments use more

abstract and metaphorical symbols to communicate meaning. Instead of providing direct guidance, the visitors are given the opportunity to interpret the past in their own ways. Such memorials make use of abstract shapes that make sense of the occurrence, and the rest is up to the visitors to interpret. (Norden, 2003)

2.7 MATERIALIZING MEMORIES

Attwa et. al describes that the urban physical configuration of CML, includes memorial space enclosing elements and elements within the memorial space.

2.7.1 Memorial space enclosing elements

The aspects that help to identify CML in urban context are:

- *The Location:* A focal point, a node, a path, plazas, parks like public places of the urban space could be chosen. Since the site selected considering the proximity and level of interaction between memorial and the public. (Attwa , Refaat, & Kandil, 2022)
- *The Form:* CML are built in such a way that the design stands out from its surrounding. Its characteristics of geometrical shapes, sizes, pattern, regularity of irregularity influence the spatial enclosure. That degree of enclosure and height to width ratio its volume and solidness and hollowness also influence the perception of the place, and elements in the surrounding affects how the visitor experiences one place. (Attwa , Refaat, & Kandil, 2022)

Point	The Beginning of Geometrical Matter, No Length or Thickness. Unity, Monad
Line	Extension Into the First Dimension, Has Length, But No Breadth, Dyad, Polarity, Symbolically, The Will of God to Manifest Yet Remaining Hidden
Cube / Square	First Solid, Has Length, Breadth, Thickness, Takes into Third Dimension. First Descent into Matter. Square Depicts Cardinal Directions
Pentagon	Man, Symbolically Joins Heaven and Earth When Expresses as A Pentagon
Circle	Perfection, Equality, Origin and Culmination of Polygons, Eternity, Without Beginning And End, Timeless

Table 2: Symbolism of Forms (George, 2005)(Extracted from "Development of Symbolic pedagogical tools for communication in architecture")

Some might feel claustrophobic and disarranged while some jump around takes pictures in Memorial to Murdered Jews of Europe. (Attwa , Refaat, & Kandil, 2022)

The visual sense of space at the level of the human eye is known as spatial experience. It's possible that anything put above or below this level will be interpreted differently. Movement in horizontal space is substantially different from movement through vertical space, analogous to a route. As a result, altering the visual axis along a horizontal route is critical for the design to keep the experience flowing. Barriers or hurdles give places to pause or think, which may be necessary for reflection. (Philhour, 2020)

- *Surfaces*: the visual features and the tactile feature of the memorial is expressed by the material used, color, brightness, opacity, and lighting. The built mass of the structures. (Attwa , Refaat, & Kandil, 2022)

The type of flooring we choose has an influence on how we traverse through areas. (Philhour, 2020)

- Symbolism in Color:

Black	Death, Mourning, Evil, Depth, Sadness, Darkness, Mystery, Fear, Formality
White	Peace, Light, Purity, Death, Mourning
Brown	Earth, Stability, Simplicity, Dull, Spiritual Death, Degradation
Red	Excitement, Speed, Power, Love, Danger, Violence, All Intense Emotions
Yellow	Imagination, Hope, Sunshine, Summer, Friendship, Creativity, Longevity, Divinity
Orange	Energy, Warmth, Vibrant, Flamboyant, Optimism
Blue	Heaven, Peace, Harmony, Sky, Water, Cold, Depth And Distances
Green	Hope, Nature, Environment, Renewal, Freshness, Growth, Prosperity
Gray	Security, Dignity, Old Age, Sadness, Boring, Mortality Of Body, Immortality Of Spirit

Table 3: Symbolism of Colors (George, 2005)(Extracted from "Development of Symbolic pedagogical tools for communication in architecture")

- *Manipulation concept*: 1. aspects of attention, 2. viewpoint, and 3. walking choreography are the main design tools. In modern memorial design, the relationship and structure of these three integrated parts describe "the notion of

manipulation" through motion. Through choreography of motion (walk space vs. walkspace) in the memorial space provides changing perception of the event and awareness of the experience in the memorial space. (Scitaroci, Sargolini, & Zaninovic, 2017)

2.7.2 Elements within the memorial space

Some important tools mentioned by Attwa et.al, that designers use to evoke sensation are:

- *Water*: Water element provides effects like psychological, visual, auditory, and tactile, that are primarily perceived by users through eyes. It could be used in the form of recreational activity. While in the state of stillness water represents reflection and, in its movement, provides sound effects. (Attwa , Refaat, & Kandil, 2022)
- *Plants*: They represent life and symbolize rebirth; they also demarcate the area and unite the landscape. They are used to create private spaces giving shades and special smell scape, they change throughout the year giving dynamics to the memorial. (Attwa , Refaat, & Kandil, 2022)

Pine Tree	Longevity
Eucalyptus	Healing, Protection
Cypress	Nobility, Longevity, Healing, Comfort, Protection
Bamboo	Youth, Perseverance, And Good Luck
Sandal Wood	Protection, Healing, Exorcism, Spirituality
Tamarind	Love
Henna	Healing
Tea	Riches, Courage, Stength
Saffron	Love, Happiness, Lust, Strength, Psychic Powers
Water Lily	Fortitude
Orchid	Patience, Endurance
Lilies	Profusion
Lotus	Perseverance, Dignity
Jasmine	Friendship
Hibiscus	Lust, Love, Divination, Profusion
Begonia	Perfect Yin/Yang Balance
Plum	Healing, Beauty, Youth
Mushroom	Suspicion
Grass	Psychic Powers, Protection

Table 4: Symbolism in Landscaping (George, 2005) (Extracted from “ Development of Symbolic pedagogical tools for communication in architecture”)

- *Landform*: Based on the variation in the land typography, the scenic views can be altered. It creates series and sequences of open and closed surroundings. (Attwa , Refaat, & Kandil, 2022)
- *Furniture*: Socialization is influenced by furniture. Interaction is encouraged by furniture arranged in small groups. Semi-circle configurations encourage more people to participate. Straight-line layouts promote self-sufficiency. (Philhour, 2020)

They could relax away from the crowd of the city. (Attwa , Refaat, & Kandil, 2022)

2.7.3 Space in Memorial architecture

In memorial architecture, space serves as a means of transporting individuals or groups to a meta space where they can engage in an inner dialogue with their deepest selves. A.Pesterac also notes that this metaspace can be created through in-between spaces that are simultaneously real and imaginary. The real space encompasses physical existence in terms of dimensions, atmosphere, and function, while the imaginary aspect refers to a heterotopia - an unreal world created through storytelling that facilitates communication. (Pesterac, 2016)

2.7.3.1 *Memorial to the Murdered Jews of the Europe by Peter Eisenman*

The creation of pillars of varied sizes leaves visitors to produce their own abstract of loss. Resembling the tombstones, but without any writings on it create a confusion yet has the power to bring people together for social support and share their perspective of how they interpret Jews holocaust in their own way. This openness has hence broken the “collective silence” in Germany and debates and discussions on the Nazi past and the holocaust, creating public awareness and public debates. (Dimkovic, 2016)



Figure 21: Memorial to the Murdered Jews of Europe, (Source:Berlin.de)



Figure 22: Memorial to Murdered Jews of Europe (Source: AFAR.com)



Disoriented and lonely

The deeper people travel into the rippling maze, the more existential loneliness they feel they don't know where to go. Despite being in the heart of Berlin, they are far, far away from everything. Suddenly, there is an unsettling sense of loneliness, abandonment, and threat. This was most likely the experience of most Holocaust victims, albeit far more horrific. (Fulker, 2017)

Figure 24: Memorial to the Murdered Jews of Europe, 2015 (Source: Valentina Rozas Krause)

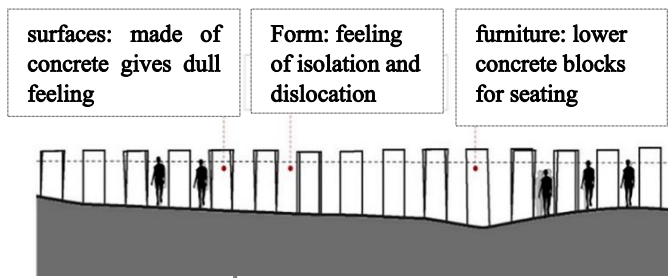


Figure 25: close section showing surfaces, concrete form and human scale

Form: resemblance of cemetery, no human reason

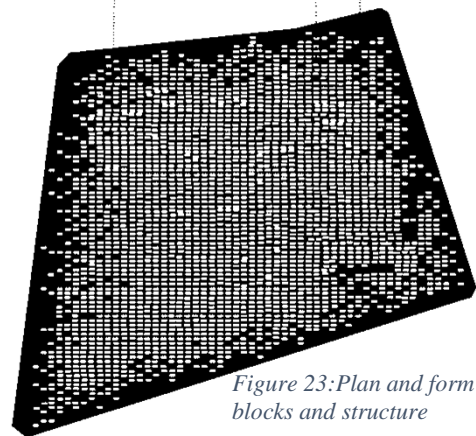


Figure 23: Plan and form with its blocks and structure

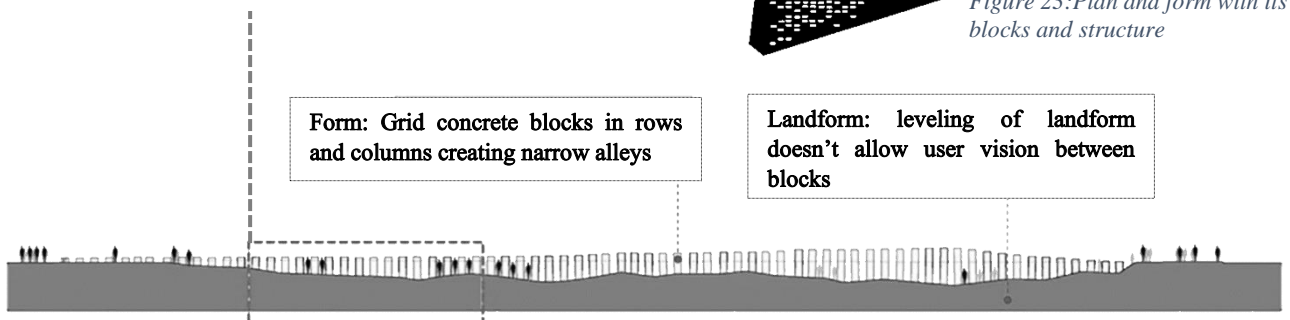


Figure 26: cross-section showing memorial concrete blocks and human scale, grid form and levels in land form

The Holocaust Memorial in Berlin is a popular spot for people of all ages, with children playing hide-and-seek, young adults taking selfies, and couples kissing. Architect Peter Eisenman did not intend to create a solemn space and is pleased with the monument's abstract design that does not evoke images of the death camp. According to Eisenman, people are free to remember the Holocaust in their own way, whether through prayer, reflection, or leisurely activities. The memorial is open to the public, and visitors can come and go as they please, even if they are unaware of the Holocaust's significance. (Fulker, 2017)

2.8 USER SENSUAL EXPERIENCE

While the visual aspect of architecture has traditionally been emphasized, there has been a shift towards incorporating other senses, such as sound, touch, smell, and taste. Architects and designers now recognize that integrating sensory inputs can result in a much more comprehensive and satisfying experience than merely combining individual sensations. As a result, buildings and spaces are designed to stimulate a variety of senses beyond just sight, including proprioception, kinesthesia, and the vestibular sense. It is stated by Charles Spence that as per Heilig's rankings: Vision 70%, auditory 20%, olfaction 5%, touch 4% and taste 1%. It has been questioned if this same hierarchy or percentage applies in the understanding of architecture. (Spence, 2020)

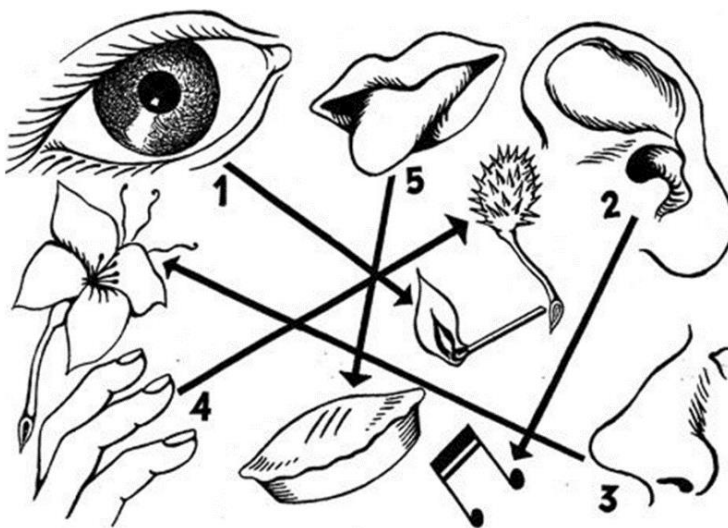


Figure 27: Heilig (1992) ranked the order in which he believed our attention to be captured by the various senses. (Photo: Charles Spence)

2.8.1 The look of architecture

“The visual dimension of space refers to the user’s cone of vision and its relationship with the human scale” (Attwa , Refaat, & Kandil, 2022)

Recent cognitive neuroscience research reveals that humans have an innate preference for curved shapes in both internal and external spaces. Angular shapes, especially those pointing downward, are perceived as threatening and may trigger a flight response. Interestingly, even everyday objects can impact our emotions, with angular shapes unconsciously limiting our joy while round forms have the opposite effect. Elements such as ceiling height, color, and lighting can also influence our approach-avoidance reflexes and cognitive processes. For example, a round or elliptical coffee table can transform a living room into a dynamic space for conversation and games. (Spence, 2020)

2.8.1.1 Jewish Museum by Daniel Libeskind

Designed for the people of Berlin and Germany as a place for reconciliation and reconstruction. The new building's zigzagging layout is broken up by a Void, which provides an area that personifies absence. It is a straight line whose impenetrability serves as the focal point for the displays that are planned around it. Visitors must



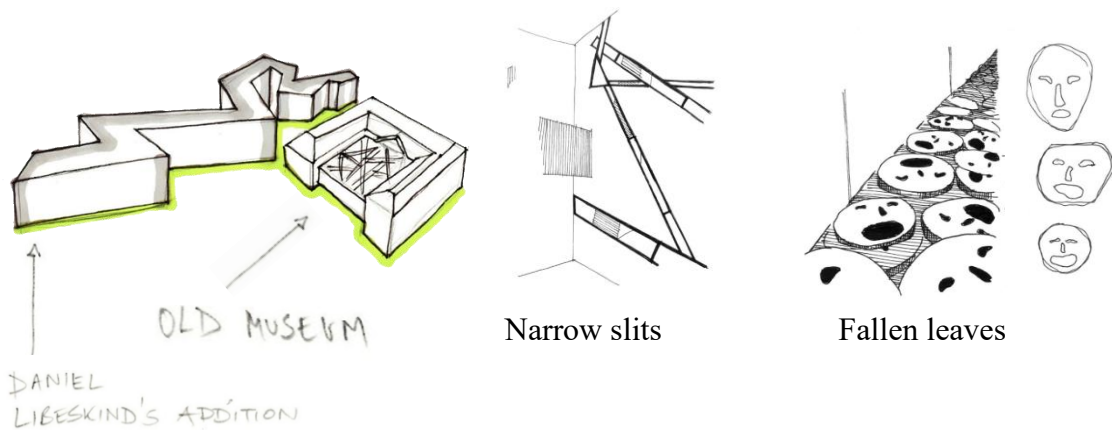
Figure 28: Aerial View, Jewish Museum by Daniel Libeskind (Photo: Guenter Schneider)

cross one of the 60 bridges that open onto this emptiness to go from one side of the museum to the other. (Libeskind, 2022)



All design elements are provided to evoke the discomfort in human experiences through voids, lack of right angles, empty spaces for the visitors to create their own interpretation of pain which they can relate easily to. Installation of Israeli sculptor Menasche Kardishmann- fallen leaves is one of the settings that represents metal human faces of varied sizes. Symbolizing voices of the Jews on the territory of Europe. The emphasis is given in the messages and ideas through the symbols and signs. (Dimkovic, 2016)

Figure 29: Fallen Leaves, Jewish Museum By Daniel Libeskind (Photo: Hufton+Crow)



2.8.2 The sound of space: are you listening?

It is undeniably crucial how a space sounds. After all, sounds can convey subtle hints as to a space's identity or size, even hinting at its function. Every structure or area has its own distinct sound, whether it's one of intimacy or monumentality, rejection or welcome, hospitality or antagonism. (Spence, 2020)

There's also a developing story here about the negative impacts of loud background noise on patient recovery, as well as the often-beneficial benefits of music and soundscapes in the hospital/healthcare context. (Spence, 2020)

2.8.3 Designing for “the eyes of the skin”

According to Spence, the tactile aspect of architecture is sometimes overlooked. Most of the time, our initial physical interaction with a structure comes when we enter or exit. Natural materials, such as stone, brick, and wood, allow the gaze to pierce their surfaces, allowing us to be convinced of matter's truthfulness.

The grain of wood, the veined surface of marble, the cold precision of steel, the textured pattern of brick" are all tangible aspects of architecture. (Spence, 2020)

2.8.4 An architecture of the chemical senses

Talking about a fragrance or taste architecture (these two of the so-called chemical senses) may seem like a stretch. Spaces brimming with fragrant flowers and flowering trees, created with the goal of discouraging trash and, who knows, maybe even decreasing vandalism. The healing garden concept has resurfaced in recent years, and the advantages are likely to revolve, at least in part, on the healing or restorative impact of the scent of flowers and plants, as they have in the past. (Spence, 2020)

2.9 EMOTION AND SPACE

2.9.1 Emotions

Emotions and moods are often confused, but they are actually different experiences. Moods are temporary and unintentional, while emotions are intentional and involve a relationship between the person and a specific event, object, or environment.

Different people have varied emotional responses to different buildings in architecture. The emotions may range from positive to negative, and the architecture's ability to convey a message to the user

determines these reactions. Pieter Desmet devised a three-variable model for evoking emotions, including appraisal, concern, and stimulus. The model is universal, and emotions are elicited when these variables interact (Droog & Devries, 2009).

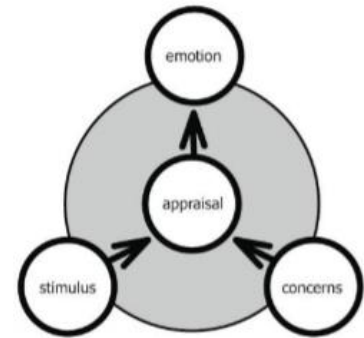


Figure 30: Basic Model of Emotions.
(source: *Designing Emotions*, P. Desmet)

2.9.1.1 APPRAISAL

A non-intellectual, instinctive judgment of the importance of a stimulus for one's own well-being is known as an appraisal. Instead of the object itself evoking emotion, it is the personal importance of a product. Because appraisals mediate the relationship between emotions and things, different people who value the same object in various ways may experience various feelings. (Droog & Devries, 2009)

2.9.1.2 CONCERN

Concerns can be thought of as a point of reference in the appraisal process; as a result, the significance of a stimulus for our wellbeing is determined by how well it matches or mismatches our concerns. Stimuli that match our concerns are deemed beneficial, while those that don't are deemed harmful. Like this, a structure only awakens an emotion in an architectural sense if it is judged to be relevant to a person's concern. (Droog & Devries, 2009)

2.9.1.3 STIMULUS

Any apparent change has the capacity to arouse an emotion. This could be a series of events or just a single occurrence, such as running into something in a space. However, the event need not be the primary stimulus; rather, a memory that has been passed down or triggered may also play a significant role in the expression of emotions through architecture. (Droog & Devries, 2009)

2.9.2 Architectural concern

Maslow's hierarchy of needs is a well-known model that highlights the basic needs of individuals, such as safety, love/belonging, esteem, and self-actualization. However, architecture may address certain human desires and concerns that are not explicitly stated in the model, such as the need for refuge and prospect, exploration, excitement, and thrill. These needs may not seem directly connected to architecture, but they could potentially be addressed through design. (Droog & Devries, 2009)

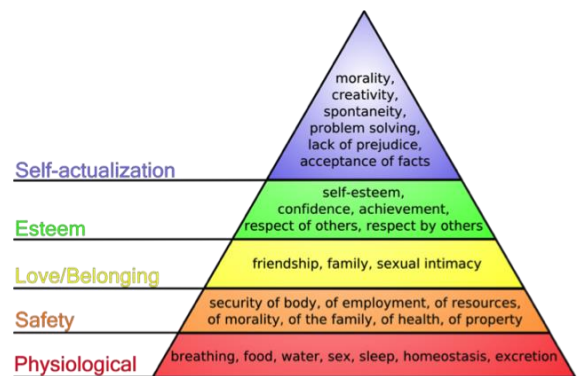


Figure 31: Maslow's Hierarchy of Needs (Source: InnerAction Media.com)

2.9.2.1 REFUGE AND PROSPECT

Humans have always had a natural inclination to interact with both open and enclosed spaces. Human evolution favored hunting in open areas and hiding in caves when danger threatened. This human trait has lasted over time, and even now people still look to architecture to meet these demands. While enclosed environments convey a sense of protection, open or semi-open spaces convey a sense of freedom and joy. Spaces with different lighting levels, ceiling heights, etc., can add to the sense of safety and opportunity. (Droog & Devries, 2009)

2.9.2.2 EXPLORATION

Due to their inherent curiosity, humans have always been interested in exploration: learning about their surroundings for purposes of survival or recreation. Even when in a well-designed environment, humans tend to speculate about a wide range of potential outcomes for the future. This interest is caused by what may be described as a guess about how the places would appear and feel. (Droog & Devries, 2009)

2.9.2.3 EXCITEMENT

Since the time of the hunter-gatherers, when people lived in caves, they had a natural attraction to well-lit, open places. As a result, distant features that are only partially revealed cause excitement. A circular staircase, an open courtyard at the end of a winding alley, and other features lead the viewer to the following area. Continuously producing this enthusiasm makes traveling through environments exciting and, as a result, affects the spectator emotionally. (Droog & Devries, 2009)

2.9.2.4 *THRILL*

Humans have grown attracted to the pleasure that terror might bring them because of evolution. According to studies, people need challenges to maintain honing their skills. Although it may not seem like what people would want most from architecture, creating excitement can affect how people perceive a room. (Droog & Devries, 2009)

2.9.3 **Architectural stimuli**

Architectural techniques such as the use of materials, form, and light can create various emotional atmospheres. Our sensory perception, including sight, hearing, smell, taste, and touch, contributes to our experiences. Without our senses, we would not have any experiences. Although sight is the most essential sense in architecture, the other senses are also significant, and we should pay more attention to them to fully appreciate a space. (Droog & Devries, 2009)

2.9.3.1 *SENSES*

Our sensory perception produces the experiences we have. By what we see, we experience. What we see, feel, hear, and taste. The visual sense, however, predominates over the other senses in architecture. Despite this, it is the combination of all our senses that gives us a sense of space. Our experience with the space and how we perceive them may differ depending on the reflectiveness of the surface, its acoustic properties, and its degree of roughness.

2.9.3.2 *EXPRESSION OF FORM*

Architecture is seen as having shapes that swell, press, push out, etc. The way a material is used, placed, and shaped affects how we experience it. In contrast to harsh edges and clear-cut shapes, soft organic formed structures, for instance, create the sensation that something was kneaded and molded.

2.9.3.3 *MASS OR VOID*

Working with concave or convex forms can change how space is perceived. Those that are clearly convex give the idea of bulk, whereas forms that are concave offer the appearance of space. When two fields share a boundary and one is perceived as a figure and the other as the ground, an immediate shaping impact that functions just on one field or operates more strongly on one field than the other fields emerge from the common border of the fields.

2.9.3.4 *MOVEMENT*

Architecture can either direct or encourage spontaneous movement. The movement that will pass through buildings, which must be immovable, should inform their design. In certain instances, the order in which spaces are built determines how people move through buildings, yet in other instances, the designed spaces are unguided and open to exploration.

2.9.3.5 *EXPRESSION OF MATERIALS*

The surface character of materials is related to impressions of hardness and softness, as well as weight and lightness. It is possible to make a structure look either heavier or lighter than it is. Material expression patterns, forms, and colors may be used to accomplish this. The horizontal terraces and balconies of Frank Lloyd Wright's "Falling Water" house stand in stark contrast to its vertical features. Compared to the vertical parts' rough stone surfaces, the light-colored smooth surfaces of the concrete balconies appear to be considerably lighter.

2.9.3.6 *TENSION AND PRESSURE*

Even the senses of sight and touch often allow people to feel the pressure and tension. They gain knowledge of material weight, solidity, and heat conductivity via hands-on experience. We often feel the tension in the wires of some arched bridges merely by looking at them, which may be because it reminds us of previous stress-related emotions.

2.9.3.7 *SCALE AND PROPORTION*

Humans possess an intuitive ability to perceive subtle mathematical proportions in their physical environment. People tend to appreciate order, regardless of its type. One example of an order applied to architecture is the golden section. Le Corbusier utilized "Le Modular," a tool that related the size and dimensions of his creations to those of a human being, to produce aesthetically pleasing and well-conceived architecture.

2.9.3.8 *VARIATION IN RHYTHM*

A change in components or motions throughout time is referred to as rhythm. Simple, complex, or a combination of both—ordered complexity or complex order—can be used to describe rhythm. Chaos is created by organized complexity, while joy is produced by complicated order as it depicts the growth of hierarchical order. People like discovering new patterns that are only slight variations of the original.

2.9.3.9 LIGHTS

When interacting with building, light is crucial. By just altering the size and placement of the room's apertures, the same space may be transformed to convey quite diverse particular feelings. Free natural light infiltration results in a shadow-free environment; nevertheless, shapes are not quite plastic and textural effects are typically poor.

2.9.3.10 COLORS

The way we perceive color is influenced by several factors, such as the colors surrounding it, their saturation, and the type of light. Colors can convey different moods and feelings, and they can be associated with certain qualities, materials, and elements of nature. They can also have psychological and physiological effects on us, and they can be used to create the illusion of size, distance, and lightness. Colors can also be used to signal warnings and evoke specific emotions, such as red for excitement and green for calmness.

2.9.3.11 ASSOCIATION AND CONCEPTIONS

Known forms and locations are simpler to recognize than unknowable ones. It results from the feeling of association. People frequently engage in the sensory act of recreation, self-identification with relationships, and affiliation with certain things or occasions.

2.9.4 Experiential Architecture

“Experiential architecture is design that evolves and responds over time, the notion of a holistic approach to the design. If architecture can connect emotionally with its occupants, then the message can be felt more deeply thus more readily leaving a lasting impression on your customers.” (Philhour, 2020)

Keunhye Lee, in her paper, “The Interior Experience of Architecture” has put forward an argument that interior experience offers effective ways of stimulating emotional experience to create spatial perception as a way of understanding architecture. Such experience can be generated through:

- a. Stimulating a lived body
- b. Emphasizing materiality
- c. Generating emotional connection

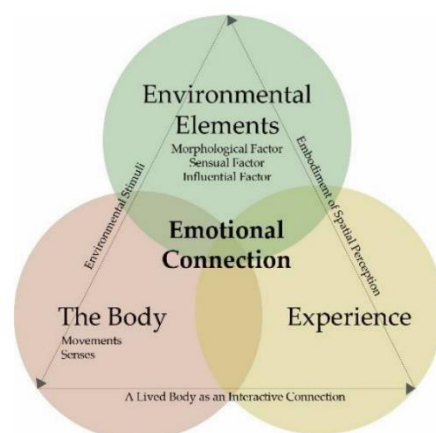


Figure 32: Embodiment of spatial experience for emotional connection

Architectural experiences cannot be limited to the visual sense alone, as demonstrated by architects and theorists such as Juhani Pallasmaa, Peter Zumthor, Kengo Kuma, and Yi-fu Tuan. One's understanding of a space is influenced by their bodily senses, including the eyes, ears, nose, skin, tongue, skeleton, and muscles, as they interact with it. Emotions and past experiences also shape how people perceive a space, as memories become embedded in their mental core. The physical and visual aspects of bodily movement interact with the spatial sequence, creating an individual interpretation. Materials such as exposed concrete can be experienced directly through sight, touch, smell, and sound. (Lee, 2022)

The CML, encourages people to touch and feel the materials to read the information, the streaming water and descending footsteps guide the people, some hear the chirp of birds and children running and playing around while some lay there doing nothing. These kinds of experiences are internalized and remains intact to the user instinctively. (Attwa , Refaat, & Kandil, 2022)

The phenomenology of the psychological experience of memorial spaces demonstrates that the communicative process is gradually diverted towards coping with the individual's reality, which implies the ability to accept reality and become aware of individual and collective loss, thanks to the influence of space. (Pesterac, 2016)

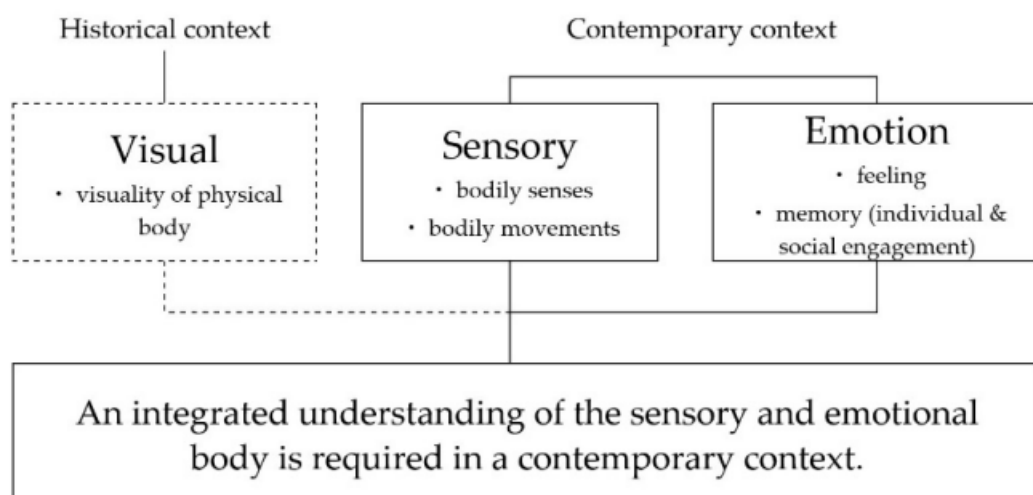


Figure 33: Phenomenological Understanding of the Body (Lee 2016)

2.9.5 Multi-sensory experience and Emotional connection

2.9.5.1 *The Bruder Klaus Field Chapel by Peter Zumthor:*

A wooden frame was filled with twenty-four layers of concrete and then burned, leaving behind a blackened void where the shape of the logs had been. The resulting structure had small openings and a crystal shaft that allowed for the penetration of sunlight, air, and rain. The experience of the space varied depending on the time of day and the season due to the changing environment created within. (Lee, 2022)

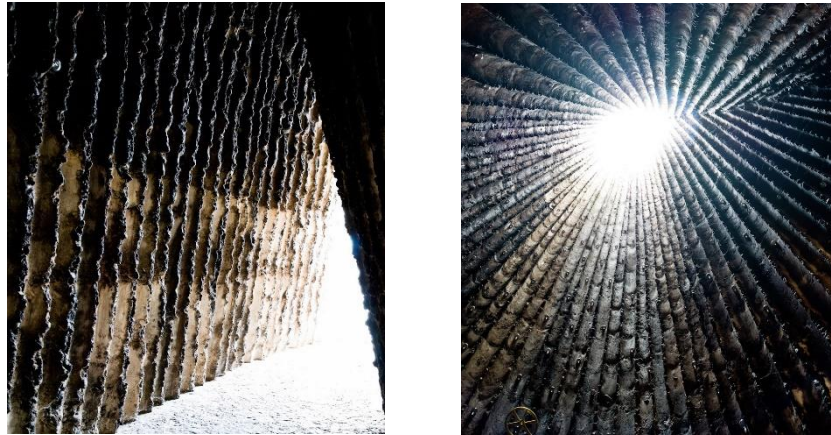


Figure 34: Peter Zumthor, Bruder Klaus Field Chapel. (a) Entrance area (b) Interior space (Photos: Megan Sveiven)

2.9.5.2 *Serpentine Pavilion by Peter Zumthor*

It was created for Meditation that evoked a spiritual experience. The covered pathways and seating areas surround the inner garden where visitors are presented with the fragrance of cautiously chosen flowers and their varied color and texture that stimulated the bodily senses. (Lee, 2022)



Figure 35: Peter Zumthor, Serpentine Pavilion, 2011

2.9.5.3 *Sensing Space by Kengo Kuma*

In 2014, an architect designed an exhibition at the Royal Academy that used scents to enhance the experience. The exhibit featured dark rooms with woven bamboo structures and scents of tatami mats and Hinoki that evoked memories of Japanese culture. These scents were inspired by Ko-do, a Japanese Smell ceremony, and chado, the traditional Japanese tea ceremony. (Lee, 2022)



Figure 36: Kengo Kuma, Sensing Space, 2014, Kuma's Installation (Photos: James Harris)

2.9.5.4 GC Prostho Museum Research Center, Kengo Kuma

The museum in Aichi Prefecture, Japan is based on a traditional Japanese toy called "Chidori." It features an interlocking timber stick structure that creates a forest-like atmosphere with varying densities of angles and light conditions. The lattice structure allows light and shadow to filter through, creating an experience similar to being surrounded by deciduous trees. (Lee, 2022)



Figure 37: Kengo Kuma, GC Prostho Museum Research Center, 2010, The Lattice Structure (Photos: Daici Ano)

2.10 RATIONALIZATION

Monuments like memorials serve as a means of memory and dealing with past events that have evoked bad feelings. They can also provide new public spaces with increased civic and social significance in the aftermath of a calamity. Memorials are constructed in landscapes or urban environments and can be used for both remembering and mediation, as well as forgetting and oblivion of unpleasant feelings. They provide areas a new sense of identity and integrity, allowing people and society to reconcile and heal. (Scitaroci, Sargolini, & Zaninovic, 2017)

Memory traces can remain unresolved and are often associated with body memory, place memory, and social rituals. Recognizing oneself and others within their social and physical environments is important for intergenerational care. Sites of past suffering and violence can now become places of healing, creating a secure space for personal growth and transformation through reflection and emotional connections. (Walker, 2020)

2.10.1 Public memorials in the context of urban identity:

Memories can be preserved in physical forms, creating everlasting spaces within the urban structure. Monuments and memorials differ in that monuments represent official memory as glorious sculptures, while memorials are places of experienced memory and emotions. While enclosed and separated memorials may become almost invisible outside specific commemorative times, contemporary memorials that are integrated into the urban space and designed for human interaction become living spaces that create an urban identity open to individual interpretation. Connecting with these

physical forms at the human scale is essential for creating a place to meet, talk, and reflect, making the site a part of daily life. Memorials also serve as a medium for communication, allowing visitors to empathize with the history and people of a society and creating a bond at shared ground for humanity. (Gurler & Ozer, 2013)

Giving examples of Memorial Bridge in Croatia (Fig: 6), and Princess Diana's Memorial Fountain in Hyde Park, Gurler and Ozer have explained the importance of memories, symbolic memories, and utility. Therefore, public memorials with a utility value helps visitors to get information and not only that, but they can also strengthen the connection by creating new ways to contemplate that information. (Gurler & Ozer, 2013)

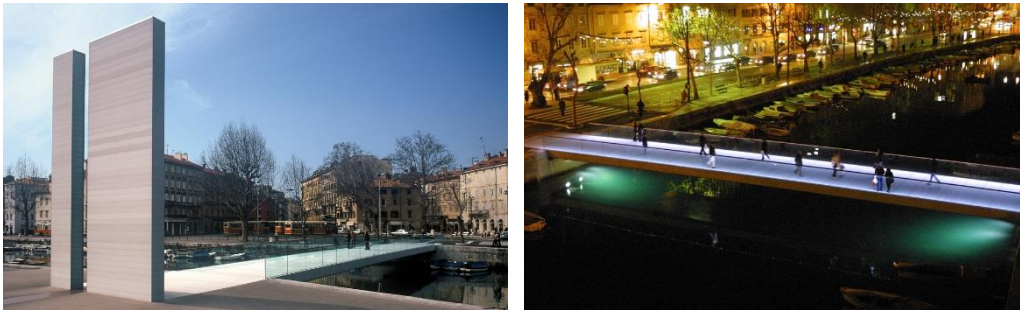


Figure 38: The Memorial Bridge, Croatia (Photos: Aljosa Brajdic)



Figure 39: Princess Diana's Memorial Fountain, Hyde Park, London

2.10.2 Public memorials in the context of social Memory:

Since the objective of creating public memorials relates with emotions and feeling shared by the society, the designers should first acquaint themselves with the state of society. The designers instead of following certain criteria and standards, should understand the purpose of the design first to strengthen the social memory. (Gurler & Ozer, 2013)

The teachings and messages from these humanity defying incidents are to be taught to the younger generations to condemn the wrongs. “In “Present” spaces built with “the past”, for “the future” emphasis is often put on the wish that it will “never happen again”. (Gurler & Ozer, 2013)

Gurler and Ozer explains that establishing empathy with the victims and their closed ones as well as including people who voiced human rights and democratic rights during such event be considered. This opts the visitors to experience dark as well as rays of hope as if they too were in that situation and trigger their social senses to prevent those activity from happening again. For this purpose, feeding information alone to the visitors is not enough, but creation of new place to reflect upon what they experienced should be done.

Table 5: Comparing schema of Conventional memorials and Memory sites integrated to city and daily life Source: (Gurler & Ozer, 2013)

Conventional memorials	Memorial sites integrated to daily and city life	Outcomes
Grand Scale	Human Scale	Strengthen social Memory
Separate/enclosed/not related to city	Integrated to city and daily life	
Remembering	Remembering	Effect positively urban identity
Few usages	Different usages (utilizing)	
Less relationship with visitor	More relationship with visitor	Increase cultural richness
Used on memorial days	Used every day, Alive all the time	
Invisible in time	Strengthen meaning in time	

2.11 INFERENCES DRAWN FROM LITERATURE REVIEW

Table 6: Findings from literature review

FINDINGS	DESCRIPTION	SUB-CATEGORIES
Conveying Memories	Ways of transfer of narratives, evidence of past to future	Subject witness- <i>communicational memory lasts if mediator exists</i>
		Symbols- <i>cultural memory, comes from distant past exceeds longer that creators</i>
Meanings of Memorials	Ways how an individual conceives message intended	Didactic- <i>Literal message; to instruct, impart</i>
		Interpretative- <i>abstract; own perception</i>
Memorial space enclosing elements	Aspects to transform intangible matter into physical form	The location- <i>considering proximity and level of interaction between memorial and public</i>
		The form- <i>geometrical shape; mass; scale; proportion, pattern</i>
		Surfaces- <i>visual and the tactile feature</i>
		Manipulation concept- <i>aspect of attention; viewpoint; walking choreography</i>
Symbolism	The effectiveness of including definite meaning in user through signifiers	Forms- <i>Certain shapes and figures gives visual balance and weight</i>
		Colors- <i>Use of various colors impart different meaning into space and impact mood</i>
		Landscape- <i>elements represents respective meaning in various cultures</i>
Architectural concern	Point of reference of the appraisal process.	Refuse and prospect- <i>State of being safe and freedom</i>
		Exploration- <i>Tendency to explore to get new information</i>
		Excitement- <i>Dark to light tendency of humans</i>
		Thrill- <i>pleasure of fear</i>

FINDINGS	DESCRIPTION	SUB-CATEGORIES
Architectural Stimuli	Elements that entice emotion when referred in contrast to concern of viewer	Senses- <i>Spatial experience through sense of seeing, hearing, feeling, tasting, and smelling</i>
		Expression of forms- <i>Treatment of Shapes and Surfaces</i>
		Mass or void- <i>Focusing on certain features over others</i>
		Movement- <i>Sequential spatial arrangement</i>
		Expression of materials: <i>Defining visual weight using hard/soft materials</i>
		Tension and pressure- <i>Experience tension and pressure through sense of Vision</i>
		Scale and proportion- <i>Balance in physical world</i>
		Variation in rhythm- <i>Organised or semi – organized alterations</i>
		Lights- <i>Spatial impressions through playfulness influx of lights</i>
		Colors- <i>changes the way we experience a given space</i>
Association and Conception- <i>Easier to perceive the known as compared to unknown forms and spaces.</i>		

CHAPTER- 3

3 CASE STUDIES

The case studies can be better understood under following general framework that has been developed through the literature review of Architecture of Memories:

- General overview of Memorial, including the meaning of place, locational information, and character analysis.
- The design context: architectonic dialogue, design process and design language
- Understanding expression of memories through: (Table 6)
 - Physical interpretation
 - Phenomenological lenses
 - Symbolic representation
- Criticisms
- Inferences and conclusion

3.1 FRAMEWORK FOR CASE STUDIES

Checklist:

For memorial language

S.N.	CATEGORIES		Rating 0-1		Rating 0-1
1.	Impression	Symbolic		Abstract	

S.N.	CATEGORIES	0	Rating 0-1	1
2.	Involvement of victims	Detached		Incorporated
3.	Surrounding context	Enclosed		Open
4.	Time	Permanent		Temporary
5.	Scale	Large		Small
6.	Representation	Absent		Present

For Phenomenological lenses

S.N.	CATEGORIES	0	Rating 0-1	1
1.	Sight	Contemplative		Invisible
2.	Touch	Tangible		Intangible
3.	Smell	Unique		Bland
4.	Sound	sonorous		Inaudible
5.	Taste	apathetic		Emotional

For Symbolic representation

S.N.	ELEMENTS	MEANINGS
1.	Water	
2.	Plants/ flowers/landscape	
3.	Materials: surface concrete/Metal/Wood/stone/other	
4.	Landform	
5.	Form- Geometry	
6.	Pathways -articulation	



Case Study

Yad Vashem Holocaust Museum

▲
 Figure 40:Yad Vashem Holocaust Museum (Photo: Daniel Katz)

3.2 YAD VASHEM HOLOCAUST HISTORY MUSEUM

3.2.1 Introduction

Location: Har Hazikaron, Jerusalem,Israel

Architect: Moshe Safdie

Date of Construction: 2005

Built up Area: 75000 m²

Floor area: 4200 m²

Memorial Type: Memorial
 Museum

Construction Materials:
 Concrete and glass

(Archdaily, 2011)



Yad Vashem is a center dedicated to commemorating the victims of the Holocaust and better understanding the event. The Hebrew name translates to "a memorial and a name," emphasizing its mission to give back names and stories to the six million Jews who died during the Holocaust. The center includes several memorials, a historical museum, a central archive, and a research and documentation center. The museum displays the history of the Holocaust through various resources such as photographs, objects, documents, and audio-visuals. The archive is the world's largest and most extensive, containing 55 million pages of documents, nearly 10,000 photographs, films, and videos of testimonies of survivors, and a library with over 80,000 titles and documents.

3.2.2 Memorial context

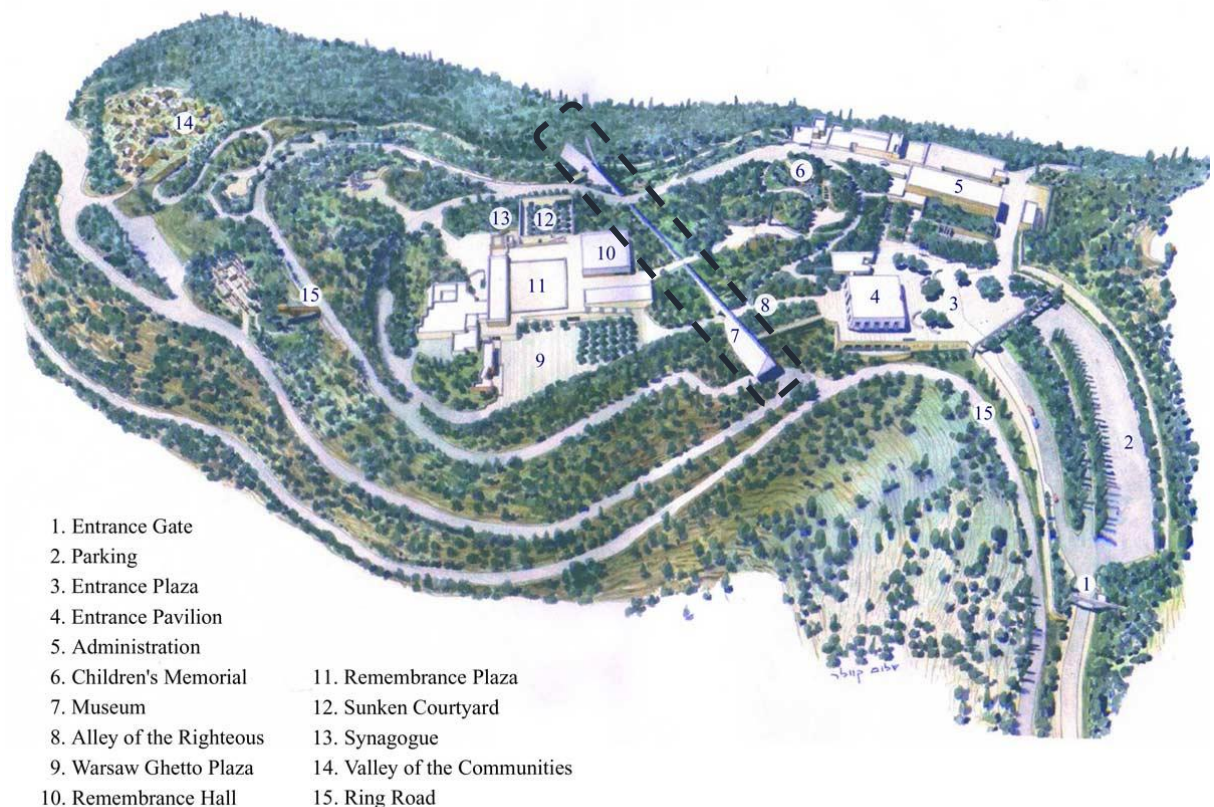
3.2.2.1 Meaning of the place

The Museum is situated on Har Hazikaron, also known as the Mount of Remembrance. It is a hill located in the extreme west of Jerusalem, semi- desert. To protect the pastoral aspect of the sensitive site while still meeting the needs of Yad Vashem, the Museum's "body" is hidden under the earth, with only the elongated central spine breaking through to offer a sense of its actual magnitude. (SafdieArchitects, 2021)

3.2.2.2 Locational information

The new Yad Vashem Holocaust History Museum (7) is the culmination of a 10-year, \$100 million redevelopment project of Yad Vashem, the Holocaust Martyrs' and Heroes' Remembrance Authority. It occupies 4,200 square meters mainly underground with 180 meters long linear structure in the form of a spike cuts through the mountain.

Yad Vashem Holocaust Museum Complex



3Figure 41: Yad Vashem Holocaust Museum complex, (Source:Landezine)

The Journey starts from the entry bridge, then to the main corridor, It seems Moshe Safdie, has worked deliberately to guide visitors through triangular shaped concrete walls, making them claustrophobic, as if they are in a prison. The distance becomes narrower and continues to close in. Barriers are designed in such a way that, one cannot see another gallery from where they are standing, symbolically hinting the anticipation of events of holocaust.

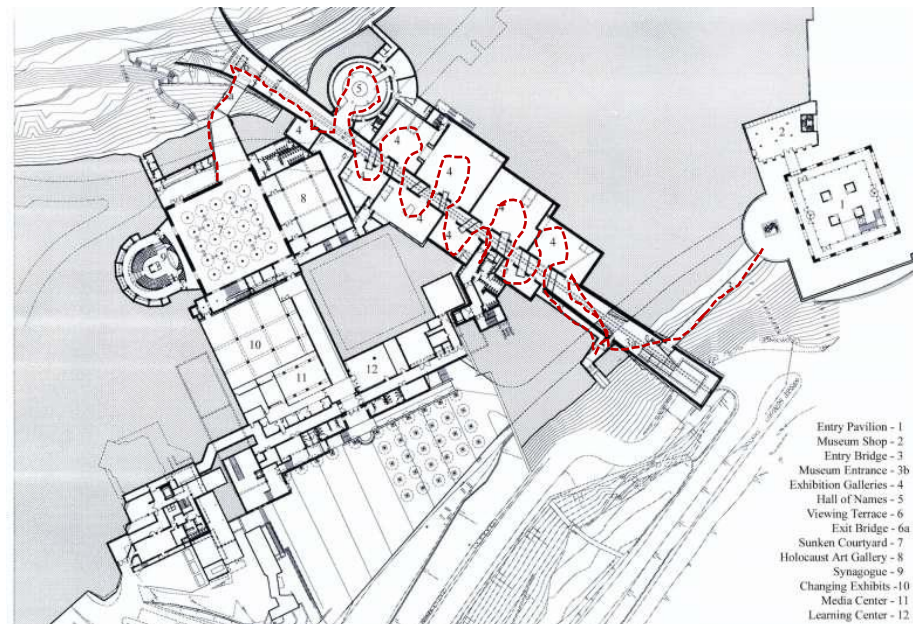


Figure 42: Site Plan, Yad Vashem, (Source: <https://dac.dk/en/knowledgebase/architecture/yad-vashem-holocaust-history-museum/>)

3.2.3 Design context

3.2.3.1 Architectonic dialogue

The Holocaust History Museum at Yad Vashem is being rebuilt and will comprise a new visitors' center (mevoah), a new history museum to replace the old museum built in 1953, a Hall of Names, a synagogue, galleries for Holocaust art, an exhibition pavilion, and a learning and visual center. Furthermore, new underground parking and tour bus facilities are positioned near to a new entrance piazza. The history museum is a mostly underground prismatic building that is 16.5 meters high and 183 meters long (54 x 600 feet), cutting through the Yad Vashem hillside from the south and emerging to the north. Both sides of the prism are lined by a network of skylit underground galleries. (Archdaily, 2011)

3.2.3.2 Design process and design language

The new Holocaust History Museum's nine underground galleries tell the story of the Shoah from the point of view of the Jews. The chronological and thematic narrative is punctuated by a look into the worlds of Jews who lived - and died - under the Nazis and their collaborators. (Archdaily, 2011)

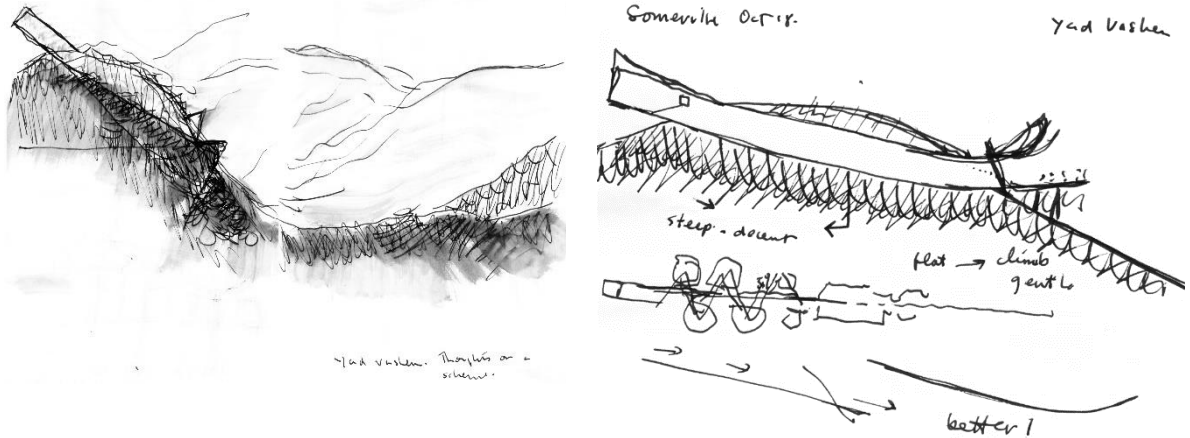


Figure 43: Conceptual Sketches, (Source: Architizer)

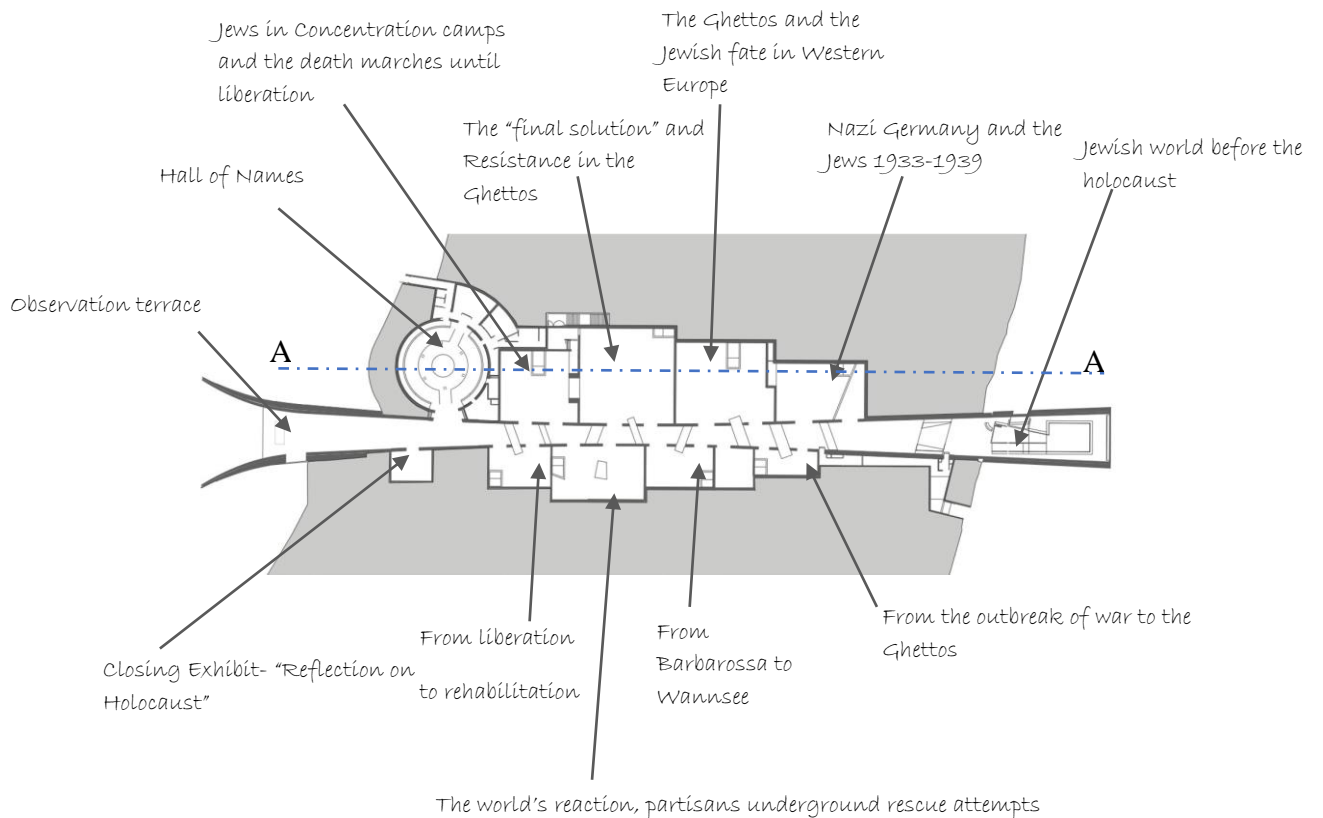


Figure 44: Gallery sections, (Source: <https://architizer.com/projects/yad-vashem-holocaust-memorial-museum/>)

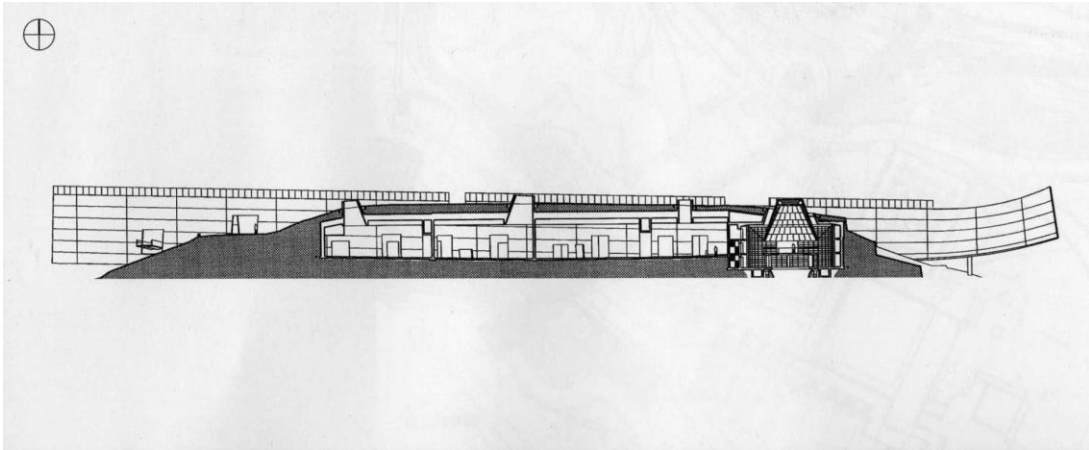


Figure 45: Section at A-A, (Source: <https://en.wikiarquitectura.com/building/yad-vashem-holocaust-history-museum/>)

a. The main Prism

Shallow angular pits in the prism-hall floor are filled with artifacts and other documentation material. These trenches not only house curated shows, but also guide visitors from gallery to gallery, guiding them from the central spine to the more intimate exhibits. The orchestrated path through the museum spaces gets defined by light. The main prism is capped by



Figure 46: Main prism with artifacts, (source: (SafdieArchitects, 2021))

a skylight, which allows sunlight to wash the walls and slice down the length of the hall, creating a stark contrast between the darkened display rooms and the lit open spine. (SafdieArchitects, 2021)

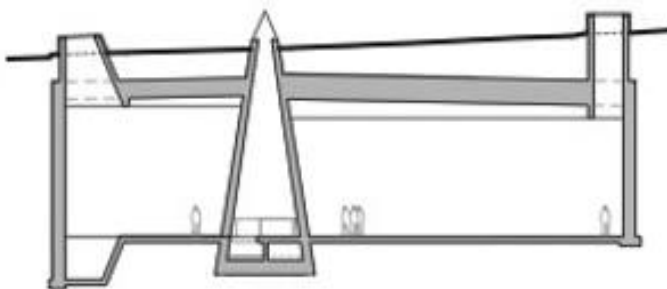


Figure 47: Section Showing corridor and Gallery, (Source: (Architizer, Yad Vashem History Holocaust Museum, n.d.))

b. Galleries

The galleries, which are hidden from view upon entering, gradually unveil themselves as the visitor walks along the Museum's central corridor, portraying the Holocaust chapter by chapter through a historical and thematic course. They cross the prism, establishing a sequential system that enables Museum curators to build exhibitions in accordance with the



Holocaust's still-developing historical narrative. (SafdieArchitects, 2021)

Figure 48: one of the Galleries in Yad Vashem, (Source: (Architizer, Yad Vashem History Holocaust Museum, n.d.))

c. Exhibition halls

The exhibit halls are underground and are lit from above by skylights piercing the rock. As they pass in and out of view from above, visitors walk through the dimly lit rooms, documenting the development of Nazism and the horrors of the Holocaust. (SafdieArchitects, 2021)



Figure 49: Exhibition Halls, (Source: (SafdieArchitects, 2021))

d. Hall of Names

The Hall of Names, located near the museum's end, is a conical building that rises 9 meters (30 feet) and houses the personal data of all known Holocaust victims. A reciprocal cone echoes the upper chamber and honors victims whose names will never be known, extending deep into the Jerusalem bedrock below. (Archdaily, 2011)

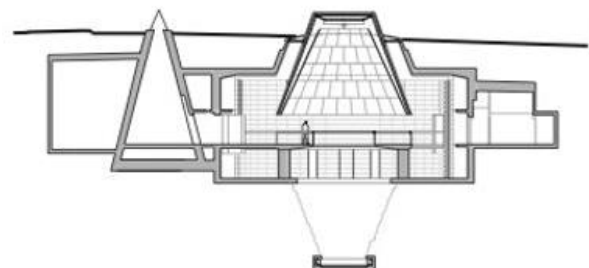


Figure 50: Section of Hall of Names, (Source: Architizer)



Figure 51: Hall of Names, (Source: SafdieArchitects)

e. Observation terrace:

Visitors finish their tour with a panoramic view of Jerusalem from a dramatic open-air gallery that cantilevers out over the valley. They can escape the prism and return to the complex's other parts from here. As visitors complete their tour through the museum, the walls of the tunnel-like prism open onto a panoramic vista of sunlit Israel, symbolically linking the Holocaust to the country's establishment and spirit of optimism.

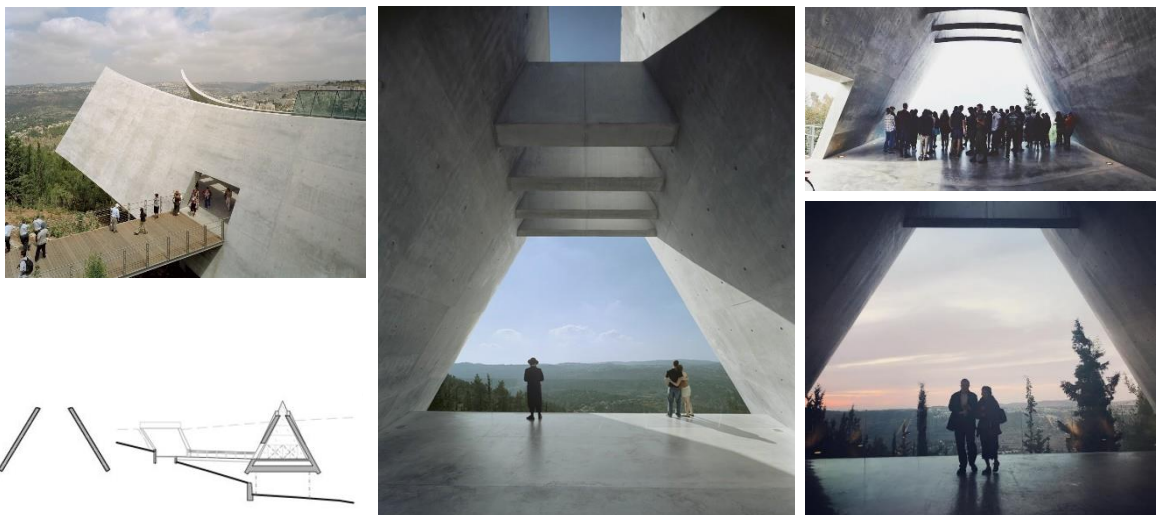


Figure 52: Observation Terrace, a. Exterior, b. Section, c. Use at different parts of the day, (Source: (Architizer, Yad Vashem History Holocaust Museum, n.d.)

3.2.4 Expression of Memory

3.2.4.1 *Physical and sensory interpretations*

- **Impression (Symbolic + Abstract):** Use of Triangular Prismatic form indicates irregularity. Natural light from the sky, gives hope and direction.
- **Involvement of the victims (Detached/Incorporated):** Museum houses a lot of artifacts, photographs, names, art, belongings of the victims, many received from the families, friends, and other collections. So, it incorporates the feelings of families, and acts as a safehouse for their memories as well.
- **Surrounding context (enclosed/ open):** It is an enclosed structure, mostly buried in the earth.
- **Time (Permanent/Temporary):** It is a permanent museum, still collecting the necessary archives from around the world.
- **Scale (Large/Small):** It is a large structure with an area of 42000 m²
- **Representation (Absent/present):** It represents all the absent victims through photographs, visual aids, belongs, books, maps, letters etc. Their photos and names are presented in Hall of Names.
- Phenomenological lenses
 - **Touch:** The roughness of bare concrete creates cold atmosphere. The material in the floor changes in the entry gallery, from warm carpet to cold, hard concrete.
 - **Sight:** The closing narrow walls directing the eyes give disarrayed feeling. The video Montage, pictures of mass graves, helpless children and women, their lives before, during and at the time of death are depicted in the museum.
 - **Smell:** The concrete gives the smell of estrangement.
 - **Sound:** the hollowness of the structure creates depth in the voices and sound in the museum. The video montage played in the screen, also called as “ the living Montage”, at the beginning of the journey with songs, music played when they performed their traditional dances, gives the glimpse of how they used to live, before their world trembled.

3.2.4.2 Symbolic elements

The entry bridge slopes downward, and the pathways too, symbolizing how human got as low as he could, to treat a fellow human being.

The walking of the visitor is manipulated, in such way that, visitors cannot anticipate what and where they are going to next, symbolizing how the Jews must have felt when they had no clue what could happen to them. They were not given any choices.

3.2.5 Yad Vashem Memorial complex

The components of the whole museum can be divided in following sections,

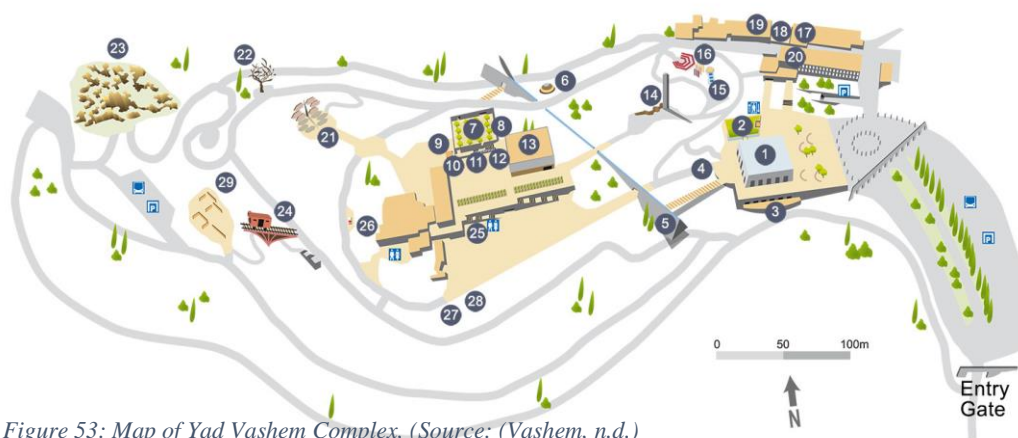


Figure 53: Map of Yad Vashem Complex, (Source: (Vashem, n.d.)

Table 7: Legend of Memorial Components of Yad Vashem Memorial Complex

1. Visitor's Center	16. Janusz korczak Square
2. Book and Resource center	17. Archives and Library Building
3. Cafeteria	18. Family Plaza
4. Avenue of the Righteous Among the Nations	19. International School for Holocaust Studies
5. The Holocaust History Museum	20. Administration and Research Building
6. Hall of Names	21. Monument to the Jewish Soldiers and partisans
7. Square of Hope	22. Partisan's Panorama
8. The Holocaust Art Museum	23. Valley of the communities
9. Synagogue	24. Cattle car-memorial to the Deportees
10. The Exhibition pavilions	25. Wall Warsaw Ghetto Square- of remembrance
11. The Visual Center	26. Swedish Ambulance
12. The learning centers	27. Monument to Le Chambon-sur-Lignon
13. Hall of remembrance	28. Nieulande Monument
14. Pillar of heroism	29. Garden of the Righteous among the Nations
15. Children's Memorial	30. The Memorial Cave

1. Visitors' Center

The Visitors' Center's entrance level serves as a location for orientation, information, reception, and gathering. It provides views of the university and surrounding area in all directions. Visitor services, a café, restrooms, and checkrooms are on the floor below, open to the view of the valley. (Vashem, n.d.)



Figure 57: Visitors' Center, (Source: (Vashem, n.d.))

2. Book and Resource Center

The center features a range of contemporary reference books, multi-media, memoirs, and Holocaust literature to visitors. The 300-square-meter structure serves as a resource center, fulfilling book orders and visitor requests in numerous languages linked to the Holocaust and WWII. (Vashem, n.d.)



Figure 57: Book center (Source: (Vashem, n.d.))

3. Avenue of the Righteous Among the Nations

Trees have been planted around the Yad Vashem site in remembrance of the non-Jews who risked their lives to save Jews during the Holocaust, acting on the most noble values of humanity. (Vashem, n.d.)



Figure 57: Avenue of the righteous Among the Nations, (Source: (Vashem, n.d.))

4. Square of Hope

The platform has trees and seating area at regular intervals. It is open to the sky, signifying a new sense of hope and freedom. (Vashem, n.d.)



Figure 57: Square of Hope, (Source: (Vashem, n.d.))

5. Synagogue

The new Synagogue is an appropriate location for guests to say Kaddish for departed loved ones, as well as for individual prayer, communal worship, and memorial services for lost communities. The



Figure 58: Synagogue, (Source: (Vashem, n.d.))

edifice is adorned with ritual relics retrieved from damaged synagogues in Europe. (Vashem, n.d.)

6. Visual Center

The Visual Center enables groups or individuals to view Shoah-related visual materials on large or personal screens. These include documentaries, feature films, and survivor testimonies taken by Yad Vashem and other organizations. (Vashem, n.d.)



Figure 59: Visual Center, (Source: (Vashem, n.d.))

7. The Learning center

The Learning Center allows visitors to explore historical, thematic, and moral dilemmas and issues related to the Shoah. The Learning Center is open to organized groups, independent groups, and individuals. (Vashem, n.d.)



Figure 60: Learning Center(Source: (Vashem, n.d.))

8. Hall of Remembrance

An imposing, tent-like basalt structure that allows visitors to pay their respects to the memories of the martyred dead. On the floor are the names of 22 Nazi murder sites. A memorial flame burns continuously, next to a crypt containing ashes of victims brought from the extermination camps. (Vashem, n.d.)

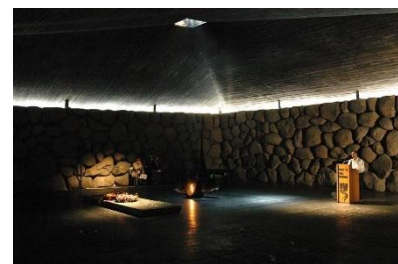
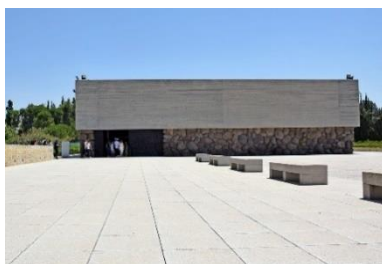


Figure 61: Hall of Remembrance, (Source: (Vashem, n.d.))

9. Pillar of Heroism

The Pillar of Heroism commemorates Jewish resistance during the Holocaust. The inscription on the concrete block reads: "Now and forever in memory of those who rebelled in the camps and ghettos, fought in the woods, in the underground and with the Allied forces; braved their way to Eretz Israel; and died sanctifying the name of God" (Vashem, n.d.)



Figure 62: Pillar of Heroism (Source: (Vashem, n.d.))

10. Children's Memorial

This unique memorial, hollowed out from an underground cavern, is a tribute to the approximately 1.5 million Jewish children who perished during the Holocaust. Walking through the memorial, the visitor will hear the names of murdered children, their ages and countries of origin in the background. (Vashem, n.d.)



Figure 63: Children's Memorial, (Source: (Vashem, n.d.))

11. Archives and Library Building

The largest and most comprehensive repository of documentary material on the Holocaust in the world, the Archive contains approximately 62 million pages and more than 267,500 still photographs, as well as thousands of audio and videotaped testimonies of survivors. These may be accessed by the public and viewed in the appropriate rooms. (Vashem, n.d.)



Figure 64: Library Building, (Source: (Vashem, n.d.))

12. Monument to the Jewish Soldiers and partisans

Approximately 1,500,000 Jews fought against the Nazis, as Allied soldiers, as partisans, in the resistance movements, and in the ghettos. This monument is dedicated to the hundreds of thousands who lost their lives in this struggle. (Vashem, n.d.)



Figure 65: Monument to the Jewish Soldiers and Partisans, (Source: (Vashem, n.d.))

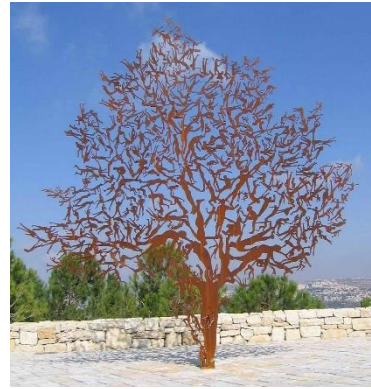


Figure 66: Partisans' Panorama, (Source: (Vashem, n.d.))

3.2.6 Inferences and conclusion

The architecture of the Yad Vashem History Museum symbolizes pain and agony using 30 feet of height, the use of concrete as a cold material, the linear prismatic form itself is creating a wound on the surface of the earth, most of its structure underneath and a spine emerges with glassed skylight, to provide natural light in the museum. The shaft protrudes impressively from the hillside, releasing stress, hope, and a lesson to be a better human being.



Case Study

Memorial to Victim of Violence

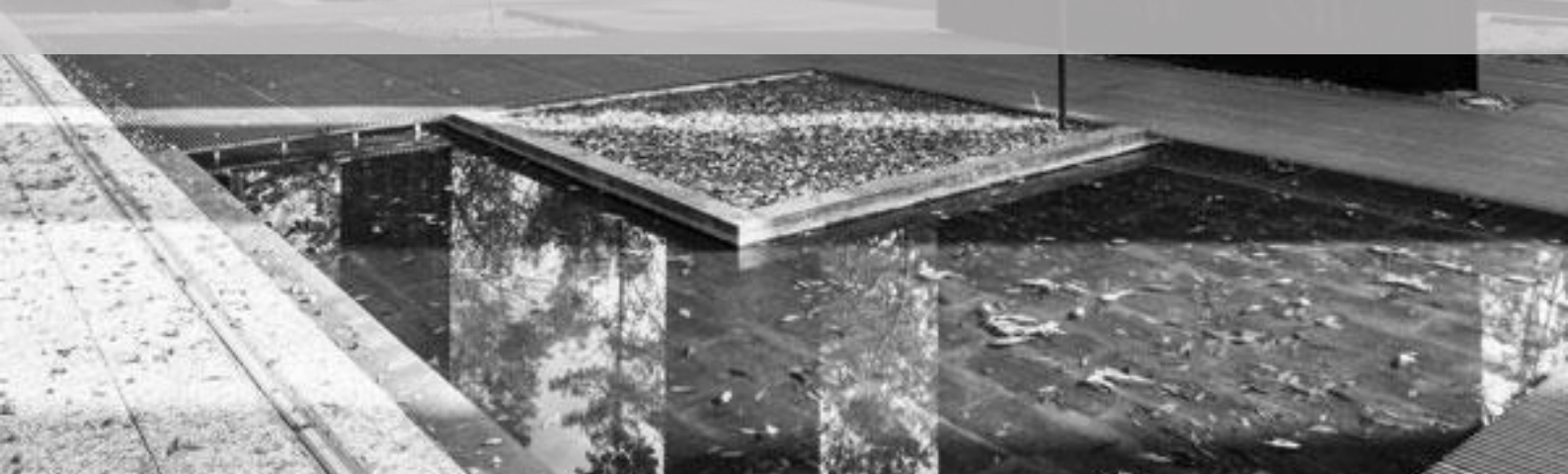




Figure 67: Memorial to Victims of Violence, Mexico (Photo: Sandra Pereznieto) (ArchDaily, Memorial To Victims Of Violence/ Gaeta-Springall Arquitectos, 2019)

3.3 MEMORIAL TO VICTIMS OF VIOLENCE, MEXICO

3.3.1 Introduction

Location: Chapultepec, Mexico

Architect: Gaeta Springall Arquitectos

Date of Construction: 2013

Area: 15000 m²

Memorial Type: Public Space and memorial

Construction Materials: Steel and Concrete

(ArchDaily, Memorial To Victims Of Violence/ Gaeta-Springall Arquitectos, 2019)

In a Memorial, we may discover the remembrance and memory of culture and history; in the specific example of the Memorial to the Victims of the Violence in Mexico, architects have materialized one of the most significant and pressing concerns of Mexican society—violence—in terms of architecture. They suggest an open project at the location, open to the city and open to the residents' involvement, a project with a strong interaction with the city and its actors, in reaction to this large, open wound. The project's main goals are the restoration of the public realm and the honoring of those who have lost their lives to violence due to drug wars in Mexico. (ArchDaily, Memorial To Victims Of Violence/ Gaeta-Springall Arquitectos, 2019)

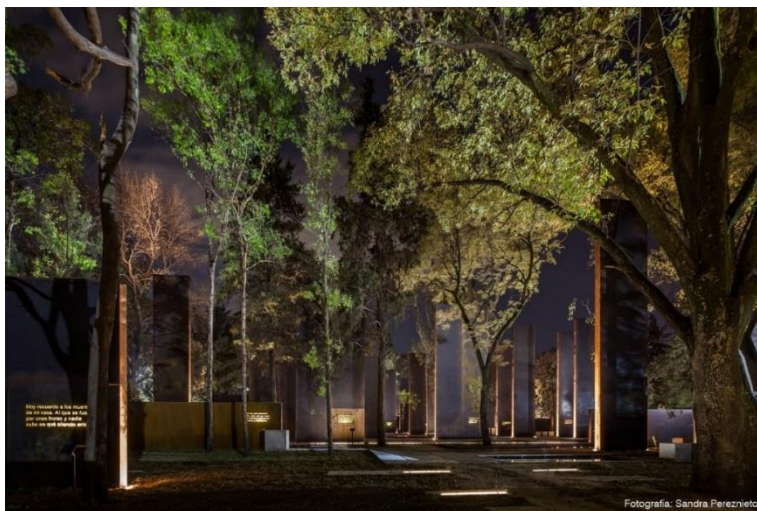


Figure 68: Night view of Memorial to Victims of Violence, Mexico (ArchDaily, Memorial To Victims Of Violence/ Gaeta-Springall Arquitectos, 2019)

3.3.2 Memorial Context

3.3.2.1 Meaning of the Place

Mexican drug traffickers and organized criminal gangs have each established distinct regional spheres of influence since 1980. Beginning with existing trafficking channels and networks, organized crime intensified drug manufacture and distribution. By growing the business, the organizations started vying for territory and market access, which sparked drug-related violence and armed conflict throughout Mexico, frequently including severe kinds of brutality. (Walker, 2020)

“The Memorial to the Victims of Violence is a space that was created to reconcile political and social turmoil that rises from the ongoing context of violence in Mexico. It is composed of a series of steel plates, some weathered and some reflecting, placed on a water mirror. Light helps articulate these architectural elements as an allegory of that which is now absent in materiality but forever present in both our individual and collective memory.” (Architizer, Memorial to Victims of Violence in Mexico, 2022)

3.3.2.2 Locational Information

“The site is in Chapultepec, the most important park of Mexico City. This part of the forest belongs to the Federal Government and was under the custody of the Secretariat of National Defense for many decades, so, first, the memorial project means the recuperation of 15,000 square meters of public space.” (Architects, 2015)

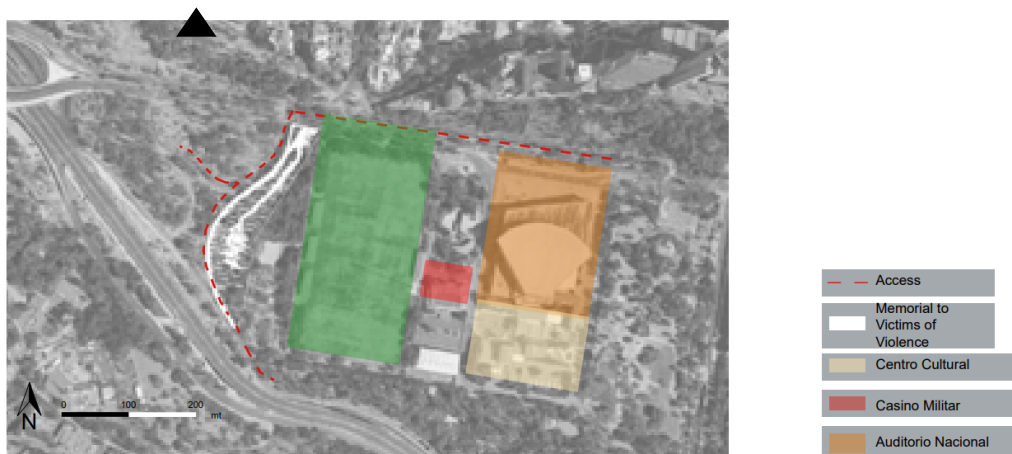


Figure 69: Map Location Memorial to the Victims of Violence, Chapultepec Forest, Mexico City, Adapted from: (Walker, 2020)

3.3.2.3 Place, Space and Character site Analysis



▲ Figure 71: Layout of Master site plan, Memorial to the Victims of Violence, Mexico, Adapted from: (Architizer, Memorial to Victims of Violence in Mexico, 2022)



Figure 70: Steel walls at Memorial to the Victim of Violence (ArchDaily, Memorial To Victims Of Violence/ Gaeta-Springall Arquitectos, 2019)



Figure 72: Pathways of Memorial to the Victim of Violence (Architizer, Memorial to Victims of Violence in Mexico, 2022)



Figure 73: Children near water pool in Memorial to the Victim of Violence (Architizer, Memorial to Victims of Violence in Mexico, 2022)

3.3.3 Design Context

3.3.3.1 Architectonic Dialogue

Gaeta-Springall Architects (Julio Gaeta and Luby Springall) were chosen to embrace memory and remembrance of the victims of the conflict in a single location. The architects themselves suggest: “Our project plays the double condition of public space and memorial’ addresses one of the most important issues of contemporary Mexican society — violence – through a story. The resolution is that everyone has access to this ‘landscape design story’ using different elements and interactions” (Land8, 2015)

“The violence is suggested in two dimensions: the void and the built.”

3.3.3.2 Design Process and language

Recognizing the importance of the site and the area's identity as a concrete green space was the main goal of Gaeta-Springall Architects. The team and architects intended to create and encourage interaction between the forest, guests, and strong forces from nature. Utilizing the chance provided by the green spaces, they proposed a unique narrative where the steel walls and plants would inspire guest conversation and setting. (Walker, 2020)

“The list of materials is reduced: steel and concrete, added to the natural elements of the forest. We are using the corten steel in three ways: natural, rusty, or stainless mirroring, each of them with different meanings. The rusty steel means the marks and scars that time makes in our lifetime. The stainless mirroring steel is used to reflect and multiply the living: persons, trees, and the water of the central space; and the natural steel is used as an unperturbed element that remind us of the main and essential values that societies must keep living in peace. Concrete is used for the lanes and the benches; for walking and reflection.” (ArchDaily, Memorial To Victims Of Violence/ Gaeta-Springall Arquitectos, 2019)

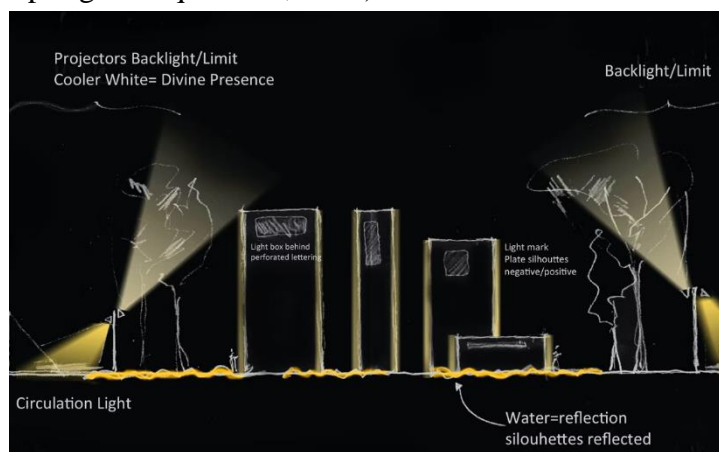


Figure 74: Conceptual illustration of Memorial to Victim of Violence (Architizer, Memorial to Victims of Violence in Mexico, 2022)

The Steel walls in continue to climb taller and stronger, producing the highest drama over the whole space. Our eyes move up and down because of the reflection of walls and trees in the river. As they ascend, they see the sky, the light, the sun and the hope.

3.3.4 Expression of Memory



Figure 75: Steel Wall with a quote that is related to Memory, Absence and Pain, at Memorial to Victims of Violence, Mexico (Walker, 2020)

It reads:

“Remembering is easy for anyone who has memory, forgetting is difficult for those who have a heart.”

Gabriel Garcia Marquez

3.3.4.1 Physical and sensory interpretations

From the dissertation of Yeimy Walker, following categories can be set out for understanding the memorial language of Memorial of Victim of Violence:

- **Impression (symbolic + abstract).** The steel plates are abstract elements whose permanence is intended to preserve memory through the landscape site. The fact that they are blank invites the public to offer their own expressions. The water invites the visitor to view the presence of the victims in the reflection of the pools. One can walk across the water over a transparent aluminum grille, implying a physical connection with the water.
- **The involvement of the victims (detached/ incorporated).** In the case of this memorial, the designers were not aware of the identities of the victims. Neither were survivors included in the design process (Minutillo, 2014). The project is a tribute to faceless victims.

- **Surrounding context (enclosed /open).** The memorial is in an open site in the middle of Mexico City. Surrounding site memorial (included + excluded). The site is in an inviting location. Mexico City has few green areas, so people are naturally drawn to the site.
- **Time (permanent/ temporary).** The memorial is intended to be a permanent response to the tragic events that have occurred in the country. The fact that people are allowed to write on the walls of the site means, however, that it is not considered to be a finished product.
- **Scale (large/small).** The memorial is located on a site of 15,000 m² .
- **Representation (absent/ present).** The victims are not named in the memorial, suggesting a focus on their absence. The Land8 website argues that “The suggestion of violence can be seen in the void created between the steel walls and trees that evokes the absence of the victims” (Land8: Landscape Architects Network, 2015). However, people are invited to write names, so the opportunity is there to mark the presence of victims.
- Phenomenological lenses
 - **Touch:** The tangible interaction between the visitors and the memorial occurs when people write or draw on the walls, adding names and revealing their more profound feelings. Also, the memorial offers the opportunity for blind people to read the quotes through the braille as a communication system.



Figure 77: Braille as Communication System to read the quotes on the walls (ArchDaily, Memorial To Victims Of Violence/ Gaeta-Springall Arquitectos, 2019)



Figure 76: Visitor writing on the metal wall (Land8, 2015)

- **Sight:** The connection of nature with the Memorial site allows reflection and contemplation.
- **Smell:** The Memorial offers strong possibilities for the visitor to sense a unique smell and fragrances from the trees.
- **Sound:** The wind blowing through the trees and the birds offer natural elements that combine with the rich range of sounds produced from the city.

3.3.4.2 Symbolic elements

A 1,200 m² reflected pool with an undefined form and open geometry may be seen in the memorial's main area, reminding visitors that the violence is still going on. The visitor is encouraged to ponder on the victims' absence by the reflection of the walls and trees in the river. The steel walls that make up the Memorial's central structure stand up as imposing, substantial components with a strong sense of materiality (ArchDaily, Memorial To Victims Of Violence/ Gaeta-Springall Arquitectos, 2019).

Elements	Symbolization/ Meaning
Metal walls	Permanence and Rigidity
Water	Cultural symbol of purity, birth, and healing, suggesting reflection, restoration, and peace
Trees and green spaces	Interplay of light, shadows, bird sounds and earthy smell-emotional and mystical awareness of one's own smell and human condition
Led lightings	Allusion to absent victims

Table 8: Elements and their meanings in Memorial to the Victim of Violence Mexico

3.3.5 Inferences and conclusion

- This case study can be taken as example, on how a memorial can connect more with its visitors. Accessibility of Memorial from multiple direction, the sense of visibility has made it an important urban element.
- Seating, water bodies, pathways and lights, Nature and trees play important role in making of a place that urges people to contemplate and reflect.
- The writings by the literary minds and the scribbles of a child, both has been given the same kind of place.



Case Study

Republic Memorial Park



Figure 78: Republic Memorial Park (Source: Ar. Abhishek M. Bajracharya)

3.4 REPUBLIC MEMORIAL PARK (GANANTANTRA SMARAK)

3.4.1 Introduction

Location: Kathmandu, Nepal

Architect: Abhishek Mananda Bajracharya and Shekhar Dangol (John Sanday and Associates)

Date of construction: 2013-2019

Area: 17805.8 m² (35 Ropanis)

Memorial type: Memorial Park

Construction Materials: Steel, bricks, and concrete

Based in the capital of Kathmandu, lies Republic Memorial Park, one as the first attempt to signal the acceptance of a new Nepali national identity and the start of a new phase in the country's endeavor to distance itself from its monarchical past. (Whitmarsh, 2019)

The organization of a nationwide design competition by the Department of Urban Development and Building Construction (DUDBC) took place in 2008, for the Ganatantra Smarak (Republic memorial) with a location in a park in front of the Narayanhiti Palace Museum. The design by John Sanday Associates was chosen as the competition's winner out of the 14 others. The design's goals are to honor the unsung heroes of the country who placed the good of the country above their own life and to offer a space for friends and family to grieve the death of a loved one. (Bajracharya, n.d.)



Figure 79: Republic Memorial Park, Kathmandu (Photo: Rohit Shaky; Site Visit)

3.4.2 Memorial context

3.4.2.1 Meaning of the place

Event of overthrowing of last Hindu kingdom of the world, end of decade long civil war and Jana Andolan and other internal conflicts of the country revolved around the vicinity of the Palace area. After the conversion of Ex-Royal palace, at Narayanhiti into the museum, an attempt was made to create national monument to mark the victory over monarchical power and portray national unity keeping people at its heart. (Whitmarsh, 2019)

According to Bryony Whitmarsh, “Republic Memorial”, also called “Ganatantra Smarak” had to check three aspects:

- First, it would be difficult to portray the new republican Nepal as timeless since historical processes of State creation and nation-building focused on the Hindu kingship paradigm exemplified by the Shah monarchy.
- Second, was to address the concept of inclusive “New Nepal”, that is to bring all castes and ethnic groups and justify them.
- Finally, to represent the end to the civil war, Janayudhha , as a “monument to heroism and memorial to tragic loss”

3.4.2.2 Locational information

The selection of site for the memorial was changed four times between 2009 and 2012 under 4 different prime ministers of the country. First site being right in front of the Palace (2009) due to archaeological importance it had to be shifted, second within Ratna Park, which has immense value as a public space at the city center. Then third being Tinkune (Triangle plot), outskirts of the city, which had owner ship issues and finally, the site of 35 ropani was chosen at easter side of the palace compound which was 6m below road level. (Bajracharya, n.d.)

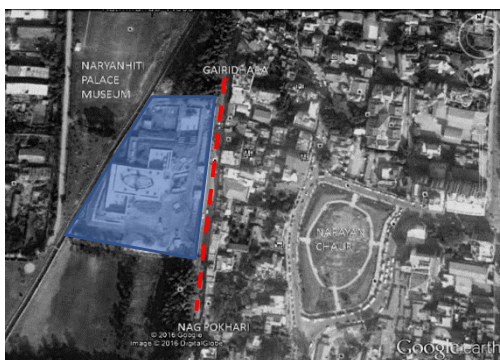


Figure 80: Map Location of Ganatantra Smarak, Kathmandu, Nepal (Source: Google maps)

3.4.2.3 Place, space, and character site Analysis

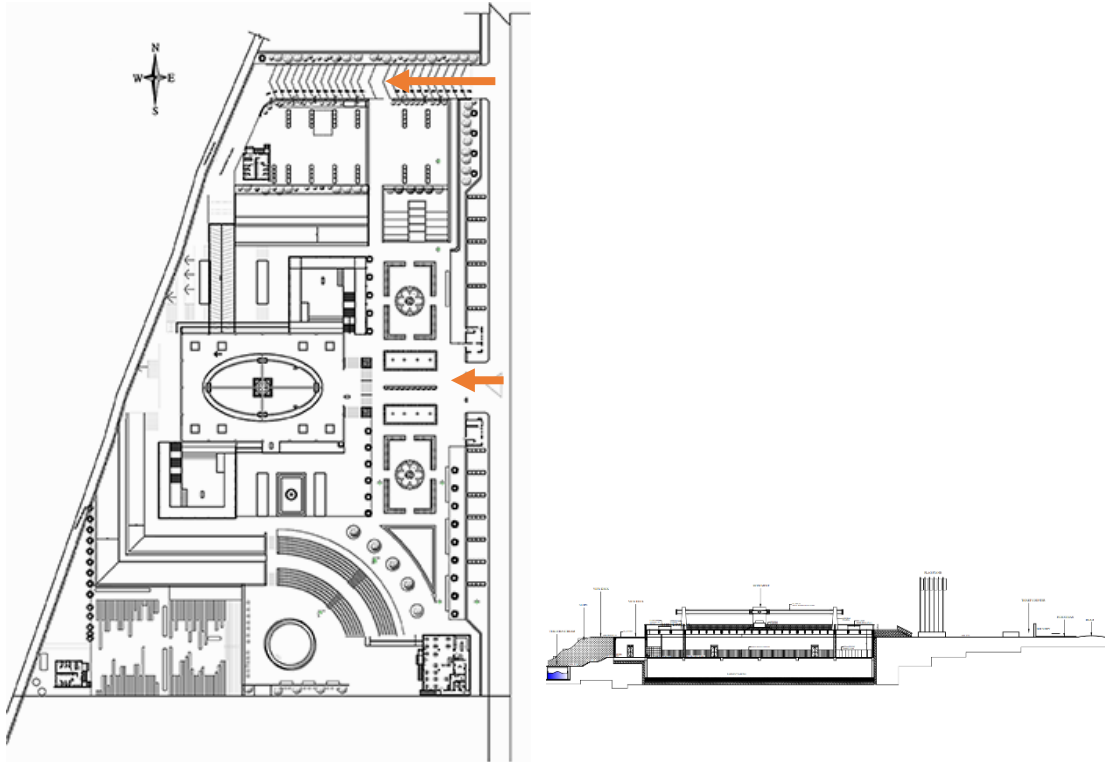


Figure 81: Layout of Master site plan, Republic Memorial, Nepal, (Source: Ar. Abhishek M. Bajracharya)



Figure 85: Landscape with Open Air Theatre, (Source: Ar. Abhishek M. Bajracharya)



Figure 84: Ramp to the Gallery underneath the plaza, (Source: Ar. Abhishek M. Bajracharya)



Figure 82: Raised Stairs to Ascend the plaza, (Source: Site Study)



Figure 83: Exhibition space at lower level, (Source: Ar. Abhishek M. Bajracharya)

3.4.3 Design context

3.4.3.1 Architectonic Dialogue

Although the change in the site selections and various interventions due to political and other reasons the idea that remained was the idea to illuminate the map of Nepal on the memorial floor by reflecting the sun's rays off an elliptical truss, which then hit a circular band and illuminate the map. This is to demonstrate that their efforts were not in vain and instead helped the nation progress in a constructive and promising path, which is yet not fully realized by us. The original landscaping by Abhishek Bajracharya and Shekhar Dongol contained modest, abstract memorial gardens intended to provide a place "for personal meditation and private reckoning," which contrasts with the large-scale open gardens with their incorporation of social areas which was designed by Vastushilpa Architects. According to Bajracharya, the design modifications made the Smarak a component of a public park.

3.4.3.2 Design Process and language

Architects designed a memorial plaza with four stambhas connected by an elliptical metal truss wrapped in copper sheet with lights. The stambhas are dedicated to those who sacrificed their lives, were lost, abducted, or handicapped during the revolution. The memorial provides a peaceful environment for reflection and is surrounded by grassy park and water features. The design incorporates water, sky, and light components to create a serene atmosphere. It serves as a reminder of the suffering endured by those who fought for their country. (Bajracharya, n.d.).

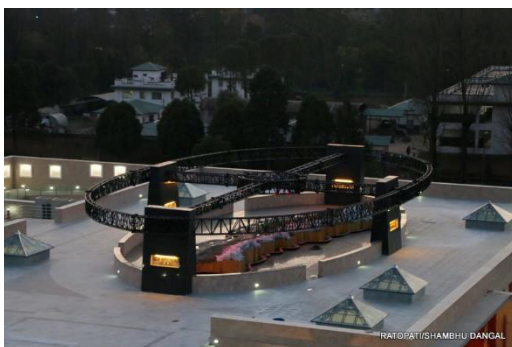


Figure 87: Four Stambhas each dedicated to victims (Source: Abhishek M. Bajracharya)

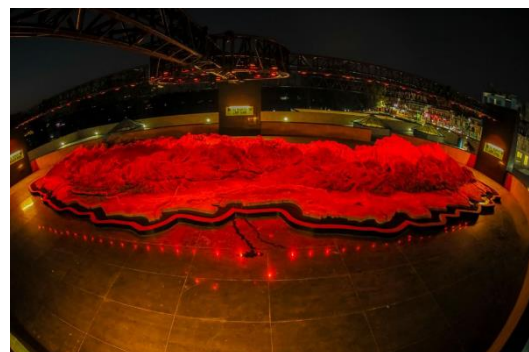


Figure 86: Three-Dimensional map of Nepal, (Source: Abhishek M. Bairacharva)

3.4.4 Expression of memory

OBSERVATION

3.4.4.1 Physical and sensory interpretation



- Impression (Symbolic + abstract): Stambhas designated to different kinds of victims. The Map of Nepal placed at the center of the Memorial symbolizes the New Nepal, made by the sacrifices of known and unknown heroes.
 
- The involvement of the victims (Detached/ incorporated): There has been no identification of victims, or any survivor have no participation in creation of this memorial.
 
- Surrounding context (enclosed/open): The memorial lies within Narayanhiti Palace compound, which is enclosed with railed walls.
- Time (permanent/ temporary): This project can be considered a permanent memorial, as functions like auditorium of capacity 300 and a gallery space.
- Scale (large/small): The memorial is located on a site of 17,805.8 m²
- Representation (absent/present): Since there has been no names or identity of the victims, it seems to have created uncertainty to include all kinds of victims.

Figure 88: Map of Nepal (Source: Site Visit)

Figure 89: one of the representative Stambhas (Source: Site study)

- Phenomenological lenses
 - Touch: The tactile paving seems to be provided, some having abrupt ends.
 - Sight: Narayanhiti palace can be seen as the backdrop, open training fields at the north, commercial buildings in the front (East), and hills a far. The memorial seems to lack more of natural elements like trees and other vegetation. The concrete pavement seems to have dominated the landscape, creating hostile environment during summers. There is no proper seating and furniture in the landscape for the visitors during extreme weather conditions.
 - Smell: The smell of grass and earth can be sensed at some portions, but most spaces seem to have no identifiable smell at all.
 - Sound: It has been a pleasurable park at the heart of Kathmandu obstructing vehicular sound at farthest point, but sound barrier needs to be created. The sound of water bodies breaks the monotony of silence at northern part of the memorial.

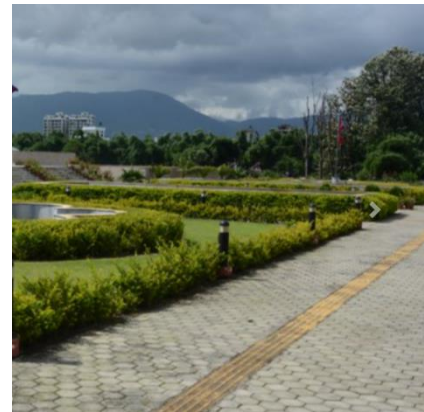


Figure 90: Pathway with tactile pavements and Concrete blocks (Source: Site study)



Figure 91: Water elements of Memorial (Source: Site Visit)



3.4.4.2 Symbolic elements

The stone carved in stone has been placed that represent the constitution of Nepal. The park lies adjacent to Narayanhiti Palace—a symbolic location, given that the massacre of the Royal Family in 2001 at the palace paved the way for the collapse of the monarchy and the establishment of the republic.

3.4.5 Criticism

“The lack of public involvement and awareness and media coverage has led this project to be unknown and alienated.”, says Mr. Ramesh Thapa from Museum management. The number of visitors in a normal day is 20 – 30 only. He adds, no official programs have been organized apart from the day it was inaugurated in Republic Day, by President Vidhya Devi Bhandari.

The Kathmandu Post reports that, “Sushant Bhattarai, 24, from Gairidhara, passes the memorial park every day on his way to work in Thamel but he is unaware of what it signifies. “It has been there for years now,” said Bhattarai. “But I’m not aware of its purpose.” The park, he said, never shown any signs of humans whenever he passes.” (Luitel, 2022)

When visitors in the memorial were interviewed, she said that she had come from Chitwan to Kathmandu for medical checkup and she came to see the park after she got bored in hospital. Another visitor came with her friend, who lived nearby, and they too wanted to pass time in the park.

Balaram Kunwar, who works at ticket counter at Smarak, shared his experience of meeting a visitor who was an Ex- Maoist worker, who was disappointed seeing such monument built, but their lives pulled apart.

Architect Devendra Nath Gongol, claims that "the design lacks the feeling that calls for unification to construct new Nepal." This endeavor is perceived as being more centered on advancing political agendas, which kills the spirit of the country's republic. (Whitmarsh, 2019)

The confusion and lack of awareness has converted this memorial into a leisure park, for example, it has been used as a set filming a songs and movies, which questions the very purpose of the memorial. Thapa says, the permissions are given by higher authority since this contribute to economy for the memorial



Figure 92: Nepali song "Visit Visama" being shot at the Memorial (MahaSanchar, 2019)

The memorial plaza seems to have various construction flaws. The project, which was handled by DUDBC previously now comes under, Narayanhiti Palace Museum. Mrs. Jyoti Rawal Kc who is a undersecretary of Museum Management, shows her dissatisfaction in the constant ceiling leakages in the basement and the basement driveway. Also, Er. Anup Pokharel, who supervises the maintenance of Museum, points out the poor workmanship of construction. And the delay has been caused due to reasons like Covid lockdown, and land demarcation issues.

However, Thapa is hopeful that the situation will change once the gallery at the basement will be open to the visitors, which will contain the photographic display featuring Nepal's democratic movements during different periods of history, and sculpture of martyrs.

3.4.6 Inferences and conclusion

Suman Adhikari, formal president of Conflict Victims Common Platform (CVCP) Nepal, suggest that these memorials should not only provide place to mark any event but should give back to the society. If people can use these places for other purpose, then the value is added. According to him, nation and society should accept the wrongs and learn from such mistakes so that the civil war like events don't occur in the future where many families lost their loved ones.

Ganatantra Smarak, marks the event of Nepal becoming republic, but it has not included the feelings of conflict. Madan Paudel, who is a director of Informal Sector Service Centre, believes that the need of creation of memorial is in the place where it is easily accessible to public, but Ganatantra Smarak has been in shadows, which should not be the case.

- The republic memorial is an attempt to create a place of commemoration in the form of contemporary design in Nepali context.
- It is designed to serve the purpose of memorial as well as a park for the users for other purpose, that is necessity of time.

3.5 NEPALESE ARMY, MILITARY MUSEUM

3.5.1 Introduction

Location: Chhauni,
Swayambhu

Architect: Not Known

Date of Construction: 2005,
December

Area: About 14000 M²

Memorial type: War
memorial museum



Figure 93: Military Museum, Chhauni, Kathmandu (Source: Site Study)

Construction Material: brick façade, Tiki jhya, Jhingati tiles

Selection Criteria:

- To know the various sections provided in Museum related to war, events, Nepalese Army.
- To know spatial arrangement and circulation in gallery

The military museum is in Chhauni, directly across from the National Museum. Fans of military history are more inclined to visit the military museum. The Nepalese army constructed the museum building in December 2000, and it was officially opened in July 2005. There are numerous historical collections housed within the museum. The museum houses Nepal's first Rolls-Royce, which was given to the country by Queen Elizabeth II, as well as a Skyvan transport plane. Inside the museum, there are infinite murals of carnage and devastation depicting Nepali conflicts throughout the years. The museum also has a diverse collection of antiques, history of the Nepali army, and objects that show the sacrifice, dedication, and loyalty of the army to the nation. When the museum first opened, it was free to all visitors; however, 8 months later, the administration began collecting entry fees for the museum. The museum also serves as a research facility for students. (Singh, 2019)

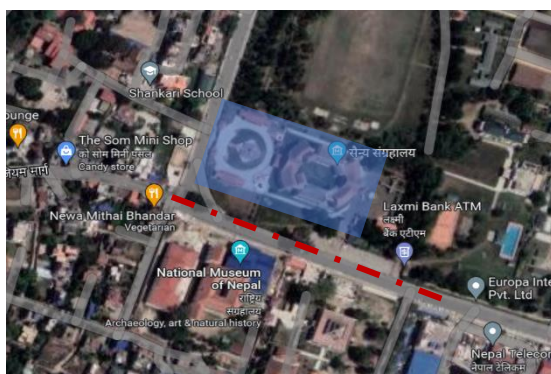


Figure 94: Map Location of Military Museum, Chhauni, Kathmandu (Source: google maps)

3.5.2 Spatial arrangement in museum

The Museum has following facilities:

1. Ticket counter
2. Security post
3. Staff parking
4. Public restroom
5. Visitors' Parking
6. Museum Gallery
7. Open area
8. Fountain
9. Outdoor display
10. Garden area
11. Bir Smarak

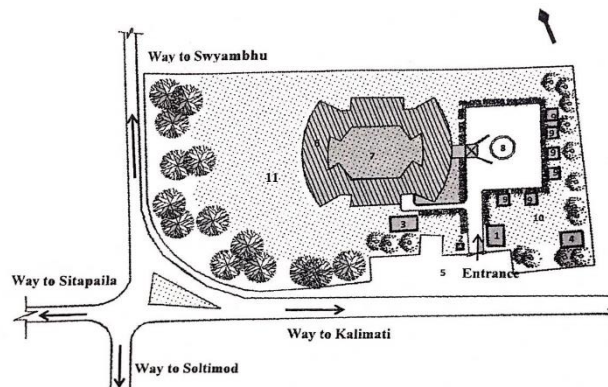


Figure 95: Master Plan of Museum complex (Source: (Sunar, 2018))

3.5.2.1 Museum Gallery

The museum is divided into two sections that will be built in two stages. The first segment is made up of historical weaponry and artefacts. The second is a growing collection of historical and authentic papers. These documents are useful for a variety of research purposes.



Figure 96: Entry Porch (Source: Site Study)

- a. zEntry section
- b. Supreme commanders in chief section
- c. War memorial center
- d. Chief army staff and field marshal section
- e. War veteran section
- f. Military uniform section
- g. Weaponry section
- h. Extra- curricular activity section
- i. Outdoor section



Figure 97: Skyvan SH 1894 (Source: Site Study)



Figure 98: Ferret Scoutcar mark-2
(Source: Site Study)



Figure 99: Weapon build machine (Source Site study)

3.5.2.2 *Circulation in gallery*

The entrance to the museum features a porch with a pyramid construction roof that welcomes tourists. The entry leads visitors to the lobby area, which includes a reception space. The first gallery part is dedicated to the former supreme commander in chief's section, which includes a genealogical chart of Nepal's Shah dynasty and a brief narrative of the founding of several army units. The second half is a battle memorial with big paintings depicting the Anglo-Nepal conflict and Nepal's unification. Other portions cover the evolution of the uniform and information about it in the monitor, as well as various weaponry from ancient times.



Figure 100: Various Exhibition in the gallery (Source: Site Study)

The circulation space appears to be adequate, with a width of around 7 feet. Even though a set path is designated, two gallery walls appear to be overlooked, as shown in the plan.

- 1. Entry porch
- 2. Lobby
- 3. Reception area
- 4. Gallery
- 5. Restroom
- 6. Foyer
- 7. Open area

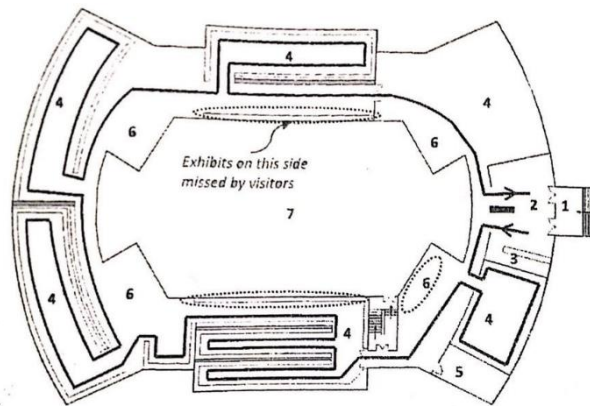


Figure 101: Ground floor plan (Source: (Sunar, 2018))

3.5.3 Bir Smarak

In the west of the museum, a memorial park has been built to commemorate and honor Army who became martyrs during Civil war between 2058 B.S – 2063 B.S. it has been designed in the form of park.

Elements used in Bir Smarak:

- Main central monument with symbol of light
- Sculpture in star shape with list of fallen soldiers with details of their postings and years
- Statue representing army
- Praying space of 4 different religions; Hinduism, Islam, Christianity, Buddhism
- Pathways and pedestals



Figure 102: Bir Smarak, Chhauni Nepal, (Source: Site study)



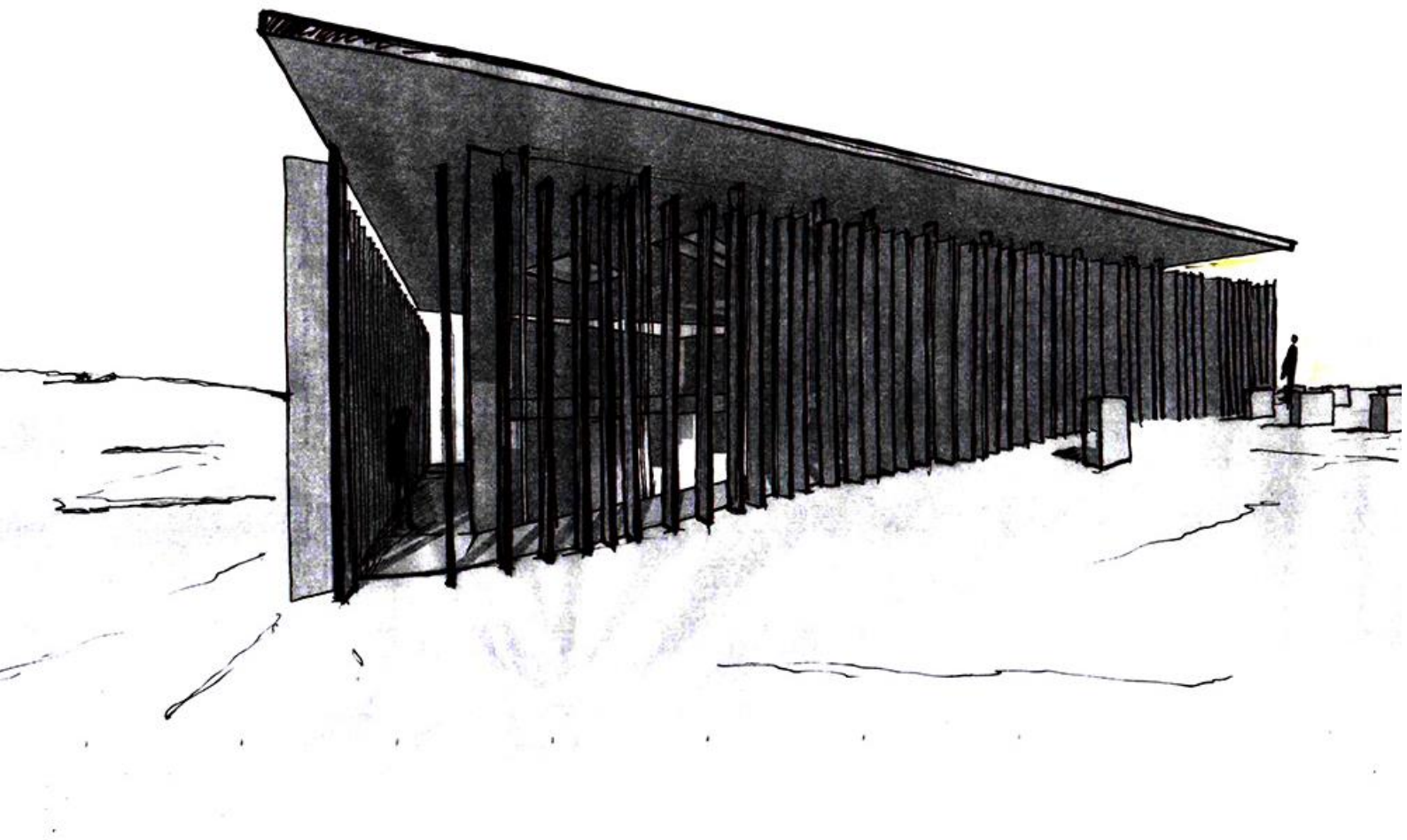
Figure 104: Central Monument (Source: Site study)



Figure 103: Sculpture in star shape with list of fallen soldiers with details of their postings and years (Source: Site study)

3.5.4 Inferences

- The components of this museum aid in obtaining information about the spaces of the war memorial museum, as well as the historical sequence.
- The gallery's one-way circulation appears basic to control visitor traffic and avoid misunderstanding.
- Use of materials like wood in the indoor gallery, creates warm mood.
- Expression of architecture is inspired from Newari architecture.
- For a better experience, the courtyard may have been used.



Case Study

Hegnhuset Memorial and Learning center

3.6 HEGNHUSET MEMORIAL AND LEARNING CENTER

3.6.1 Introduction

Location: Utoya, Norway

Architect: Blakstad Haffner Arkitekter

Date of Construction: 2016

Area: 767 m²

Memorial Type: Memorial and a learning space

Construction materials: Timber, glass

Utoya, a political island in Norway, is a 50-year-old think tank for youthful political activists. That is why terrorist attacked this location, believing it was a tool for developing new communist ideas for the future. In July 2011, a far-right extremist killed and shot 69 young campers on the island. It was a shocking and dark act that shocked the entire nation. Communities of national mourning and work with individuals. In the future, the camp will be re-established to welcome more people to participate while also honoring the lives lost. Introducing new facilities. Parents can be engaged by visiting the site and participating in the creation of this initiative. (Awards, 2018)



Figure 105: Hegnhuset Memorial and Learning Center, (Source:Archdaily)

3.6.2 Memorial context

3.6.2.1 Meaning of the place

Hegnhuset, when translated means, “safeguard house”, is a learning, communication, and memorial center for the July 22 massacre on Utoya. Architect Erlend Blakstad Haffner has enshrined the cafe building where 13 people tragically lost their lives within a new learning Centre .The structure tells a story of both survival and death: we kept the areas of the structure that were immediately harmed while also preserving the restrooms that served as safe hiding places for 19 young children for two hours. (ArchDaily, Hegnhuset Memorial and Learning Center/Blakstad Haffner Arkitekter, 2017)

3.6.2.2 Locational information

Located in Tyrifjorden lake in Hole municipality, Norway, of total area 10.6 hectares. It Is owned by Workers’ Youth League (AUF). Surrounded by forest landscape, Memorial is in the center of island. Used as political youth camp during summer.

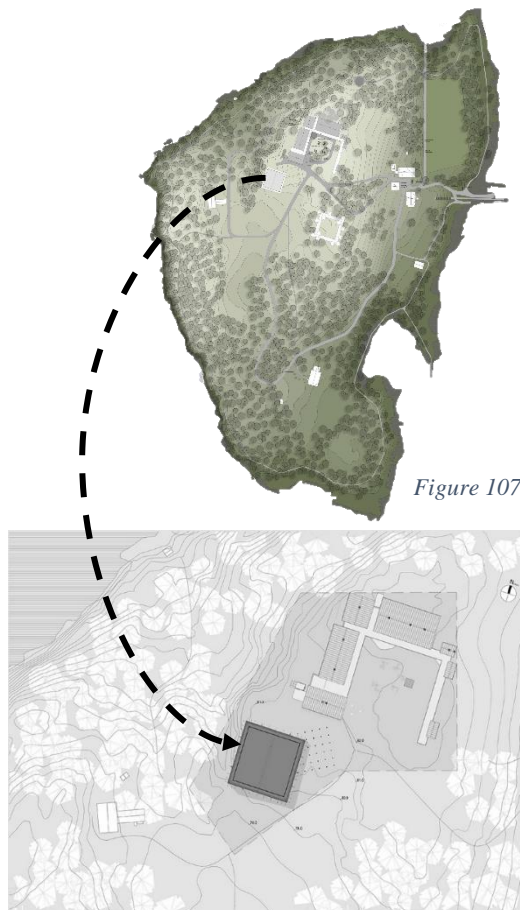


Figure 107: Utoya Island, (Source: Archdaily)

Figure 107: Site Plan, Hegnhuset Memorial and Learning Center (Source :<https://miesarch.com/work/3475>)

3.6.3 Design Context
 a. The Memorial

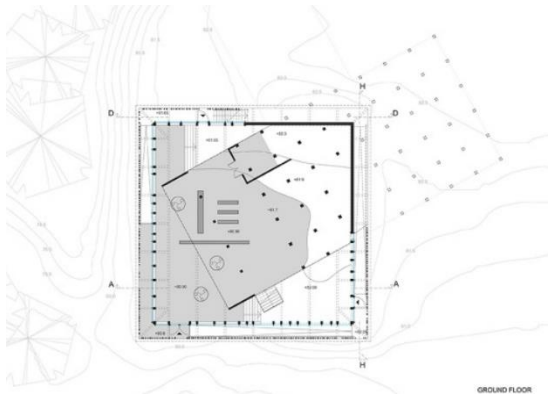


Figure 111: Ground Floor Plan, (Source: Miesarch)

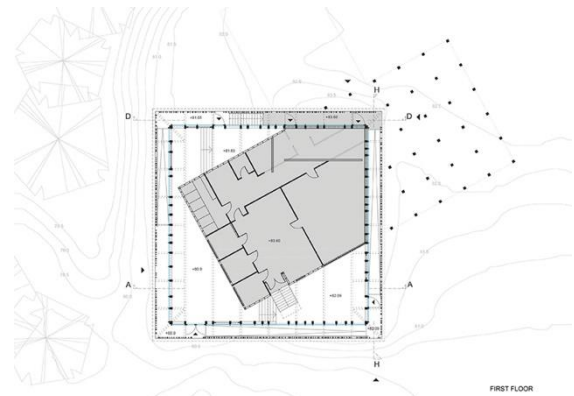


Figure 110: First Floor plan (Source:Miesarch)

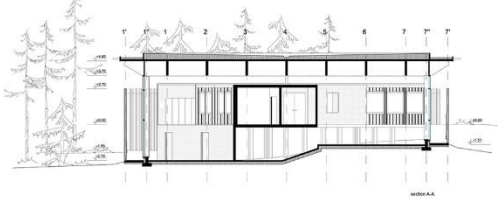


Figure 108: Section at A-A, (Source: Miesarch)

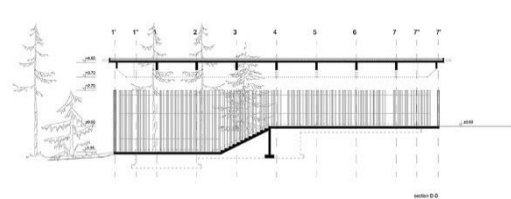


Figure 109: Section at D-D, (Source:miesarch)

The brutal incident is accentuated. The fenced house is not polished and consists of coarse untreated natural materials in wood and concrete. The ceiling height is 8 meters at the highest.

The new Hegnhuset building has a double-layered facade that creates a covered cloister around its circumference. The outer layer is made up of 495 wooden slats, one for each survivor on the island, while the glazed inside layer is framed by 69 columns, one for each fatality. (Frearson, 2016)

"I realized the survivors were bearing a huge load," the architect explained."That's why we built this cloister." You alternate between the living and the dead. It represents those who survived that day and live with those memories every day. (Frearson, 2016)



Figure 112: Gathering Space within old and new structure, (Source: Archdaily)

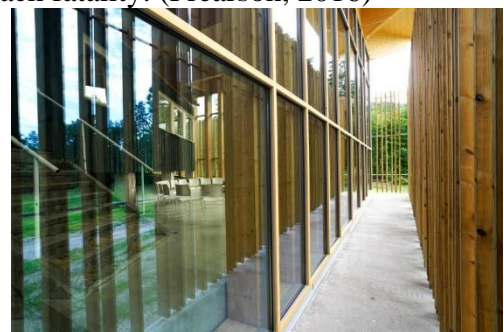


Figure 113: Cloister, (Source: Archdaily)

b. Other Facilities

Blakstad Haffner's involvement was entirely focused on the island's buildings, allowing the facility to reopen. In addition to the memorial structure, he has created a library, a conference room, and meeting rooms. These cabin-style structures include steeply pitched roofs and wooden walls, as well as vast expanses of glazing that allow you to see the surrounding forest from anywhere within. (Frearson, 2016)



Figure 114: Cabins with supporting services, (Source: Archdaily)

These structures, like the learning center, are made of glue-laminated pine. However, whereas the wood for that structure was boiled in linseed oil to create a "warm heart," the wood for these structures has a deeper tone formed by an iron-oxide stain. "It was always about building someplace that didn't feel menacing, somewhere open and light," the architect explained.



Figure 115: Library, (Source:Archdaily)



Figure 116: Conference hall, (Source:Archdaily)



3.6.4 Expression of Memory



Figure 118: Old Staircase leading Cafe above, (Source: Archdaily)

The old staircase between the old cafe building and the new structure creates a visual link between the memories of July 22 and the learning zone around the house. The space now functions as both a memorial and an education center.

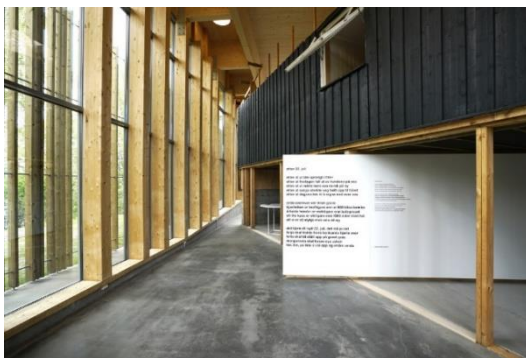


Figure 117: Underside of the cafeteria, (Photo: Espen Gronli)

The timber cabin's underside has been hollowed out, and the sloping landscape has been coarsely filled in concrete. Blakstad Haffner described the process as "undressing the building". "We dug out this small storage space, but kept it as rough as we could," he explained. "I didn't want the building to be too polished because it carries such a heavy story. I didn't want it to be too designed." (Frearson, 2016)

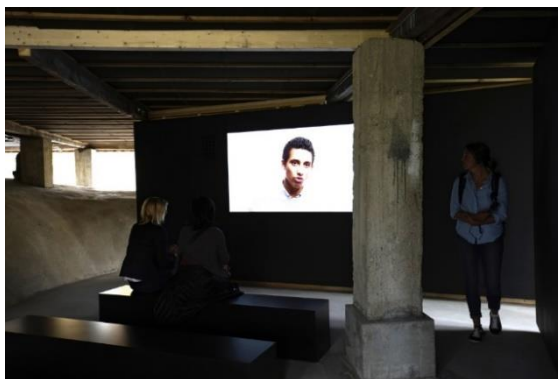


Figure 120: Videos of Survivors sharing their stories (Photo: Espen Gronli)



Figure 119: Text messages, photographs on display, (Photo: Espen Gronli)

3.6.5 Inferences

- Distinction between the old and new material, itself carries the story, rough materials thus to be used instead of polished one.
- Symbolic representation of walking in between life and death through the gaps of new and old structure.

3.7 Findings and result of case studies

Table 9: Analysis of case studies

Attributes	Yad Vashem Museum	Memorial to Victims of Violence	Ganatantra Smarak	Bir Smarak	Heghuset Memorial and Learning	Inferences
Location	Capital city, Jerusalem in Memorial complex	Chapultepec, Mexico Near Public places	Capital city Kathmandu, Narayanhiti Museum	Capital city Kathmandu, Military Museum	Utoya, at the place where attack took place	Collective Memory on National Level Accessibility
Role	Memorial to Holocaust victims	Memorial to drug war victims	To commemorate Republic Nepal	To the fallen army in civil war	To the victims of Terrorist attack	Expression of Past Incidents
Site and Scale	4200 sq.m Semi desert hill	15000 sq.m Forest Setting	17805 sq.m, Urban setting	In premises of Museum	767 sq.m, center of island	Human Scale Peaceful surrounding
Typology	History Museum	Public Space landscape	Memorial Park	War Memorial Landscape	Memorial and learning space	Education Memory Public Use
Involvement	Photos, belongings, names, and Testimonies	No identity	Few names can be seen in the galleries	List of soldiers with details	Videos of victims and their texts	Involvement for association, concern
Design Component	Galleries on thematic concept	Walls Reflection pool	Plaza, park, conference hall, gallery	Monument, Landscape, Prayer halls for each religion	Gathering space, library, Meeting halls	For public Interaction Places for individual contemplation

Attributes		Yad Vashem Museum	Memorial to Victims of Violence	Ganatantra Smarak	Bir Smarak	Hegnhuset Memorial and Learning Center	Inferences
Physical Elements	Form	Prism and cones	Rectangles of Varying Height	Elliptical ring, Phallic stambhas	Star shape, Centralized Monument	Wooden Post envelope, rectangles	Symbolic Still water for Reflection, flowing water dynamism Natural setting Human scale
	Landform	Natural Hill	Middle of the Forest	Artificial Landscaping, Underground Structure	Flat ground, artificial landscape	Island with trees and vegetation around	
	Water Feature	None	Still Pool	Fountains and Cascades	Still water around the central monument	None	
	Plants	Surrounded by dense Forest	Natural trees	Hedges and shrubs, trees only visible at the backdrop	Lawn grass around the monument only	Surrounded by trees	
Sensory Elements	Touch (material)	Rough, cold concrete, diff. flooring	Writings on Steel walls, braille boards	Smooth Granite, concrete, steel	Exposed brick, dark granite	Coarse untreated wood, concrete	Silence heal Views limiting in enclosure, rough and dark materials create uncomfortable sense
	Sight (Light and shadow, color)	Narrow walls, skylight, grey	Nature, rustic	Openness, brass and black	Museum, reddish color	Double layers, wooden	
	sound	Hollowness create depth	Birds and Wind	Vehicles	Silences	Silences and nature	
	smell	Estrangement	Trees fragrance, earth	Not identifiable	Not identifiable	Old structure	

Chapter-4:

4 PROGRAM FORMULATION

4.1 INTENT OF THE MEMORIAL

From the literature review and observation in the case studies, the aim with which a memorial, is to commemorate the loss of victims due to war and conflict. The sole message that all of them carry is to condemn the wrongs done in the past and create hope for the future generations to peace. Some purposes served by the War memorial are:

- Honor the suffered lives during the insurgency
- Contemplate the war and its effect
- Aware the generations about the political scenarios of the country dedicated to the victims of war and conflict

4.2 SPACE REQUIREMENT

To fulfill the purposes of the memorial, the spatial requirements are categorized into four parts:

- a. Memorial Facilities
- b. Educational facilities
- c. Recreational and supporting facilities

4.2.1 Memorial facilities

The core of the memorial, where the visitors recollect their memories associated with that time frame, they can recall their loved ones, their respected elders and feel the grief for all their sufferings and for all the good deeds. They are the area for contemplation. Some of the spaces for memorial inspired from the case studies are:

4.2.1.1 *Monuments and Memorial walls*

With the names engraved on the surfaces till eternity and quotes, inscriptions, and personal writings from the books with time record

4.2.1.2 *Memorial museum*

A narrative journey to live through the struggles and void experienced during the event. Through pure architecture and light and shadows and galleries with audio-visual displays.

4.2.1.3 *Pathways and alleys*

With the stories through symbols and texts informing and reminding the visitors about the events. Experience the identities of the victims, perpetrators, and rescuers.

4.2.1.4 *Open air theatres and squares*

For the symbolic public hearing to the perpetrators and performing drama depicting lives during Janayudhha

4.2.2 **Educational facilities**

To educate and provide insights of the war and events to the new generation through documentation events. It provides a learning space for the public, students, researchers, and other scholars. Some places are:

4.2.2.1 *Library*

It consists of archival records of audio- visual archives of the clips shot during the war by various journalists, books, novels and poems, biographies, Pictorial books, research papers, and various other documents.

4.2.3 **Recreational and supporting facilities**

4.2.3.1 *Multipurpose hall*

This facility will provide place to conduct programs, seminars and meetings and other workshops related to victims relative gathering.

4.2.3.2 *Administration*

It consists of the spaces needed for operation of the memorial. It includes reception, information center, lounge, administration, Director's room, registrar's room, curators' room, meeting hall, pantry, store, and restrooms.

4.2.3.3 *Cafeteria and teashops*

It is provided for the memorial visitors, staffs, other library users. It includes spaces like dining space, kitchen, store, and restroom.

4.2.3.4 *Souvenir shops*

It consists of various things that are meant to be a reminder of a place for the tourists like books, novels, photographs, art and paintings etc.

4.2.3.5 *Other Services*

The service facility includes parking, loading platform, monitor room, AC plant room, Mechanical and generator room, water collection facility, restrooms etc that help in proper functioning of the museum.

4.3 MUSEUM DESIGN GUIDELINES

It is critical in every museum to be concerned with various areas of the museum to improve the quality of the space and leave an unforgettable impression on visitors. Some of the most crucial factors to consider for museum quality are as follows:

- i. Space organization
- ii. Entrance and Access
- iii. Circulation
- iv. Display arrangement
- v. Lighting

4.3.1 Space organization

The basic function and space requirements for a museum are as follows: (De Chiara & Callender, 1983)

S.NO.	ACTIVITY	SPACES REQUIRED
1.	Curatorial functions a) Collections, preservation, identification, documentation, study, restoration and b) Storage of collections	c) Office-workrooms, Workshops d) Reserve collection room
2.	Display Function Thematic and changing displays of selected objects and documents in a narrative way	Display galleries
3.	Display Preparation Functions The preparation of exhibits	Workshop, office-workroom
4.	Educational and Public Functions a) Lectures, tours, social meetings, films b) Reception, information, sales, supervision of display c) Public requirements	d) Lecture rooms, chair storage, kitchenette e) Lobby, sales and information counter f) Cloak rooms, washrooms
5.	Other Services a) Mechanical b) Janitorial	c) HVAC plant d) Janitor closet

A museum's space requirements can be classified into two categories:

1. Public Areas: All areas where the public is admitted are public areas. This begins at the entrance; the entrance hall should be large enough to accommodate large crowds and should lead directly to the auditorium, library, and committee rooms through corridors, rather than through exhibition galleries.

2. Private/Service Areas: The service places are the areas behind the scenes that are essential for the effective operation of a museum. Spaces such as a preservation laboratory, administrative and technical staff offices, workshops, stores, and working spaces should account for at least 40% of the overall area. All these spaces must be carefully planned and interconnected, as well as properly maintained and kept usable. Too many entrances should be avoided for security reasons, but a separate entrance to the service areas should be provided, accessible from the electrical and air-conditioning

plant and connected to the stores, so that objects can be taken directly to the store without interfering with the public areas.

a) **Freight circulation:** Freight circulation refers to regions where only the staff has access for service purposes. Lab units, Reserve, Collection store, and so forth.

b) **Staff circulation:** Staff circulation refers to regions where only the staff has access for official purposes. for example. Administration, Technical rooms,

3. **Other places:** In addition to public and private spaces, there must be accommodations for other areas such as restrooms, separate cloak rooms and water rooms for public and employees, and adequate corridors and staircases for circulation.

a) Toilets and Cloak Rooms: Separate facilities for the public and employees should be provided, which should be adequately furnished and well maintained. The entrance hall should provide direct access to the public facilities. (Chiara & Callender, 1983)

4.3.2 Entrance

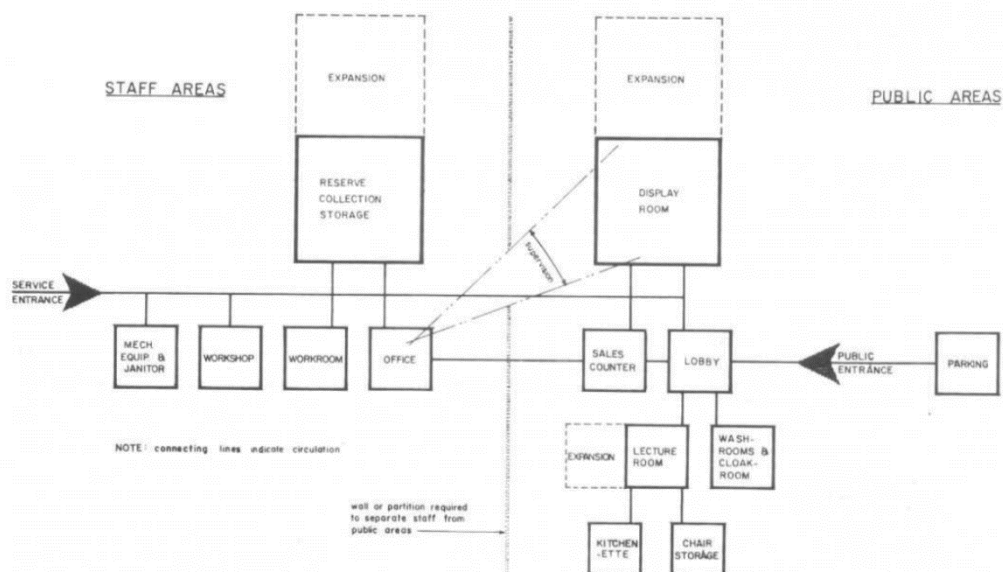


Figure 121: Space organization, (De Chiara & Callender, 1983)

The entrance to a museum is critical as a place of sociological interaction. The entrance is a vital transition zone for psychologically preparing the visitor for the next space. In this context, the three most important stages are:

- Enhancing the museum's surroundings by providing appropriate additional amenities such as shopping malls, recreational facilities, and places for people to meet;
- Utilizing possible amenities on behalf of the museum by using techniques to gain wide publicity for, and interest in, the museum's services (action programs aimed at the public).
- Psychological preparation for harmonious space, as in classical planning, by eliminating distance and gradually adjusting the arrangement for a series of visual surprises. (Lehmbruck, 1974)

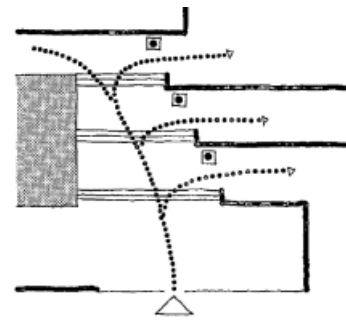


Figure 122: Series of attractive vistas in the entrance, (Lehmbruck, 1974)

4.3.3 Access

Both centralized and decentralized access systems share the same mobility strategy. However, access can be distributed along key traffic flow routes and within specific room groups. The architectural space must be arranged appropriately with focal points, perspectives, and mood shifts. Material selection and proportions of configurations can communicate subliminal messages and connect with the museum's collection. The main difference between the two access systems is having one entry or multiple directions to access the collection. Materials must be checked before anyone enters the museum. (Lehmbruck, 1974)

a) Centralized Access System: The primary benefits of such systems are the control and surveillance capabilities they give. Only in such systems can a visitor be guided in a methodical manner along a predetermined path. Certain disadvantages originate from the fact that the visitor has always been exposed to a wide range of previous perceptions before arriving at a specific object. (Lehmbruck, 1974)

b) Decentralized Access System: It allows visitors to move freely without following a specific route as there are multiple entrances and exits. It is similar to walking in a pedestrian area in a town center, and visitors may need to make additional visits to see everything. However, organizational challenges have limited the socio-psychological benefits of this strategy. (Lehmbruck, 1974)

4.3.4 Circulation

Circulation is essential in a museum not just for ease of access, but also to increase the quality of the space and presentation. It may be seen in two places: first, in the circulation and interaction of spaces throughout the museum, including public and private areas, and second, in the circulation of visitors in public areas, particularly the gallery. (Lehmbruck, 1974)

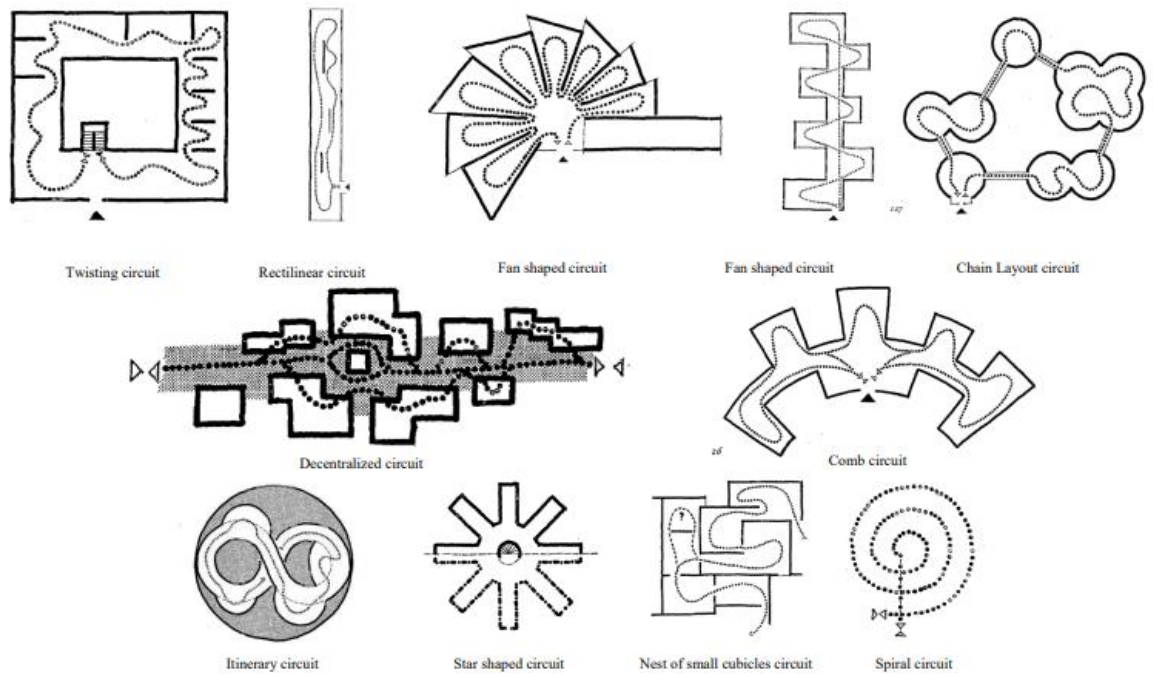


Figure 123: Circulation Pattern, (Lehmbruck, 1974)

General considerations:

- To avoid confusion, the entry and lobby should orient visitors to the galleries.
- To sustain a continual flow of visitors, the circulation pattern should be continuous, moving from one gallery to the next.
- Exhibits on one side of the gallery should prevent dead ends. This prevents people from passing by the same place again and keeps the space from becoming crowded.
- Movement should be such that it does not force one to pass an object that has previously been viewed
- Enough space for tourists to move at their own pace. (Lehmbruck, 1974)

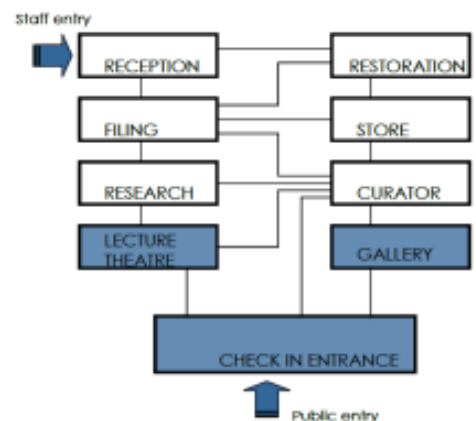
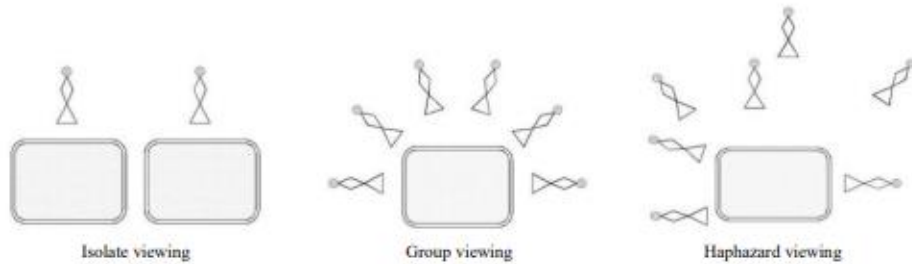


Figure 124: Circulation Diagram, (Lehmbruck, 1974)

4.3.5 Display Arrangement

Exhibits should be set up such that the public may easily view them. This demands a variety of carefully chosen roomy layouts in an engaging and logical sequence, in appropriately shaped rooms, particularly in museums. The display at a museum can change depending on the demands and character of the museum, and the display style might change depending on the character of the exhibit. There are various sorts of exhibition schemes: (Lehmbruck, 1974)



Figure

125:Types of exhibition schemes, (Lehmbruck, 1974)

General display considerations:

- When mounting devices and furniture on the wall, floor, and ceiling, care should be made to leave as much empty space as possible.
- Viewers require spaces to relax and rest, ponder on art, and take a break from the gallery's visual richness.
- Seats at an appropriate distance from large, important works of art allow visitors to pause and view the art without having to stand for long periods of time.
- The gallery's lighting and color scheme should not be distracting or fatigue-inducing.
- Controlling noise and vibration in the gallery is critical.
- Air conditioning and other equipment should be carefully chosen and placed.
- To avoid weariness, vary the height of the ceiling and the color of the walls.
- A gallery should have enough room. (Lehmbruck, 1974)

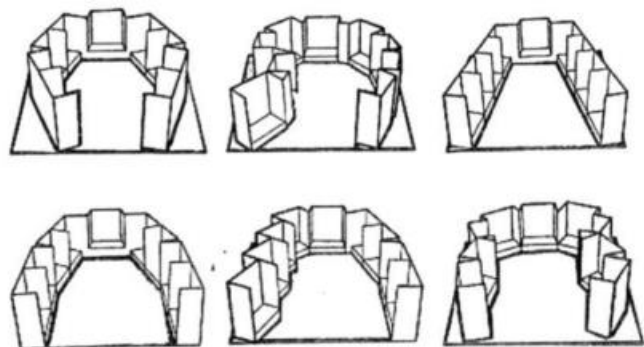


Figure 126: Different types of Display Arrangement, (De Chiara & Callender, 1983)

4.3.6 Lighting Daylighting

Even though daylight is the oldest lighting method, it is more difficult to deal with than electrical lighting systems, which can be more precisely planned and managed. Because of its dynamic and ever-changing characteristics, daylight is challenging to utilize in museum and gallery spaces. However, those same characteristics can significantly improve rooms and provide uplifting comfort and delight. Many museums and galleries have strict admission policies. Although there are limitations to employing daylight, well-designed daylighting saves energy and enhances the unique character of display spaces. The goal should be to limit the amount of power needed, use as much natural light as possible. Collections that are susceptible to light, on the other hand, must be safeguarded. (Ulas, Crampton , & Bickersteth, 2015)

Electrical lighting

Advancements in alternative lighting technologies and the arrival of better products on the market are addressing concerns about visual quality and energy conservation in museum and gallery lighting. This creates new opportunities for alternative approaches, and LED technology has made significant progress, providing superior lighting solutions. The development of newer technologies, such as OLEDs, is expected to further enhance lighting for museum and gallery applications. The careful selection of light distribution characteristics is crucial to create lighting effects like accent spotting, frame spotting, and wall washing. (Ulas, Crampton , & Bickersteth, 2015)

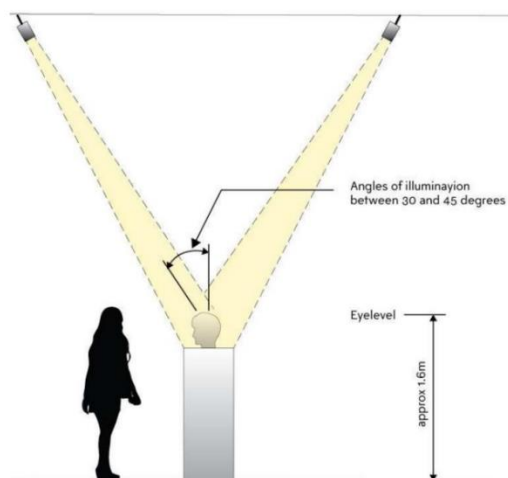


Figure 127: Lighting typologies for free standing displays, (Source: (Ulas, Crampton , & Bickersteth, 2015)

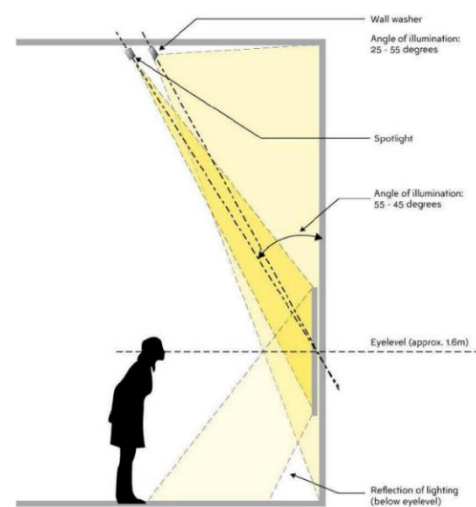


Figure 128: lighting typologies for vertically hung displays, (Source: (Ulas, Crampton , & Bickersteth, 2015)

4.4 VISITORS CALCULATION

The site is located in Gokarneswor Municipality, in Jagadole Community forest, being close to the city, Kathmandu even today it functions as a go to place for many people. Information from these sites can help tentative calculation of the visitor in the memorial center.

1. Kopan Monastery: 500 people every Saturday
2. Sanga: almost 2-3 thousand (Land Nepal.com)
3. Jagadole community forest: (for walk, locals, picnic, herbal research, study): 2000-3000 per day at max. (As per Chairperson of Community Forestry Tourism Promotion and Park Management Committee- Sudarshan Sigdel)

With time, when memorial starts to fully function number of visitors might increase. Let us assume, around 1000 to 1,500 people will visit the memorial per day.

For a single visitor, around 2- 3 hours to completely visit the memorial walls, museum, and other facilities like information center and library,. The memorial shall open from 10:00 AM to 5:00 PM, which is 7 hours/ day. Now for Program formulation, the Maximum number of 200 people is taken, for them to tour in 2 hours of time.

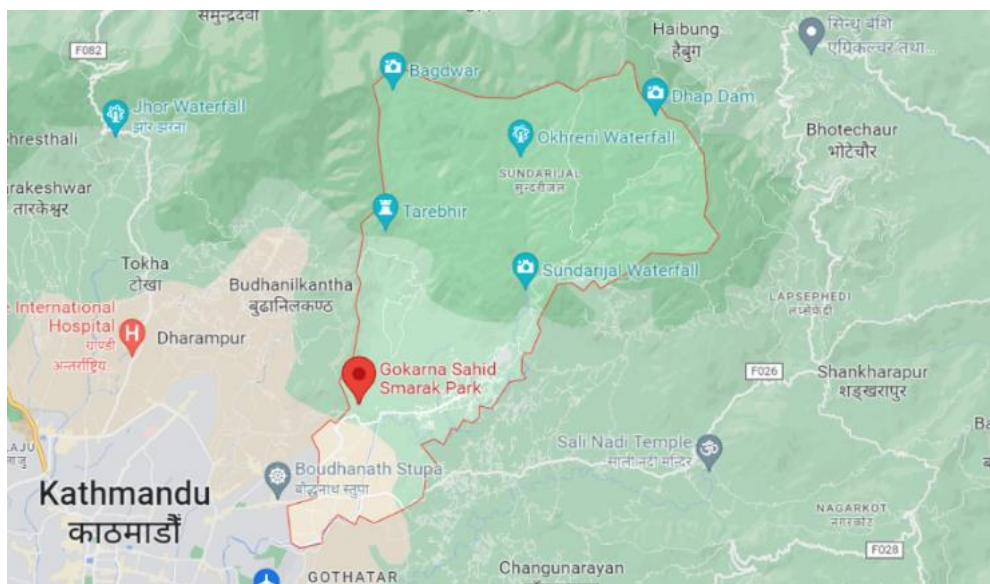


Figure 129: Map of Gokarneswor Municipality, (Source:Google maps)

4.5 SPACE ALLOCATION

SN	DESCRIPTION	STANDARD REQ. Sq.m	CAPACITY	AREA Sq.m
1.	Visitors' center			
	Information desk			12
	Lobby and lockers			90
	Souvenir's shop			45
	Storage			16
	Restrooms			35
	Sub total carpet area-1			200
	For circulation area (60 %)			130
	Total built up area			330
2.	Museum	200 person/2 hours		
	Hall of silence			180
	Revolution			460
	People at war			390
	Cries of children			380
	Cube of obscurity			36
	Hall of innocents			590
	Manav badhshala			480
	Symbolic jail			250
	Audio- visual room	1.5/ person	20	35
	Services	-	1	210
	W/c	5/ unit		60
	Subtotal carpet area-2			3070
	40% for circulation area			1200
	Total built up			4270
3.	Reference library			
	Issue desk			
	Reference section	100 books/sqm	5000 Books	50
	Reading section		30 p	30
	E-library	4.5/person	12	45
	Manager's office			15
	Storage	-	1	15
	W/c	5/unit		15
	Sub total carpet area-3			170
	40% for circulation area			110
	Total builtup area			280
4.	Multipurpose hall			
	Indoor hall	1.5/Person	125	190
	Lobby	30% of the hall		60
	VIP Room			20
	Green Room			30
	Store		2	30
	W/c	5/unit		25
	Sub total carpet area-4			355
	40% for circulation area			140
	Total builtup area			495

SN	DESCRIPTION	STANDARD REQ. Sq.m	CAPACITY	AREA Sq.m
5.	Restaurant			
	Dining space	1.3-1.5/ person	110	140
	Kitchen	30-40% of dining		50
	Café			15
	Services: storage	20%		25
	W/c	5/unit		30
	Sub total carpet area-5			260
	40% for circulation area			100
	Total builtup area			360
6.	Administration			
	Lobby	1.2-1.6/ person		40
	Research head			20
	Archives			30
	Curators office			15
	Reception			20
	Restrooms			15
	Storage			5
	Director's office			15
	Meeting Room	1.6-1.8/person		20
	Staff section			35
	Pantry			6
	File storage			10
	Sub total carpet area-6			230
	40% for circulation area			90
	Total builtup area			320
7.	Services and utility			
	Maintenance room	20/unit	1	20
	Electrical+ Generator	30/unit		30
	Guard House	15/unit	2	30
	Fire protection			20
	Sub total area-7			100
8.	Open Air Theatre			
	Sub Total Area-8			200
9.	Parking			
	Four wheelers	12.5/car	30	500
	2 wheelers	2/bikes	120	250
	Total builtup area with circulation			2000
TOTAL BUILTUP AREA = 8355 SQUARE METER				

5 SITE ANALYSIS

5.1 SELECTION CRITERIA

Following examples of memorials,

Yad Vashem History Museum	Lies in the Jerusalem; capital of Israel
Memorial to the victims of Violence	Located at most important park at Mexico
Ganatantra Smarak	Located in Narayanhiti Palace Premises, Kathmandu, Capital of Nepal
Memorial and learning Center	At the site of event; Utoya Island

It is seen they have been erected at either the location where the event initially occurred or a location with which the event has a significant association. As a result, the memorials have been roughly grouped as follows:

- Place-based Memorials
- Non-place-based Memorials

In the past, memorials were regarded sacred sites, and so created forms and monuments such as Marker Stones, Pillars, gates, or even sculptures were placed in such a spot that holds a strong emotion and sympathy to those who have suffered and survived. Whether it is a war monument or a natural catastrophe memorial, such places evoke strong emotions and are frequently responsible for triggering memories or emotions in people.

Today, however, the concept of commemoration has shifted. The memorial of a person or an event is more of a dynamic experience. Memorials are now seen as public spaces. They are more symbolic and interpretative in nature, allowing visitors to form their own opinions about the place.

Points to be considered for site selection:

- Easily accessible, noticeable, should invite number of people
- Should encourage public participation by engaging them in various activities
- Site setting and surrounding should justify the purpose of memorial

5.2 OVERVIEW

The site is located at Gokarneswor Municipality, Northeast of Kathmandu valley. The height of this municipality is 1372m to 2732 m above sea level. It is among the culturally rich places of Kathmandu.

LOCATION: Gokarneswor, Kathmandu

SITE AREA: 33,000 Sq. m (64 ropani)

TOPOGRAPHY: Hill with slope from Northwest to South-East

LATITUDE: 27° 44' 31" N

LONGITUDE: 85°22'47" E

ALTITUDE: Nearly 1400m in mid portion of hill, above mean sea level

5.3 SITE JUSTIFICATION

The site lies within the 650 Ropani land of Yagadole, (Jagadole), community forest. The government, Ministry of peace and reconstruction had brought the National Martyrs and Peace Park. The proposed site would have Memorial Park, with structure like Pyramid, Martyrs' Memorial, a dome shaped museum, Ghunsa Memorial, civil servant's memorial and so on. But the Masterplan has not been completed, due to political reasons.

Even though the construction has not been completed, this area is widely visited due to the scenic views and lies just 30 min away from Kathmandu center;(Ratnapark)



Figure 131: Kopan Monastery to North west of Site



Figure 132: Site Location, (Source: Google Earth 2022)

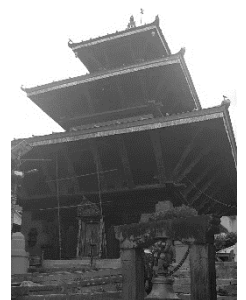


Figure 130: Gokarneswor Mahadev Temple, South-east of site

5.4 SITE ATTRIBUTES

5.4.1 Physical Attributes

5.4.1.1 Access and circulation

An 9 m wide road runs across the forest at the base, connecting the prime junction near Gokarneswor Temple and lead to the main entrance of existing peace park. There is also a 4 m concrete pathway, connecting various structure in the forest.

5.4.1.2 Topography

The site lies at the flat ground at the highest point of hill, with slope towards west, contour lines are steeper at the forest boundary.

5.4.1.3 Connectivity

- The site is connected through Public Vehicle from Chabahil bustop.i.e 5.3 km and 15 m far via Jorpati Sundarijal route.
- 10 Km away from Capital's heart, Ratnapark, which will take only 30 minutes.
- Other Nearest stops are Gokarneswor micropark and Makalbari Microstation.

5.4.1.4 Vegetations

The temperate forest is blanketed with coniferous trees, mostly Pine (Salla), different species of plants, small shrubs, medicinal herbs can also be found, and it has been under the care of community, and many botanical students carry out their research here.

5.4.1.5 Water Bodies

No water body exist within the site as such, drinking water spots are provided, however, major water feature is Bagmati river, originating from Baghdwar Falls, Sundarijal, alongside Gokarneswor Temple.

5.4.1.6 Existing Structures

The existing memorial park consists of 18m high peace pyramid, martyr memorial and monument at center. 100 meters down walk from the park is unfinished museum. Apart from these, a civil servants' monument, peace stupa, and half-done structures for other purposes.



Figure 133: Road at the site boundary

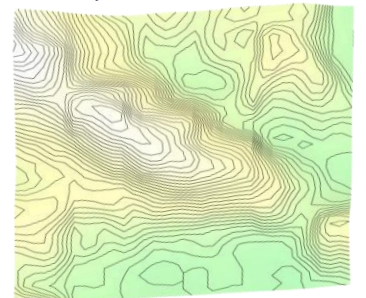


Figure 134: Topographic map, with contour lines at 4m interval, (Source: Cadmapper)

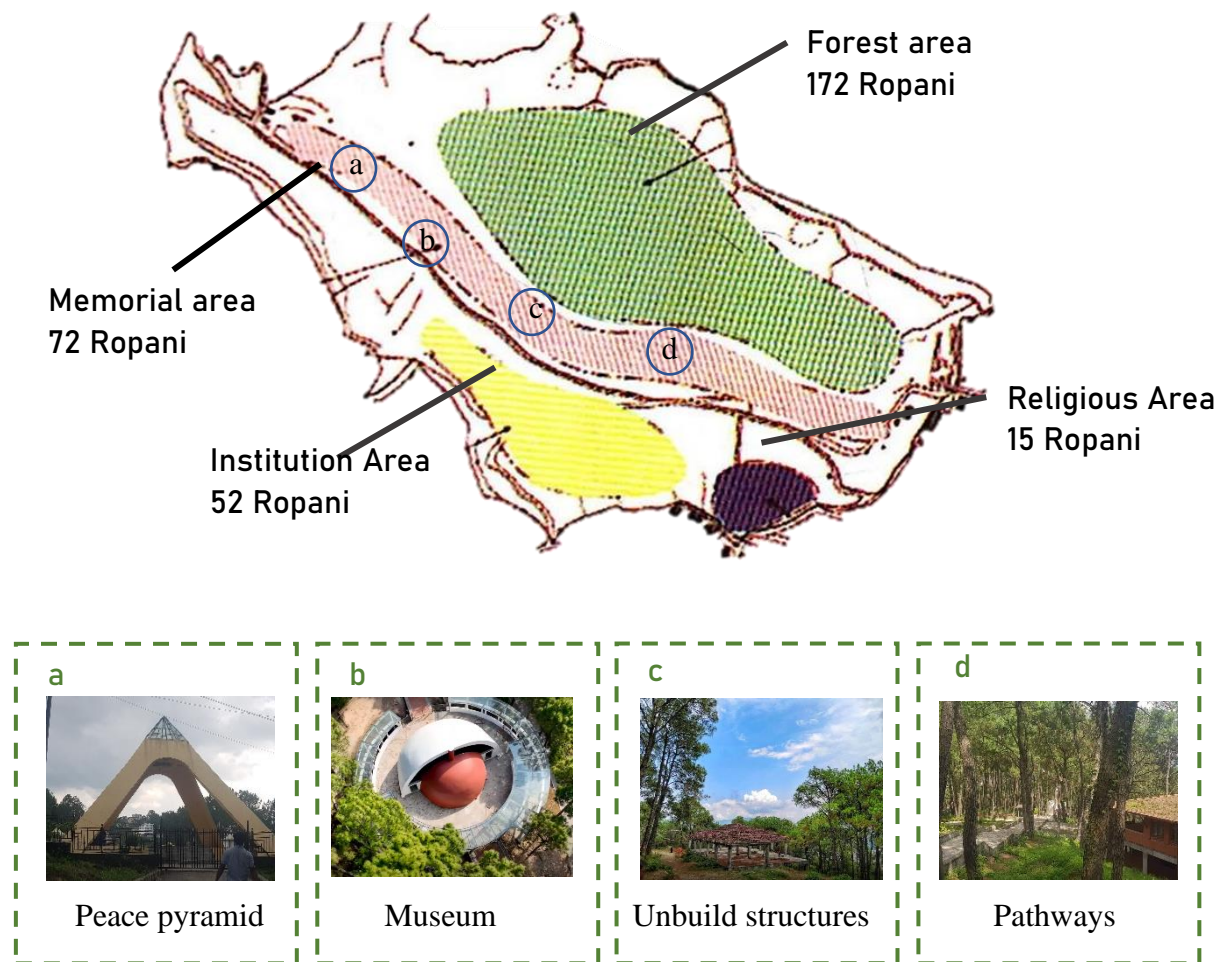


Figure 135: Existing Features

5.4.1.7 Surrounding features

Other surrounding features include:

- a. **North steep part:** Ghunsha Park, accompanied by garden of different flowers and plants, picnics spots and Mirgasthali
- b. **East part:** Religious area: Bhagawaatee temple
- c. **Northwest:** Parking zone with 534 vehicles capacity
- d. **South:** 9m road at the site boundary

Other structures include, UNESCO Study center, unfinished restaurant structure, Peace stupa, Open air theatre, Handicraft center and so on.



Figure 136: View From the Site



Figure 137: View of city from the site

5.4.2 Environmental and climatic data

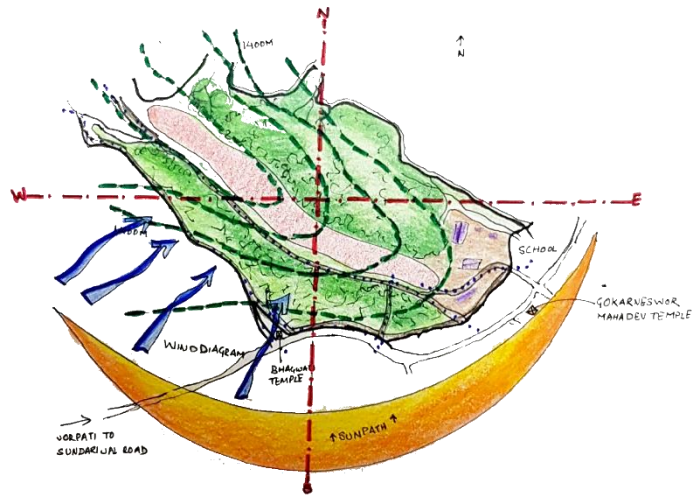


Figure 138: Site Analysis Diagram

The temperature is highest from April to June at around 31°C. The Lowest occurs in January at -2° C, at nights. The "mean daily maximum" (solid red line) shows the maximum temperature of an average day for every month for Gokarna. Likewise, "mean daily minimum" (solid blue line) shows the average minimum temperature. Hot days and cold nights (dashed red and blue lines) show the average of the hottest day and coldest night of each month of the last 30 years.

The Least amount of rainfall occurs November. The greatest amount of precipitation occurs in July with an average rainfall of 721 mm.

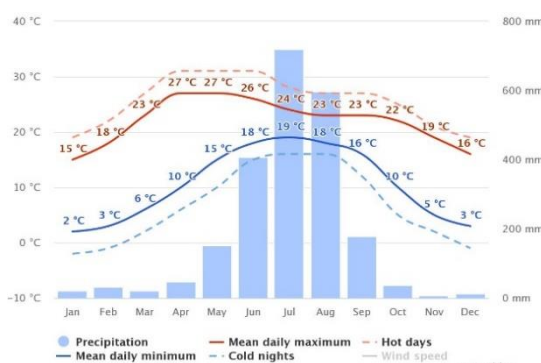


Figure 139: Average Temperature and Precipitation, (Source, Meteoblue,2022)

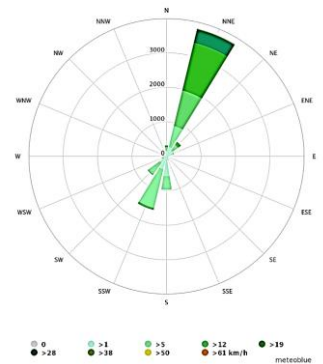


Figure 140: Windrose diagram, (Source: Meteoblue,2022)

The wind rose for Gokarna shows how many hours per year the wind blows from the indicated direction. Example SW: Wind is blowing from South-West (SW) to North-East (NE).

6 CONCEPT AND DESIGN DEVELOPMENT

This project is a poetic description of the journey of people's war, which aims to honor the stories of individuals impacted by these events. Through a range of emotions, this journey transforms one's state of mind from day to day, gradually bringing a sense of understanding to the tragic nature of past events. In the midst of this turmoil, people seek comfort and composure.

This journey is a departure from the linear trajectory of a normal life. Tragic events, such as disasters or war, interrupt the predictable course of life and introduce a new reality of uncertainty. Suddenly, the path forward is unknown, and the future is unpredictable. However, through the journey of people's war, individuals can find meaning and purpose amidst the chaos and tragedy, and ultimately emerge with a greater appreciation for life and humanity.

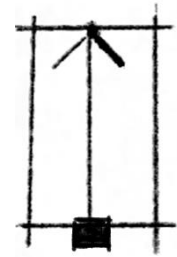


Figure 141:
Continuity of Life

The deviations caused by tragic events such as war result in both gains and losses that were not originally intended. Nevertheless, we must carry on with life and move forward, as the cycles of life continue.

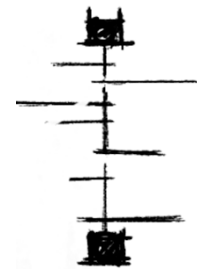
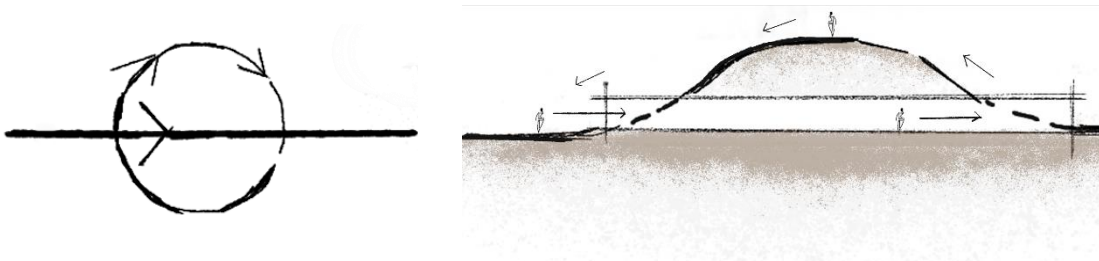


Figure 142:
Deviations from original path

The journey of people's war is designed to capture this concept of the life cycle at two different levels. The first level is a subterranean museum, where visitors can explore various halls dedicated to the time of the People War. Here, stories both told and untold are shared, providing a glimpse into the past and the experiences of those who lived through it.

Moving on from the museum, the journey continues onto the landscape above, representing hope and freedom. This serves as a reminder that no matter how difficult and challenging the past may have been, there is always a new beginning and the opportunity to move forward towards a brighter future. The journey of people's war aims to honor the past while also inspiring hope for the future.



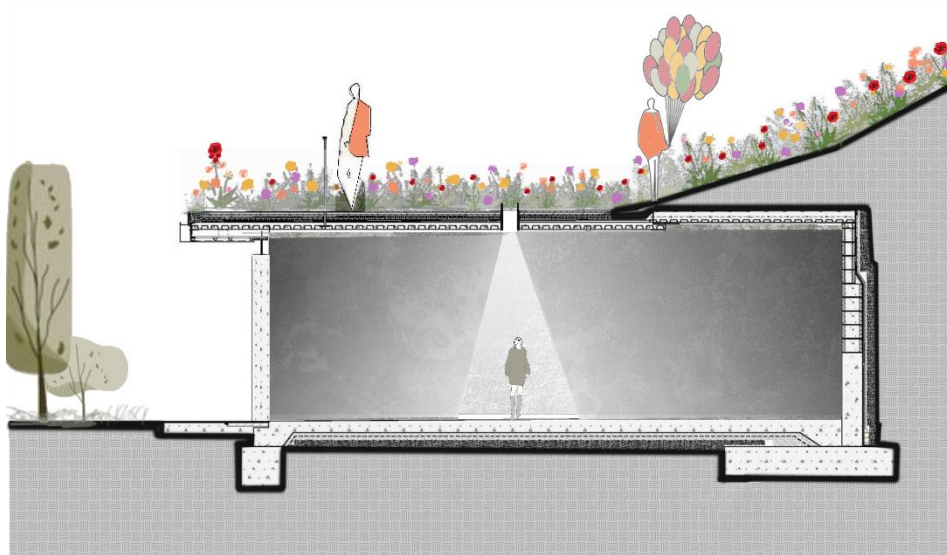


Figure 143: Conceptual section

The conceptual section of the complex is designed to create a powerful contrast of emotions that reflect the experiences of those impacted by the People War.

As visitors enter the main memorial journey, they are immediately confronted with a sense of darkness and chaos, symbolizing the upheaval and tragedy of war. This is achieved through the use of dim lighting, shadowy corners, and immersive soundscapes that evoke a sense of unease and uncertainty.

As visitors move deeper into the journey, they are gradually immersed in a range of emotions, from fear and despair to hope and resilience. Along the way, visitors encounter various exhibits and installations that help to contextualize the events of the People War and the experiences of those impacted by it.

In contrast to the dark and chaotic beginning of the journey, the final stage of the memorial journey is designed to inspire a sense of light and hope. Here, visitors are surrounded by natural light, open spaces, and lush greenery, symbolizing the hope and freedom that can arise from even the most difficult of circumstances.

Overall, the conceptual section of the complex is designed to create a powerful and emotional journey that reflects the full range of experiences and emotions associated with the People War. From darkness and chaos to hope and resilience, visitors are taken on a journey that is both enlightening and impactful.

6.1 SEGREGATION OF ZONES

The complex is primarily divided into three distinct zones, each with its own unique purpose and function.

The first zone is the formal zone, which serves as the collection and arrival point for visitors. This area is designed to provide a sense of formality and organization, setting the stage for the journey ahead.

The second zone is the main memorial journey, which is the heart of the complex. Here, visitors embark on a journey of memory recollection, reflecting on a range of emotions and engaging in deep contemplation. This area is specifically designed to honor the experiences and stories of those impacted by the People War, and to help visitors gain a deeper understanding of the events that took place.

The third and final zone is the pedagogic zone, which serves as an educational hub for visitors. Here, visitors can access a range of didactic materials, including a library and other resources designed to provide additional context and information about the People War. This area is meant to inspire continued learning and reflection even after visitors have completed their journey through the complex.

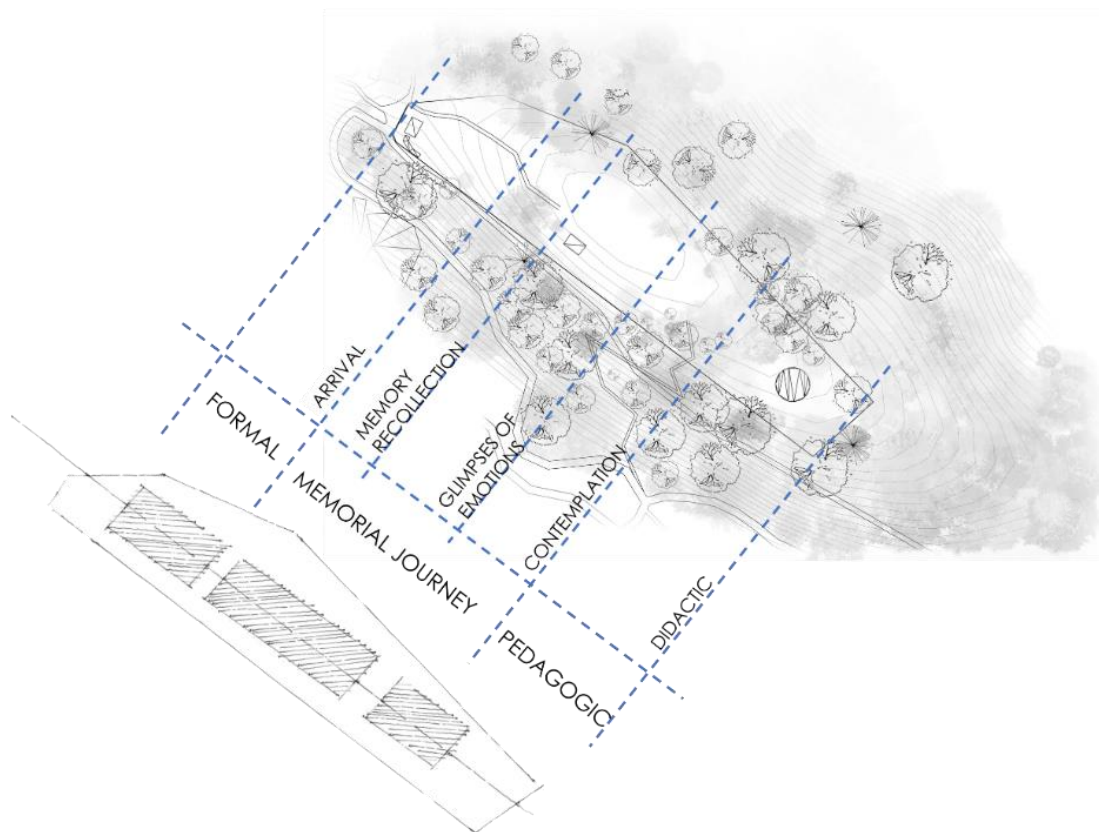
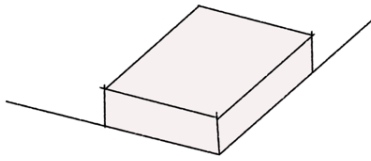
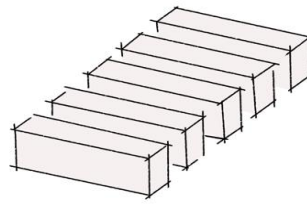


Figure 144: Segregation of zones

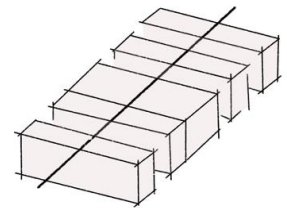
6.2 FORM DEVELOPMENT



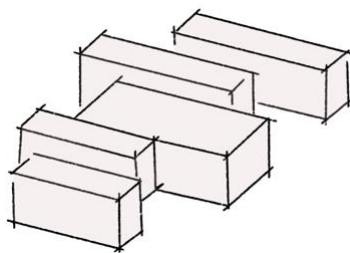
A. Starting from simple geometric mass



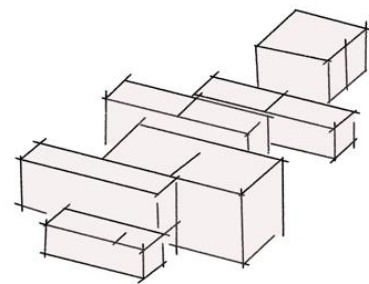
B. Slicing of mass for various program requirement



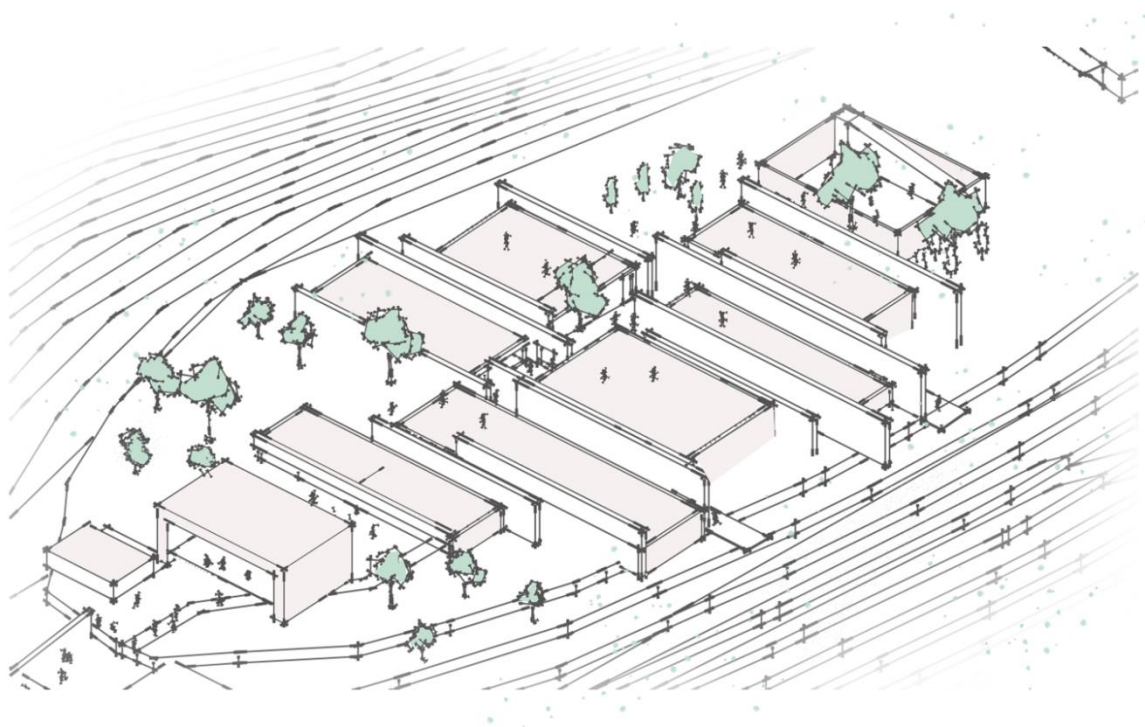
C. Combination of volume as per space requirement



D. Breaking monotony, volumes protruded maintaining the linear axis



E. Resultant volumetric composition with height variation



F. Initial Form development at site

6.3 NARRATIVE

Days of Yore!

(Please refer index masterplan for mentioned numbers)

Presently, the country appears to be in a state of ordinary calmness, as if taking a much-needed break to catch its breath and remain undisturbed. Despite the quietness, the people living here are preoccupied with their own agendas, seemingly having moved on from something that continues to weigh heavily on their hearts.

As time passes, the memory of what once was becomes further concealed, locked away in the depths of their consciousness. While the country appears peaceful on the surface, there is a deeper undercurrent of emotions and memories that remain. The country and its people have gone through a profound experience, leaving behind a lasting impact that is not easily forgotten.

Yet, life goes on, and people continue with their daily lives, each with their own unique story and experiences. The memory of the past may be buried, but it remains an integral part of the country's history, shaping its identity and inspiring a sense of hope for the future.

A Memorial space carrying those lost tales from people's war sits atop of Yagadole forest. Soaring pine woods embrace these stories as a mother does to her child. As we arrive at the entrance, slowly hiking up leaving the rustling city behind, an immense gateway stands before us. The sturdy gateway (5) invites us in, promising to take us away from reality.





The Descent

As we walk through it gradually, one anticipates of seeing something is uncharted. The descent of the pathway transitions the mind from light to darkness. High walls carved with dents of people with tied lips disrupts connection with the outside world, to the past buried beneath the earth.

Revolution

The first threshold (6) devoid of anything, just a silence, a moment for themselves, opens to a steel door. We enter the Hall of Revolution (8), "Kranti", which seemed an obvious choice for many youths at that time. The hall displays uniforms, slogans and ideologies of Maoists, and a continuous music play which was used during trainings of Jana Mukti Sena, (People Liberal Army). "Had we been in that time, would we fall for their Maoist jargons too?", we could see the hope in the eyes of a PLA, carrying a rifle heavier than herself, a hope to have a better life. As preparation of war was carried out in the distant hills of Rukum and Rolpa, like a secret in a box, only a square cutout on the edge with glimpse of sky, an uncertain hope.



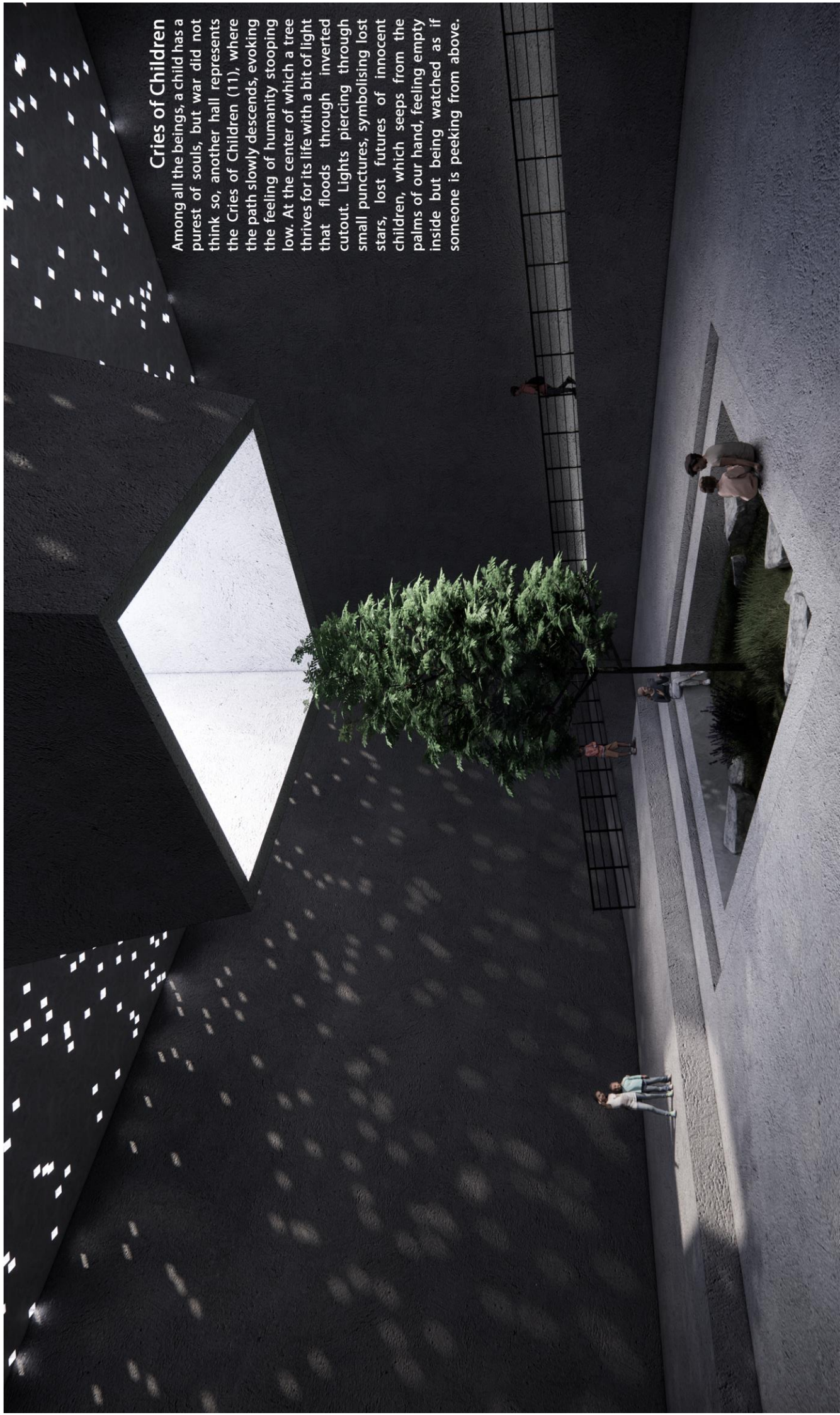
People at War

When war broke out, it caught in lives of many. Next, we enter the Hall of People at War(9), an archive of stories of innocent victims caught in between the crossfire. We can sit still on the bench and wonder, "Why did they have to suffer?, " Why were not we able to treat and respect each other as equal human beings? ". it helps them recollect the memories and their stories become eternal.



Cries of Children

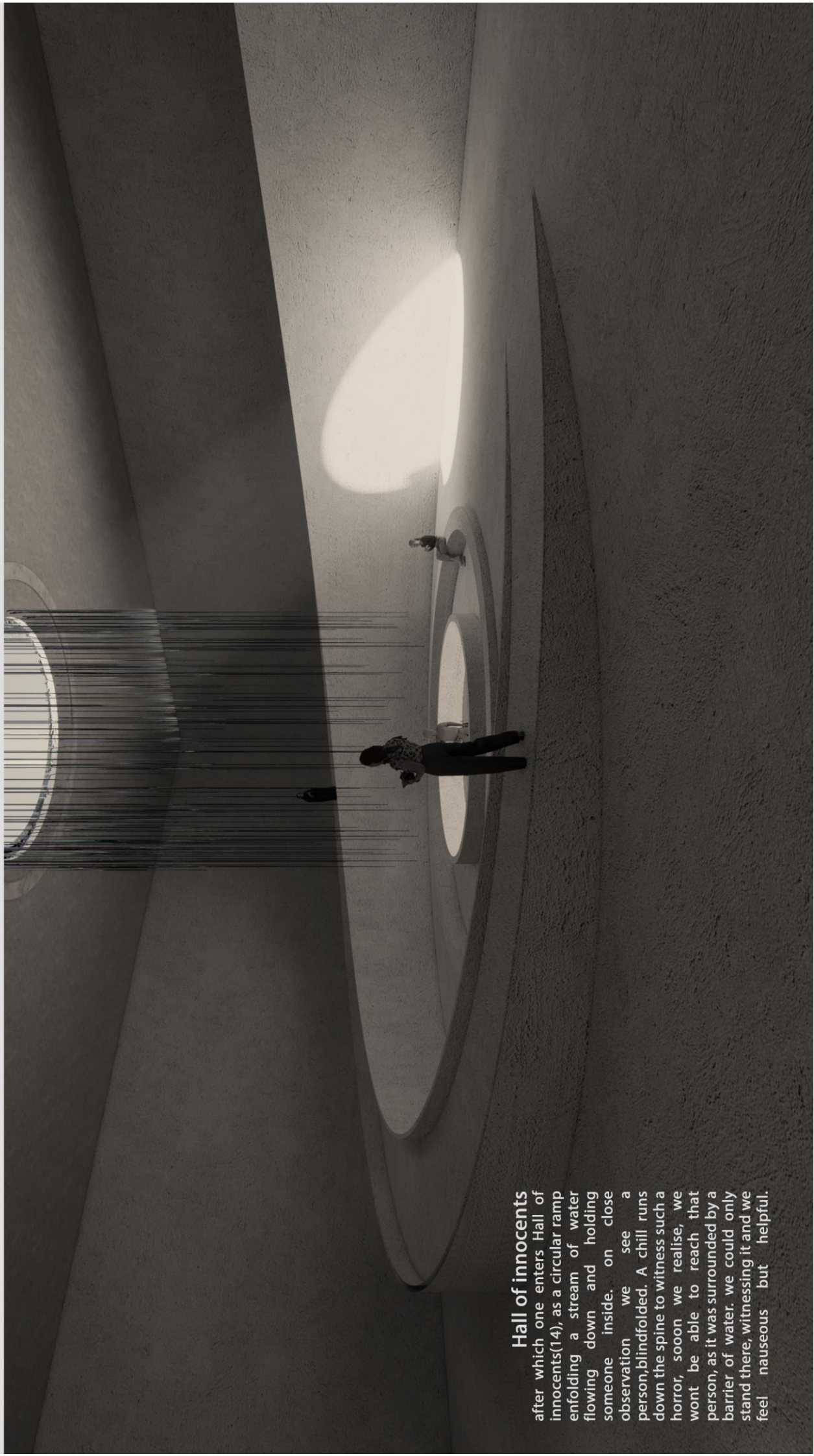
Among all the beings, a child has a purest of souls, but war did not think so, another hall represents the Cries of Children (11), where the path slowly descends, evoking the feeling of humanity stooping low. At the center of which a tree thrives for its life with a bit of light that floods through inverted cutout. Lights piercing through small punctures, symbolising lost stars, lost futures of innocent children, which seeps from the palms of our hand, feeling empty inside but being watched as if someone is peeking from above.



Cube of Obscurity

We slowly open out to a lobby, where you vanish from sight to others as you approach the always -open threshold, Cube of Obscurity (12). You are now awake without an object if you stretch your hand out in front of you, but you cannot see it. Similarly, if you look down, you cannot see your feet. When you watch others fade, you also appear to disappear as watcher is viewed. This is how it must feel to be confused and disoriented in forest full of wild beasts.





Hall of innocents

after which one enters Hall of innocents(14), as a circular ramp enfolding a stream of water flowing down and holding someone inside. on close observation we see a person,blindfolded. A chill runs down the spine to witness such a horror, soon we realise, we wont be able to reach that person, as it was surrounded by a barrier of water. we could only stand there, witnessing it and we feel nauseous but helpful.

Manav Badhshala

As we were unable to offer assistance, we retreated from the upward path and came across a door at the opposite end. Upon entering, we found ourselves in a hall named "Manav Badhshala", which translates to "Human Slaughterhouse".

This space serves as a haunting reminder of the numerous human rights violations that occurred during times of war.

Within the hall, various forms of these violations have been sculpted and placed on recessed platforms, requiring visitors to look downwards in order to view them. This deliberate arrangement serves to intensify the impact of the artwork, making it impossible to turn a blind eye to the atrocities committed against humanity



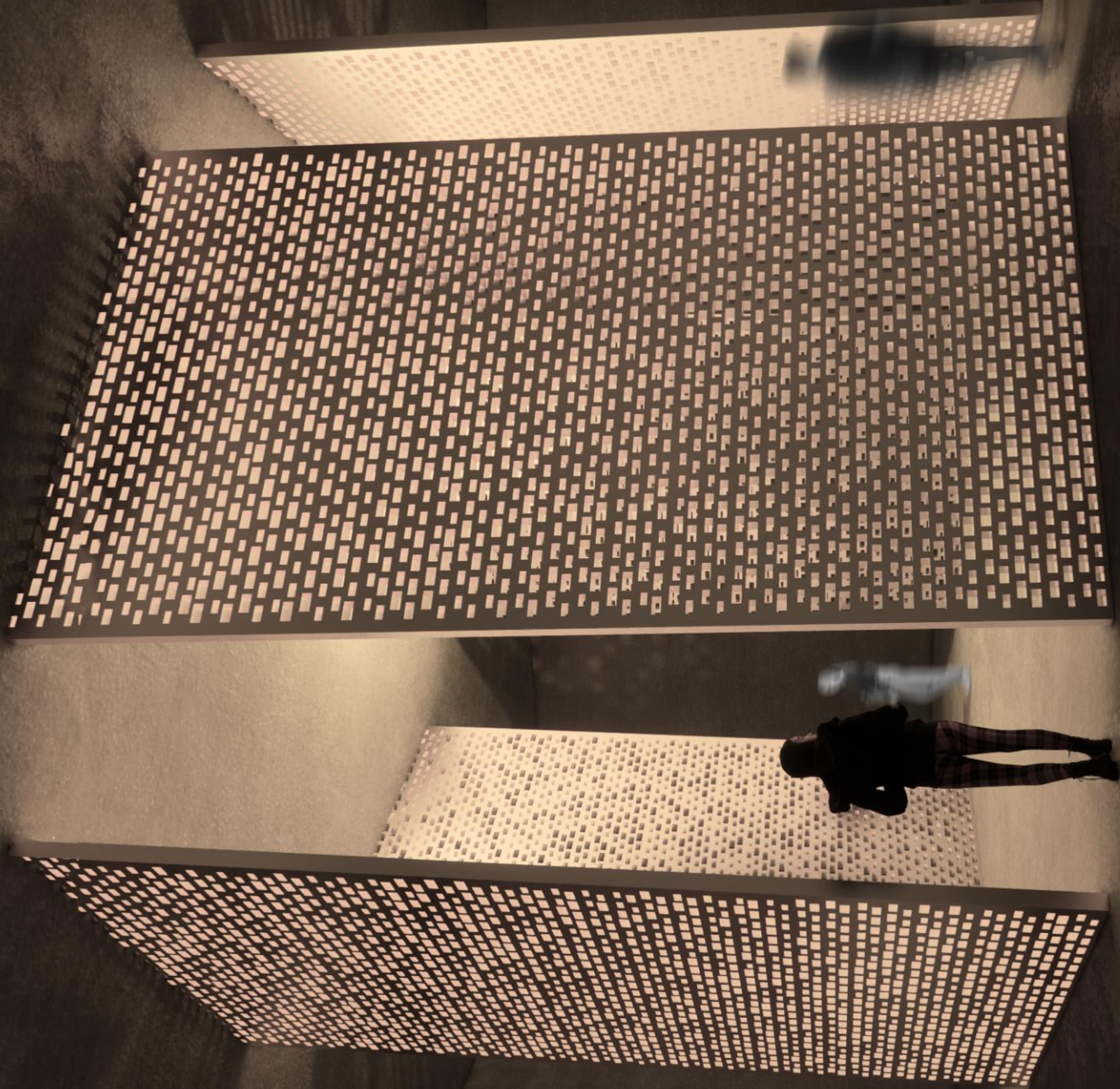
Courtyard of crumbles

As we exit the hall, we are greeted by a courtyard (16) that is strewn with rocks that appear to be crumbling down. The weight of these rocks is comparable to the heavy burden that one feels when they remember their beloved ones who may have suffered during times of war. The scene is both poignant and melancholic, serving as a powerful reminder of the toll that conflict can take on individuals and communities alike.



Symbolic jail

Upon arriving at next destination, we are confronted by inclined planes perforated to allow for light to shower down onto the walls of the hall. These walls contain seventeen thousand scratched lines, each of which represents a life lost during conflict. The lines are akin to the markings one might make to count the passing days in a prison cell, thereby creating a symbolic jail (17) that serves to acknowledge and honor each and every one of these lives. The sobering nature of this installation is a powerful reminder to work towards peace and reconciliation in all corners of the world.



1996

Those ten years

As we ascend from the halls, we are greeted by a breathtaking landscape, with memorial walls emerging from the ground and stretching out into the distance. These walls serve as a powerful connection between the past and the present, and beyond.

There are ten walls in total, each one dedicated to a specific year of loss. As we reflect upon these walls, we are reminded of the sobering fact that we cannot go back in time to fix the mistakes of the past. Instead, we must work towards creating a better future for ourselves and for future generations.

2006



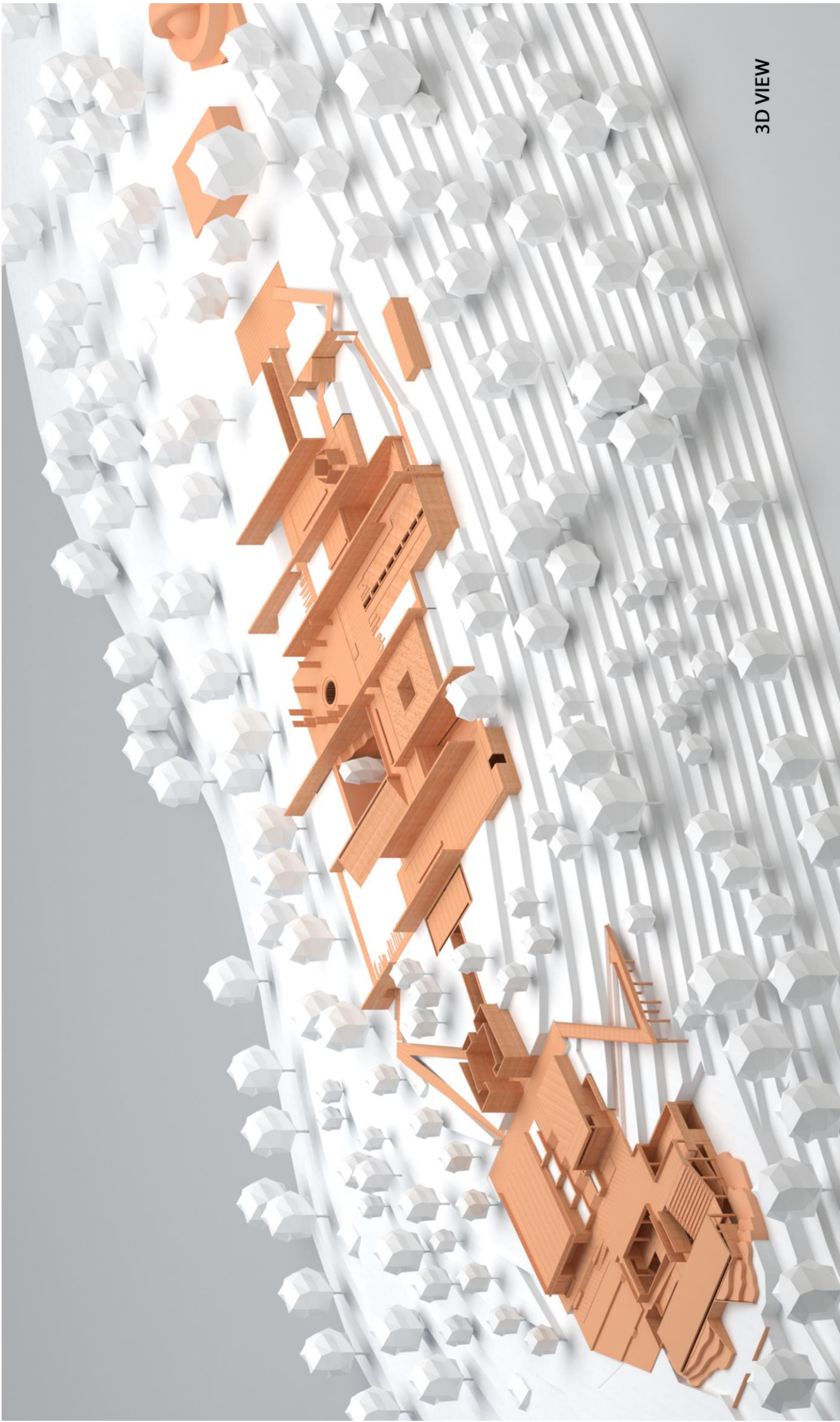


Memorial walls

Memorial walls are medium from expression, upon acts which demeanor humanity.

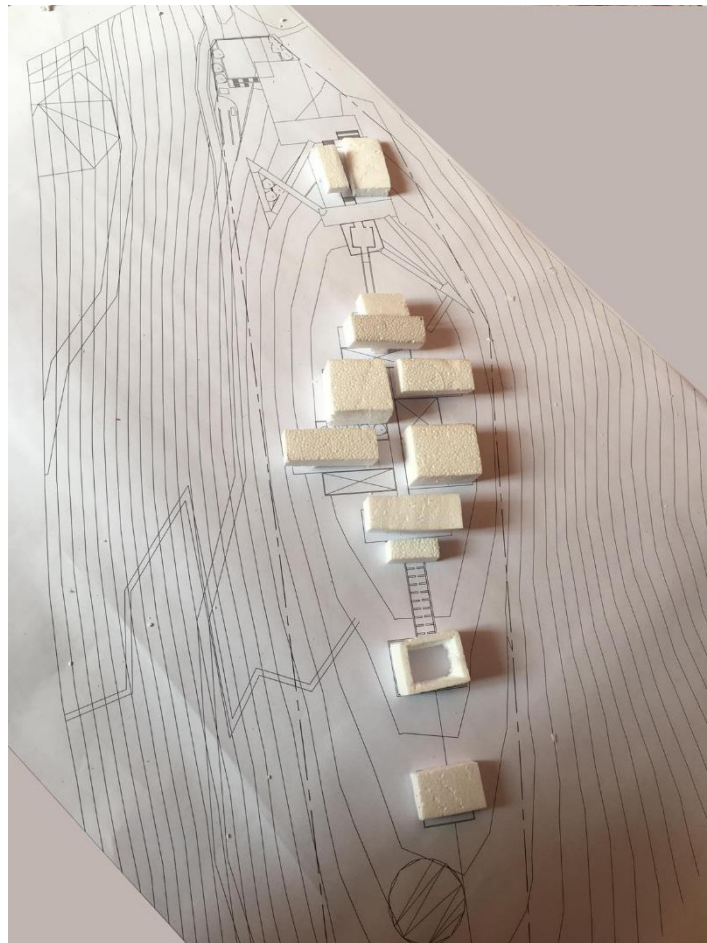
The meandering pathways created by the placement of walls provide ample space for children to play and explore. The surrounding forest merges seamlessly with the landscape, offering a sense of freedom and connection to nature. This space serves as a gathering place for people to come together and celebrate their love for the outdoors.

As we walk along the winding paths, there are moments of pause where we can sit and connect with those around us. Here, we can reminisce about the memories we have made in this beautiful space - the laughter, the tears, and everything in between. This area provides an opportunity to engage in meaningful conversations, strengthening our relationships and fostering a sense of community.

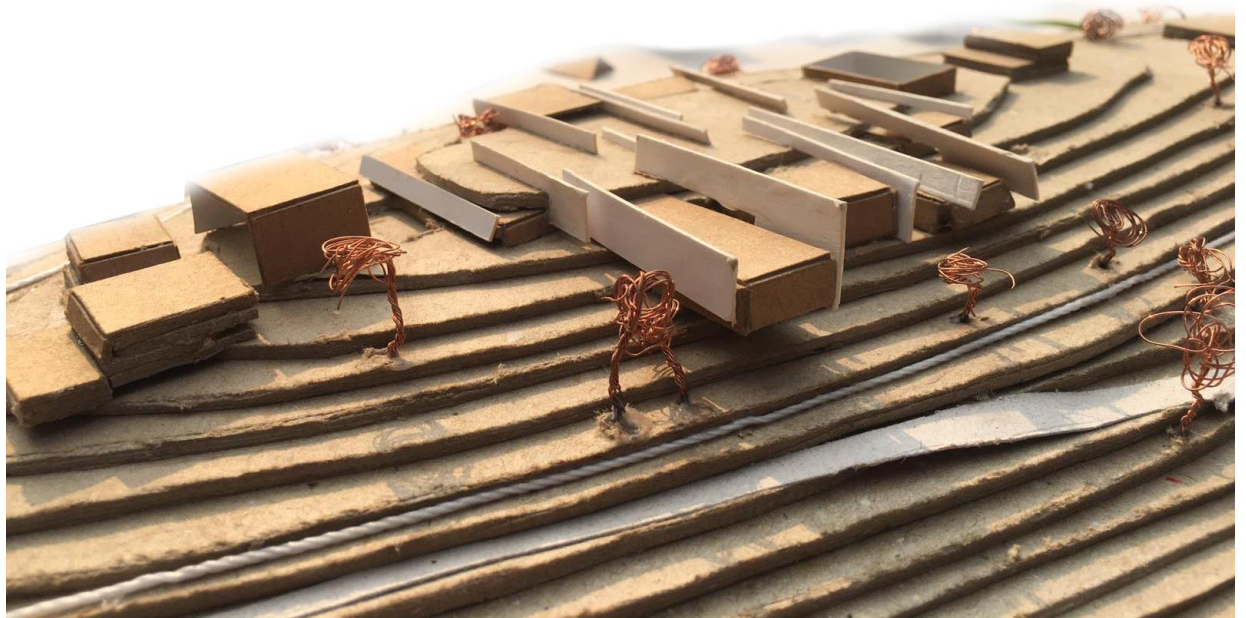
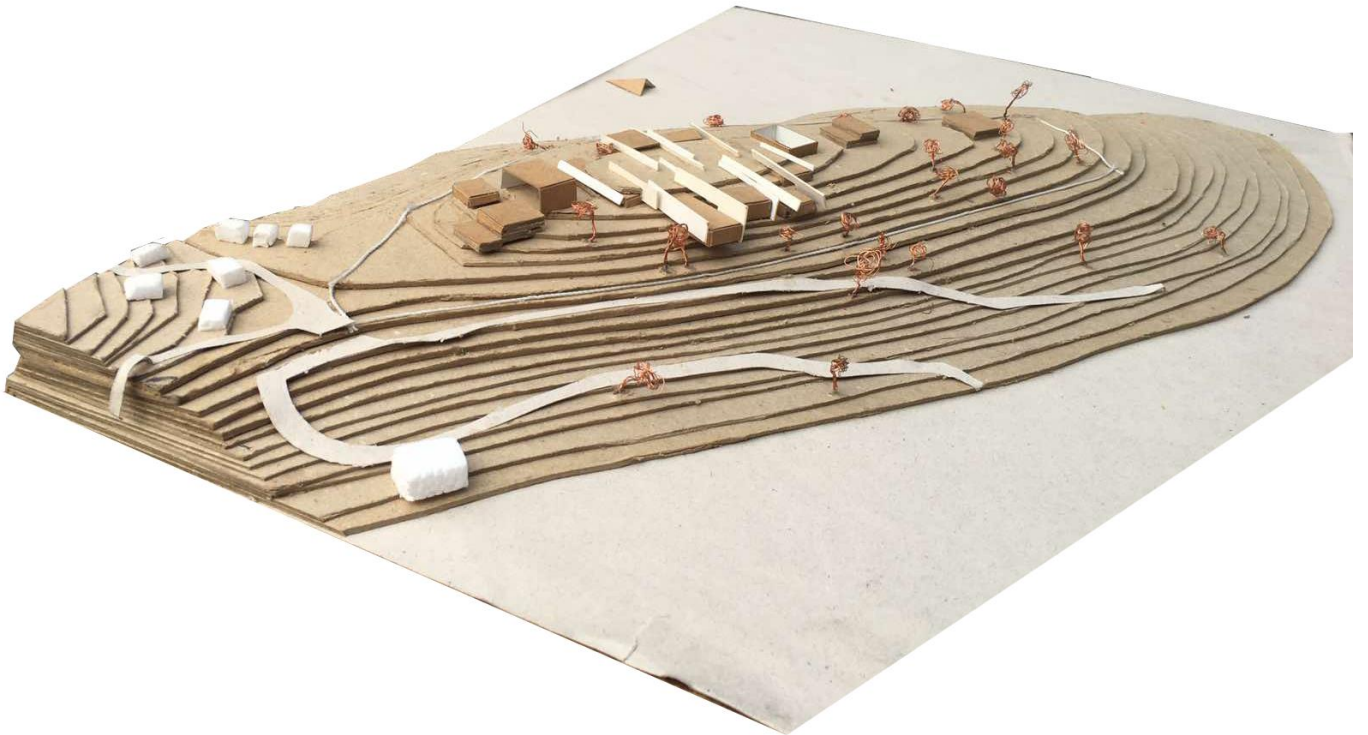


3D VIEW

6.4 PHYSICAL MODEL



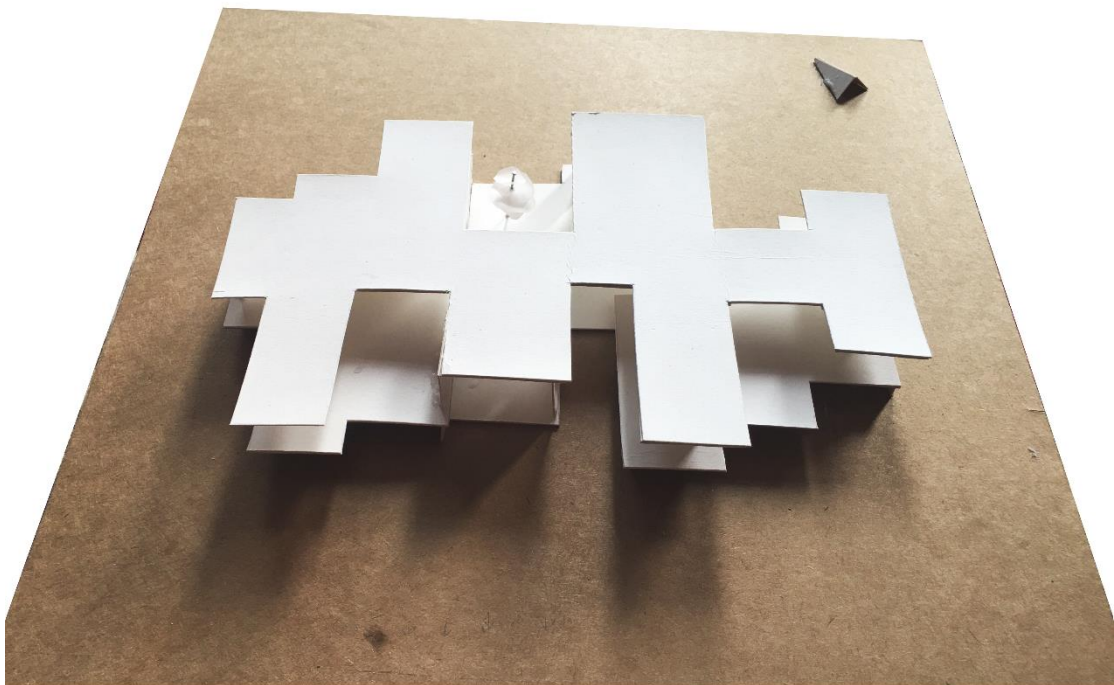
01: Initial Block Model



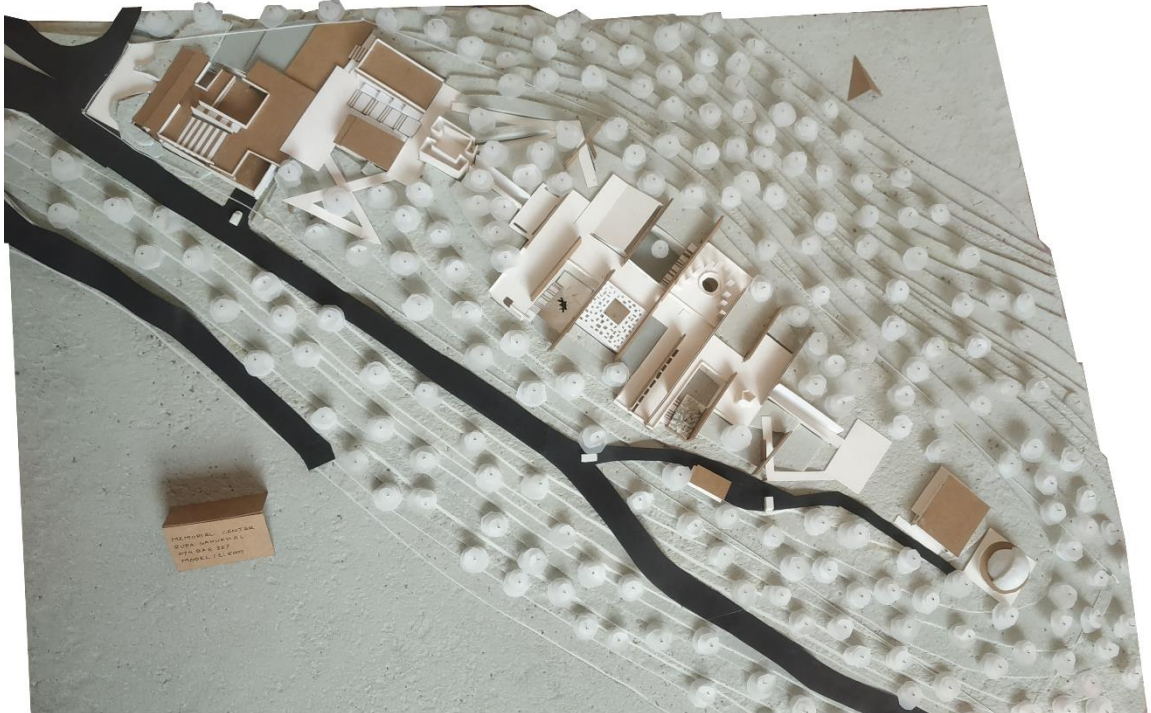
02: Conceptual site model



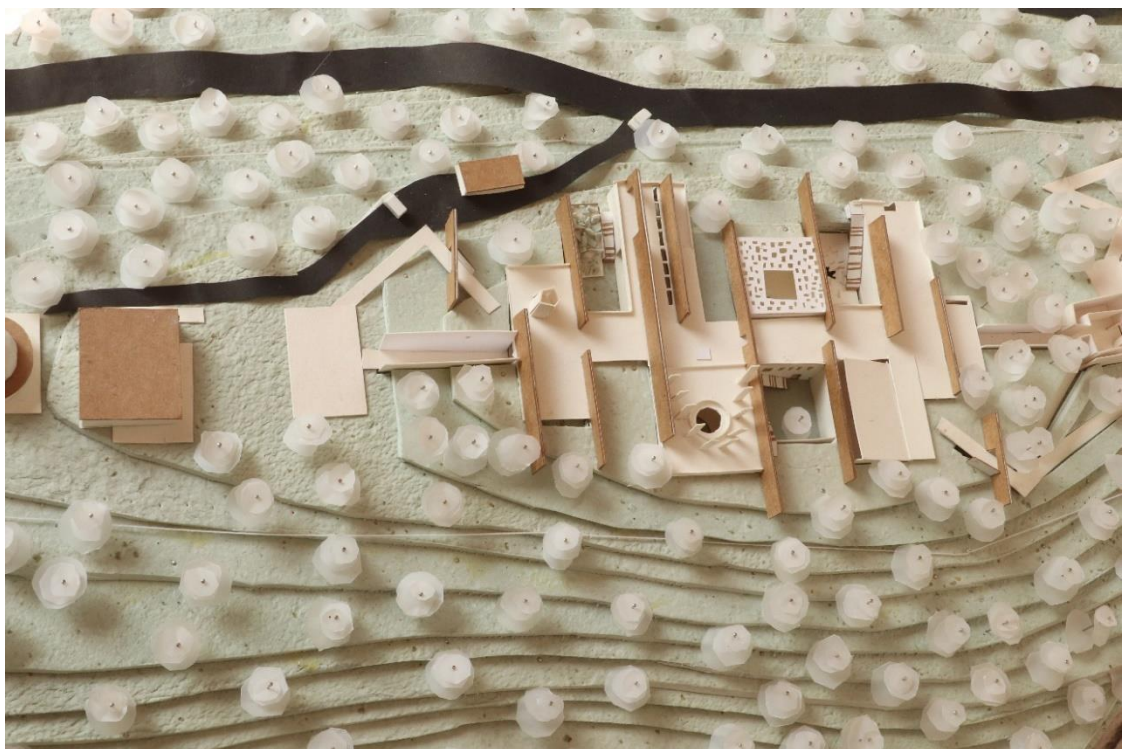
03: Various stage models



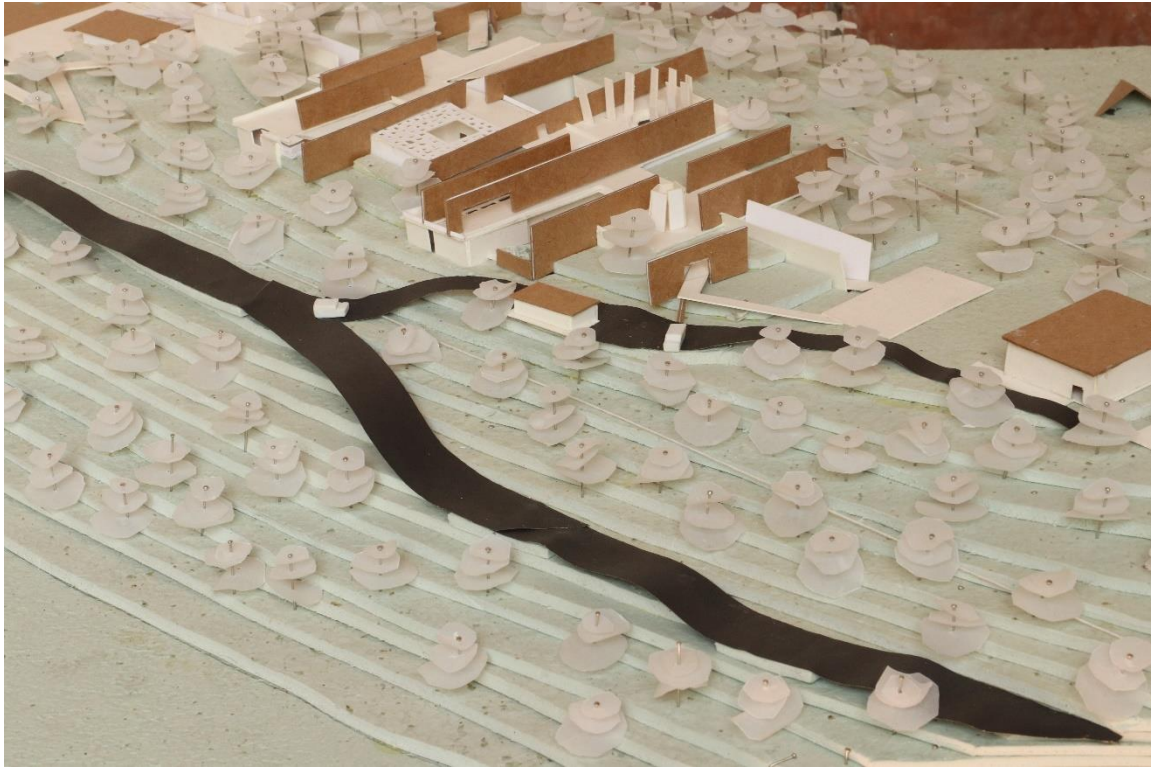
04: Layered Model



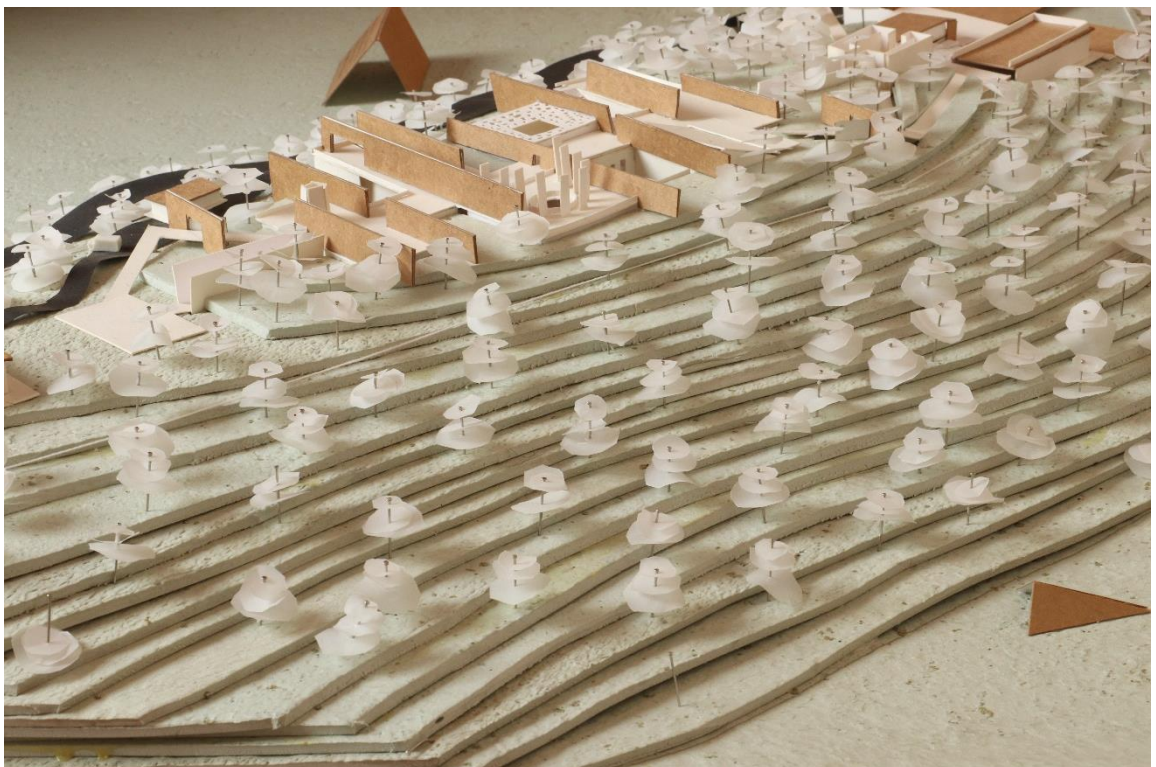
Model 01



02: Final Physical Model



Model 03



Model 04



Model 05



Model 06



Model 07

6.5 CONSTRUCTION TECHNOLOGY

To construct long-span slabs spanning up to 18 meters, the ribbed (waffle) slab system is employed. This innovative design features equally spaced ribs supported directly by columns, resulting in a sturdy and reliable structure. There are two types of ribbed slab systems: the one-way spanning ribbed slabs and the two-way spanning waffle slabs. During the design process, especially the initial planning stages of a project, the inherent expenses of concrete (30% cost), reinforcement (15% cost), and formwork (55% cost) should be considered and evaluated when choosing the appropriate concrete floor system for the building.

The ribbed slabs consist of a 500mm by 1200mm girder, which runs simply supported from column to column. This girder supports several 300mm by 600mm rib beams spanning in both directions, parallel to each other. The ribbed beams are typically spaced 2000-3000 meters apart. This ribbed slab system is an efficient and effective way to create long-span slabs while maintaining structural integrity. By distributing weight evenly across the structure, it ensures a safe and stable environment for inhabitants. (Please also refer Sheet titled Structural system)

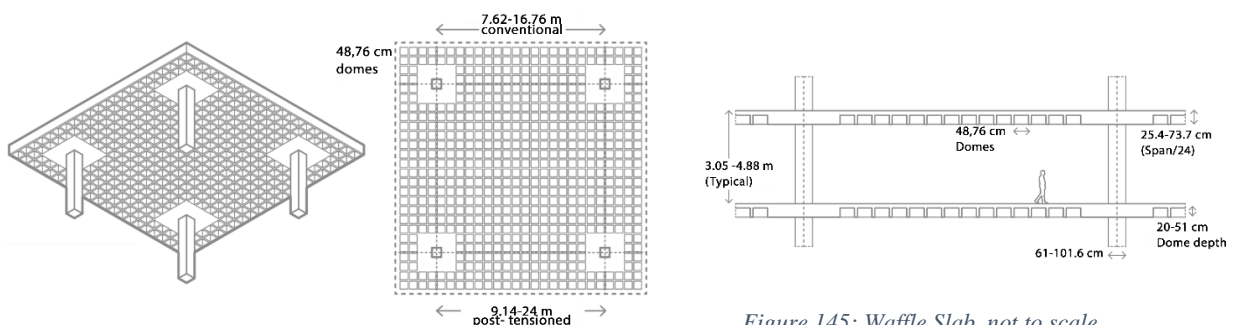


Figure 145: Waffle Slab, not to scale

On top of each level, a 180mm thick slab supports a green roof structure. A green roof structure is a roof with a layer of vegetation that includes a waterproof membrane, drainage layer, growing medium layer, and vegetation layer. It provides numerous benefits, such as reducing the urban heat island effect, improving air quality, reducing stormwater runoff, and providing habitats for wildlife.

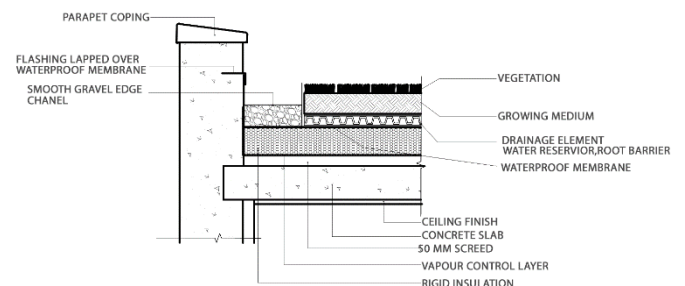


Figure 146: Green roof detail section, Scale-1:25

6.6 SERVICES AND UTILITIES

6.6.1 Water supply

The water supply for the site is sourced from the Municipality's drinking water supply system. Additionally, water can be collected from the forest's discharge for firefighting and landscape irrigation purposes. To facilitate this, a water supply tank has been installed at the highest point on the site to provide the necessary head for gravity-driven water supply.

Table 10: Calculation of water tank capacity (NBC 208)

Blocks	No. of person	Litre per Head per day (LPHD)	Total(L)	Remarks
Visitors center	50	45	2250	Staffs and visitors
Memorial block	210	15	3150	15 staffs and 1250 visitor in a day, taking 1/6 th of visitors
	15	45	675	
Multipurpose hall	130	15	1950	125 seats and 5 staffs
Admin	25	45	1125	15 staffs and 10 visitors
Restaurant	110	50	5500	Visitors and staff
Reference library	45	30	1350	5 staffs and 42 visitors
Service area	4	45	180	Guards
Total			16180 Litres	
Taking about			16200 L= 16.2 m ³	
Size of tank			3x volume (3 is safety factor) =3x16.2 =48.6 =50m ³	
Fire tank (NBC)			50000 L 50 m ³ (1000 L/m, pressure 3kg/cm ²)	
Total underground tank (Total of water tank and fire tank)			(50+50) m ³ 100 m ³	
<u>CALCULATION OF OVERHEAD TANK</u>				
Calculation of overhead tank (Half of underground tank as pumping twice a day)			16.2/2 =8.1=9 m ³	
Size of Overhead tank			3x2x1.5 (LXBXH) =9 m ³	

6.6.2 Sanitary Management

For the drainage and sewage facilities, a septic tank and soak pit have been installed at the lower part of the site. This allows the waste pipeline and soil pipeline to flow effortlessly due to sufficient gradient. Moreover, for easy maintenance, these tanks are situated close to the access road, which is situated at the lowest part of the site.

Table 11: Calculation of Septic tank

CALCULATION FOR SEPTIC TANK	
a. Visitor center, Multipurpose and admin	Total no. of users =50+130+25=205
	Total volume of septic tank =3x205=615 cu. Ft That is , 17.41 m ³ (Taking 20 m ³)
	Size of septic tank = LxBxH=20, (3BxBxH) Taking H=1.5 m then B=2.1m and L=6.3 m Size of septic tank = 6.3x2.1x1.5 m³
	Size of soak pit =4xsp.6= 4x (D=5m, depth=2.75)
b. Memorial block, Restaurant and library	Total no. of users =225+110+45=380
	Total volume of septic tank = 3x380=1140 cu.ft That is, 32.28 m ³ (Taking 35 m ³)
	Size of septic tank = LxBxH=35, (3BxBxH) Taking H=1.5 m then B=2.7m and L=8.1 m Size of septic tank = 8.1x2.7x1.5 m³
	Size of soak pit =4xsp.6= 4x (D=5m, depth=2.75)

7 CONCLUSION

The question of why people become emotionally attached to architecture that they did not create has been explored and a fundamental theory has emerged. It suggests that behind such attachment lies memories, stories, narratives, beliefs, and culture. These factors become intertwined with a physical structure and when people experience such places, they feel as if they are reliving those memories. This emotional attachment can create a sense of concern and empathy for fellow human beings.

To create an "Architecture of Memories", mindful forms, materials, surfaces, surrounding plants and vegetation, landforms, mass, and volume are utilized to transform intangible memories into physical form. These elements stimulate the user's bodily senses, primarily their visual sense, auditory, tactility, and olfactory senses, generating certain emotions such as tension, thrill, hope, pleasure, and excitement.

Sometimes, an Architecture of Memories is deliberately created to remind and raise awareness, while most of the time, it simply exists as a space where we grew up, with memories of people we love and stories that have taken place. Ultimately, this emotional attachment to architecture highlights the power of our human experiences and the impact they can have on our lives.

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9 ANNEXURES

9.1 DESIGN DRAWINGS

9.2 INTERVIEWS

A set of questions was prepared for interviews.

1. Ar. Abhishek Mananda Bajracharya

- One of the Architects of Ganatantra Smarak
- Date: July/01/2022
- Location: At his Office: Tattva Consult, Lazimpat, Kathmandu
- Duration: 1 hour 30 minutes
- Objective: to know methods memorialization
- Questions
 - i. In your opinion what was the winning idea of your design of Ganatantra Smarak? Was any inspiration from well-known architects taken?
 - ii. Is that core of the concept still intact in reality?
 - iii. What are the philosophical and symbolic values of erected Stambhas and the ring? Does it have any other cultural or national meaning? (Impression and representation)
 - iv. Had the names been written on the stambhas, public could have more connection with the memorial?
 - v. Was there any communication done with the main subject of interest that is the victims of civil war before or during the construction? Why and why not?
 - vi. Were their feelings, experiences, stories been understood and interpreted in the design? (Involvement of the public)
 - vii. What were the activities the memorial supports? Can architecture guide the kind of activity of visitors?
 - viii. Does the selection of building materials for the memorial elements have other special meanings?
 - ix. Has the change in the location of Smarak affected the story that was meant to deliver?
 - x. How has the aim of “Keeping People at its heart”, been responded through architecture?
 - xi. How has memorial responded with the public? What might be the reason that it is still unknown to most of public?
 - xii. The songs and movies being shot at this kind of place, for example *Visit Visa ma*, by Maha Sanchar, does it respect and fulfil the “Purpose of Smarak”?
 - xiii. The landscape design which can be seen now is quite different than what was originally proposed, what are the reasons behind it? Do you think it justifies the built memorial plaza?
 - xiv. Phenomenological senses:
 - a. What kind of relationship; tangible or intangible created through touch?
 - b. How has design consideration been done for differently abled visitors?
 - c. Since Narayanhiti palace can be seen at its backdrop, are there any direct connection between them?
 - d. Does the Smarak mark celebration or symbolizes wounds of war?
 - xv. Any recommendations or suggestion?

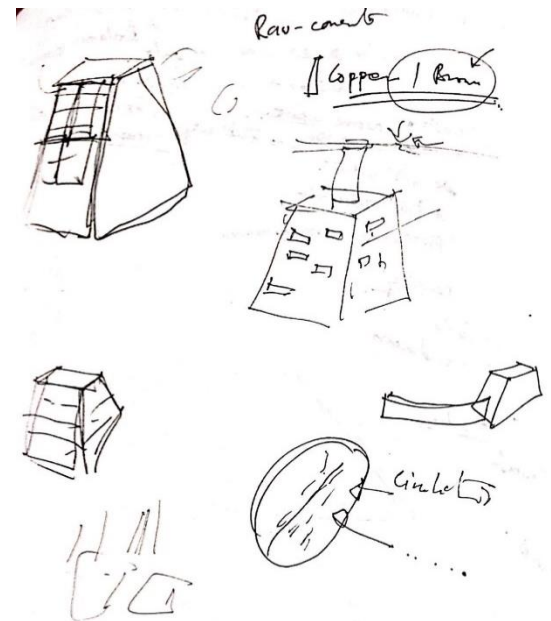
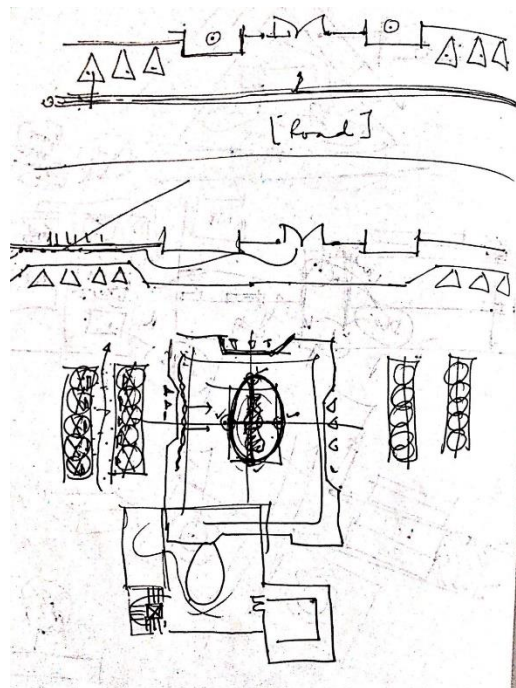
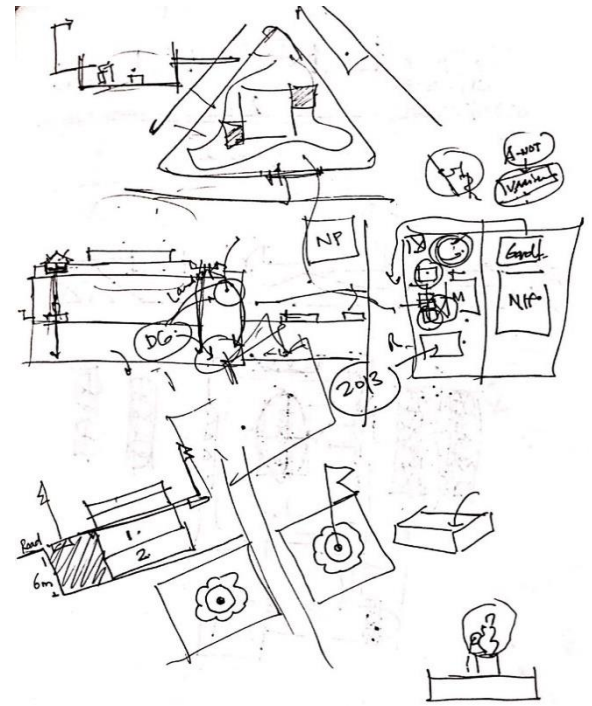
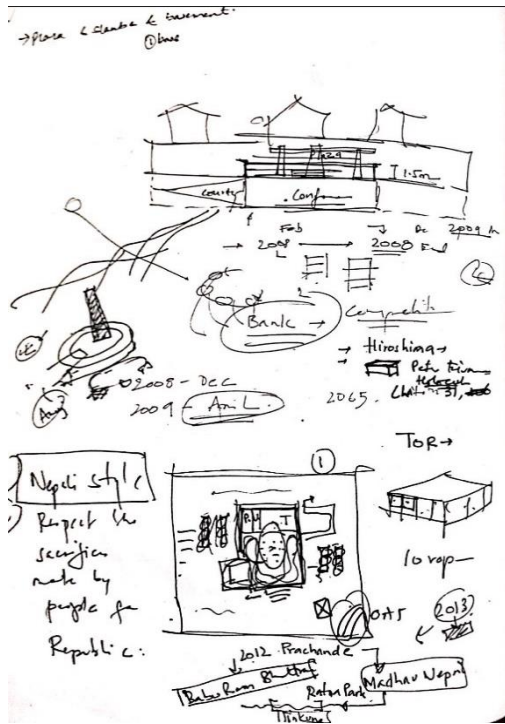


Figure 147: Sketches done by Architect Abhishek Mananda Bajracharya during the interview

2. Ramesh Thapa and Balaram Kunwar

- Work at Ganatantra Smarak Management
- Date: July/01/2022
- Location: At Ganatantra Smarak, Narayanhiti, Kathmandu
- Duration: Approximately 40 Min
- Objective: to know working mechanism of memorials
- Questions:
 - i. What are the opening hours of the Smarak? Which is the busiest hour?
 - ii. What is the number of visitors in a normal day? Are there any specific age group of people who visit here more?
 - iii. What are the functions been operated currently in the memorial? Are any special programs conducted in the Amphitheatre?
 - iv. What do the visitor come for here? Do they know the true purpose of the park?
 - v. What kind of activity can be seen? Why is shooting of songs been permitted in the memorial?
 - vi. How does the Smarak sustain itself? Is the entry fee of the Smarak enough?
 - vii. What are the problems and issues seen in function of the memorial park?
 - viii. Why is it that very few people know about the memorial?
 - ix. Had the memorial been located at other place; its value could be enhanced?

3. Er. Anup Pokharel

- Supervisor for maintenance of Gallery and basement at Ganatantra Smarak
- Date: July/08/2022
- Location: Management office, Naranyanhiti Palace Museum
- Duration: about 10 minutes
- Questions
 - i. What are the construction issues seen in the memorial?
 - ii. Is the issue caused due to design aspect or poor construction work (Quality of materials or workmanship)?
 - iii. What has been done to solve these issues?
 - iv. What is the reason for delay in completion of maintenance?

4. Madan Paudel

- Director, Informal Sector Service Centre INSEC
- Date: July/11/2022
- Location: At INSEC office, Syuchatar, Kathmandu
- Duration: 40 minutes
- Objective: To understand the present position of Victims and their relatives affected by Civil War, (1996-2006)
 - i. How does Insec work?
 - ii. Is the effect of civil war (Janayuddha), still seen in the lives of relatives of victims?
 - iii. What is the relationship between transitional justice, memory, and truth?
 - iv. How much is creation of memorial needed to commemorate the loss of lives during such an event?
 - v. What kind of symbolic justice be given to heal their wounds?

- vi. Since it has affected the whole country, where is it needed so that its location can be justified?
- vii. Has there been any memorials created by INSEC?
- viii. Are there any documentation regarding the civil war?
- ix. In what form the documentation can be accessed by public?
- x. What can be the possibilities to evoke collective memory like Civil war?

5. Suman Adhikari

- Founder Chairperson, Conflict Victims Common Platform (CVCP) Nepal for truth, justice, reparation, and non-recurrence of gross human rights violations
- Date: July/19/2022
- Location: Bhrikuti Mandap, Kathmandu
- Duration: 45 minutes
- Objective: to understand what emotions are evoked by memorials
- Questions
 - i. Can memorials and their language create awareness about victims and conflicts?
 - ii. When such places are visited, do they heal or open wounds of the conflict?
 - iii. What types of memorials been created in memory of lost lives?
 - iv. What kind of activity can be done in memorials to give more meaning to it?
 - v. What are the ways to represent the memory of civil war?
 - vi. Can a memorial be developed as a learning center?
 - vii. What can be done to include families of conflict in the process of memorialization?
 - viii. Recommendation /suggestions?

6. Visitors at Ganatantra Park

- Number of visitors interviewed: 4
- Date: July/01/2022
- Location: At Ganatantra Smarak, Narayanhiti, Kathmandu
- Objective: to observe and analyze how Ganatantra Smarak is rationalized by visitors
- Questions:
 - i. Did you already know the existence of Ganatantra Smarak? How did you come here?
 - ii. Why did you come here, purpose of visit?
 - iii. Did kind of emotions do you feel when you spend time there?

9.3 ANTHROPOMETRY DATA

1. Library and research facilities

Another crucial space requirement for a museum is a library. It offers knowledge and inspiration for the public's work while assisting them in conducting research on topics of interest. Additionally, it aids in gathering and protecting relevant materials.

The basic principles which need to be followed while planning libraries and research areas are:

- The design concept's clarity (Collections, seating for readers and staff space required)
- Simple supervision by librarians
- Future expansion provision (addition of compact shelving within existing footprint)

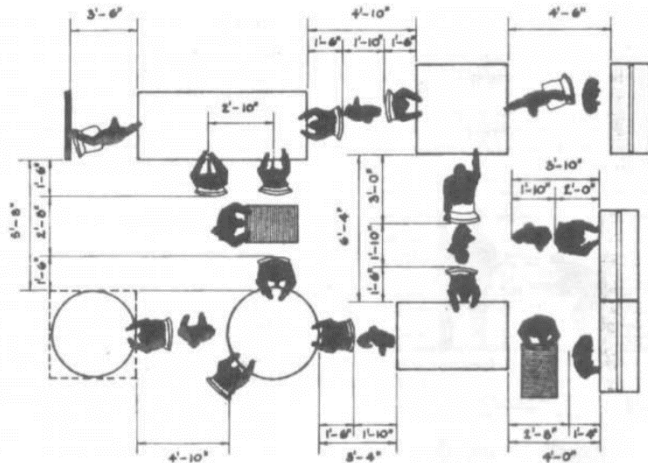
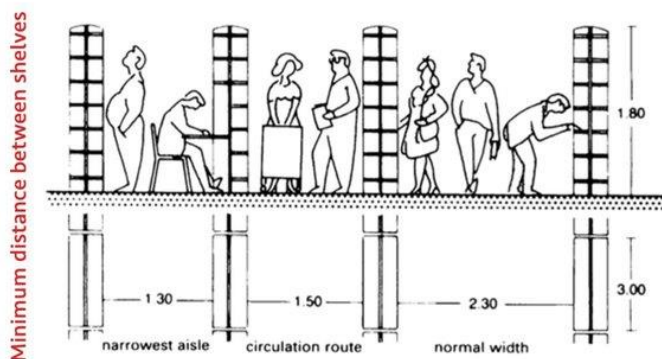
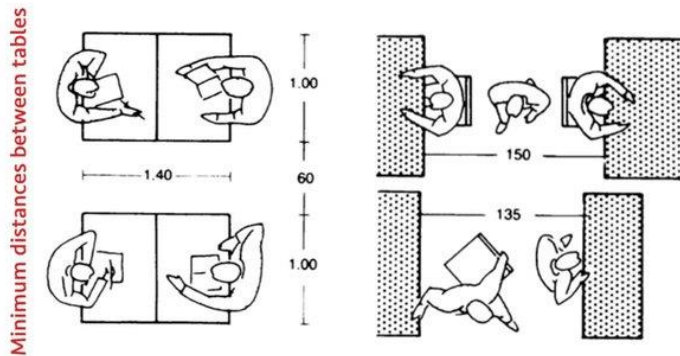


Figure 148: Circulation in library (De Chiara & Callender, 1983)



- Proper shelving is needed for people of different ages.
 - Minimum clearance for different body positions in the stack area of a library

Figure 149: Recommended minimum distances between units in libraries, (Neufert, 2012)

A. Lighting in Library

Day lighting: Utilizing daylight effectively helps cut down on energy use while giving libraries a more welcoming, homey atmosphere. Uncontrolled day lighting, however, can cause glare and harm delicate materials. Windows or clerestories that face north allow light to enter while blocking direct sunlight. Additionally, south-facing glass with sufficient overhangs can be useful.

Artificial lighting: It can be used in place of natural light. Any electric fixture, including high intensity discharge, incandescent, or fluorescent light sources, may be used. Light sources parallel to stacks and lights angled at a right angle to stacks offer improved vertical illumination for books on lower shelves.

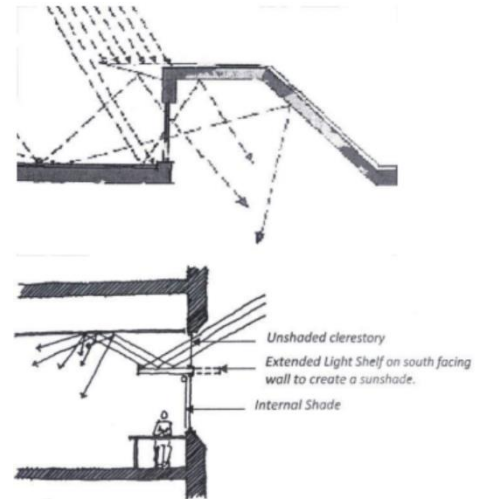


Figure 150: Diffused Lightings

B. Collection, Storage Area

The main responsibility of this department is to preserve and document all relevant materials for a long time. Ideally, it should be located in the center of the building, away from exterior walls and roofs. The type of collection and display program will determine the appropriate storage methods. The halls must be spacious enough to transport collections safely and require large doors with specific dimensions. Fire protection and tight security measures are necessary in this area. To ensure proper storage, painting storage racks, metal shelves, and cabinets should be utilized.

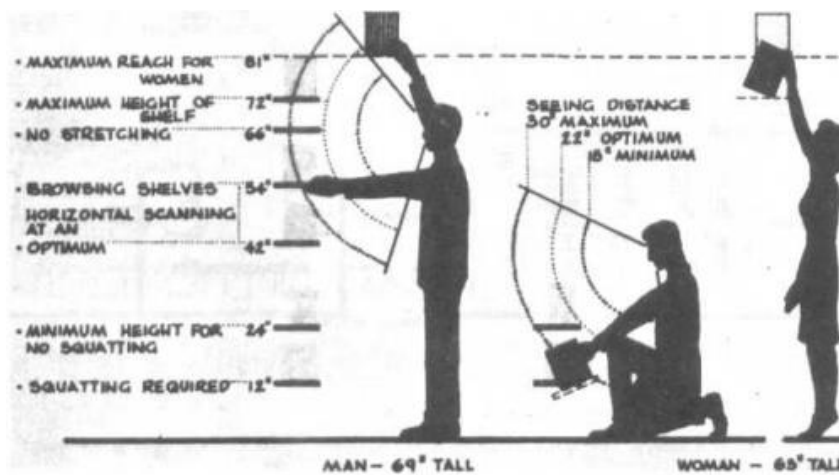


Figure 151: Optimum Shelving condition for adults, (De Chiara & Callender, 1983)

2. Audio/Visual rooms

Audio/visual rooms and Conference halls need considerations of visual angles, wall surface and treatment. The space requirement for Audio/visual rooms depends on their sizes. A standard dimension is 1.5-2.4 sq. m. per seat for executive theatre and classroom setups, 3.1-3.9 sq. m. for hollow square and U- shaped arrangements.

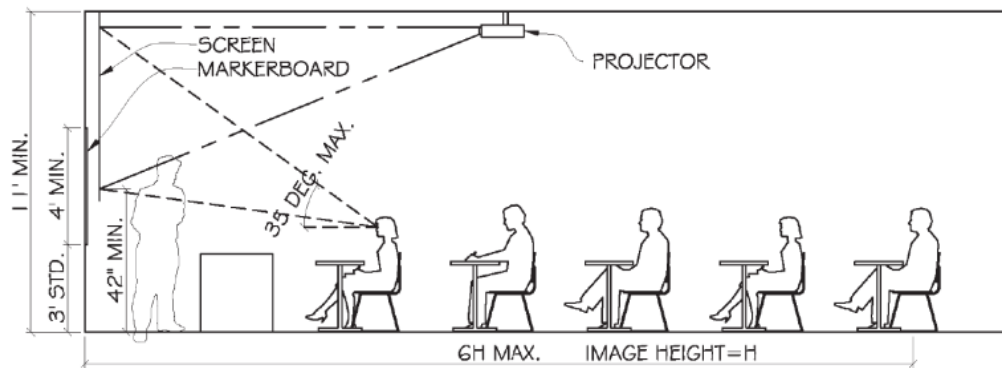


Figure 153: Flat floor Section with Standard Measurement (UIT, 2020)

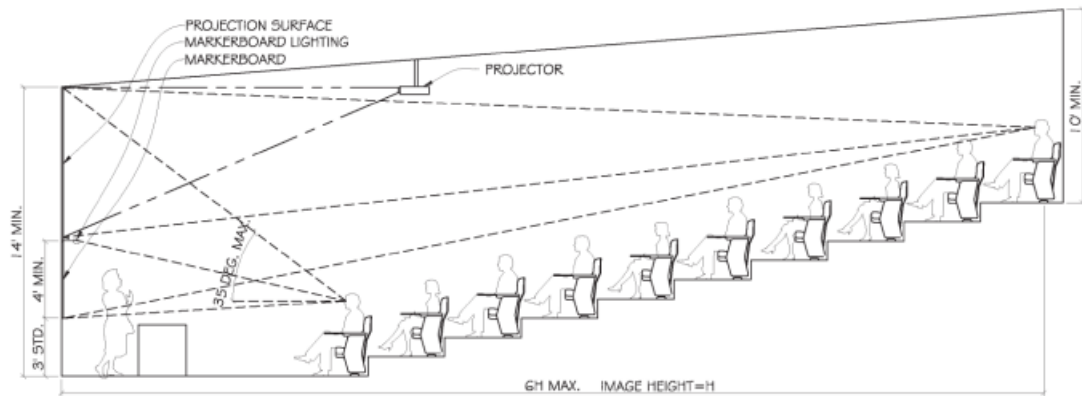


Figure 152: Tiered-Floor room section with wall projection, with standard measurement (UIT, 2020)

- A minimum passage area is 18 inches between chairs and including chair area, tables should be placed 4 to 5 feet apart.
- A table length to seat four, six or eight is preferable.

Area required

Dining room: 60% of total area

Per seat: 1.5-2.15 sq.m

Ratio of service area to total area:

25-50%

Net kitchen area: 15-25%

Aisle width

Main: min. 2m wide

Intermediate: min 0.9 m wide

Side: min 1.2 m wide

Ceiling Height

Floor area < 50 sq.m: 2.5m

Floor area > 100 sq.m: 3m

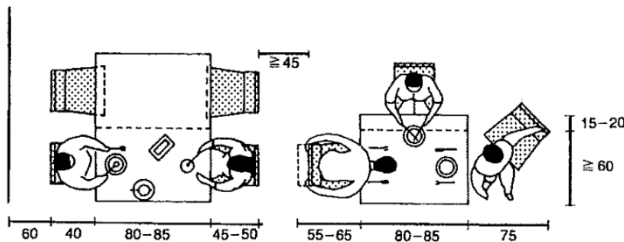


Figure 158: Space requirements, (Neufert, 2012)

Table 12: W/C requirements

Customer	Male w/c	Female w/c	Washbasin	Urinal
50	1	1	2	2
50-200	2	2	3	3
200-400	3	4	6	4

4. Parking

The type, size, and shape of a turning spot in a road depend on its purpose and usage, while also conforming to town planning regulations and meeting the needs of road users. Common shapes include hammerheads, turning circles, and loops.

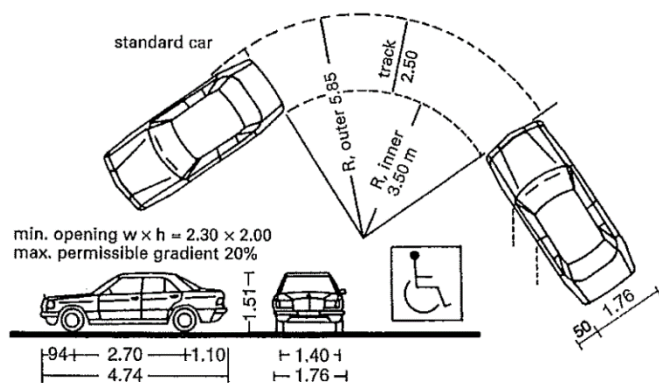


Figure 159: Standard car dimension and turning radius, (Neufert, 2012)

For parking spaces, those

designated for disabled individuals must be wider than 3.5 meters, while garage parking spaces for cars should be at least 5 meters long and 2.4 meters wide.

Turning circle shapes may include loops, hammerheads, or turning circles. Disabled parking spots should be wider than 3.5 meters, while garage parking spaces should have a minimum length of 5 meters and width of

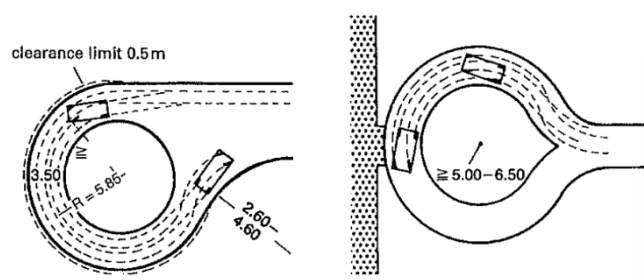


Figure 160: Car turning circle, (Neufert, 2012)

2.4 meters. Ramps must be properly designed, with a width of 5-6 meters and must cover the total height of underground parking. The minimum lane width at entrances and exits is 3 meters for vehicles up to 2 meters wide and 3.5-4.5 meters for wider vehicles. The largest vehicle allowed by law must have a turning circle radius of 12 meters.

Mechanical parking:

This parking system operates by utilizing two spaces, one above the other. The lower space is easily accessible for parking and removing a car. However, when the upper space needs to be used, the car in the lower space must be removed first. This system is beneficial as it maximizes the parking capacity within the available area, has a straightforward design, is user-friendly, and includes safety features and space locking mechanisms.

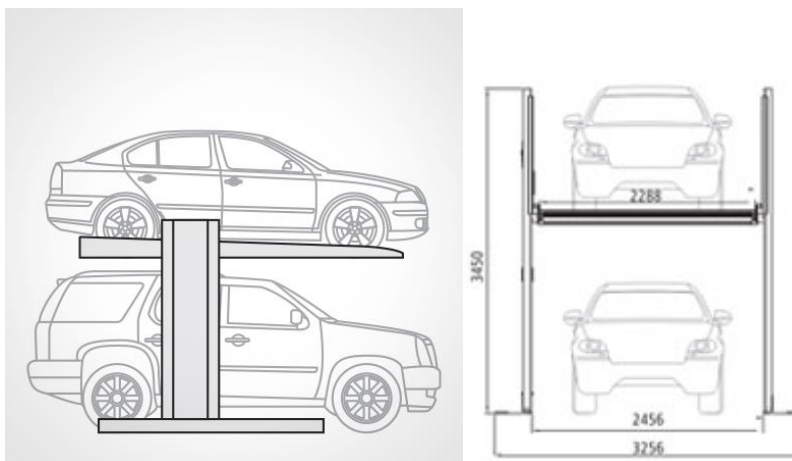


Figure 161: Mechanical parking, (Techno elevators)