Reprogramming Sacred Monuments:
Giving New Life to Stepwells in Gujarat, India

by

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To my grandparents, ba and dada

Contents

Abstract

This research is based within historicism and its inherent practices to conserve obsolete and symbolic structures. Due to their sacred nature these types of structures are often preserved, remain untouched and left to decay, or are forgotten altogether.

Historically the Western Indian stepwell archetype provided public access to water and therefore, it served as an important public gathering space that was predominantly used by women. This thesis proposes that obsolete sacred spaces like the stepwell that no longer serve their intended utilitarian function can be trans-programmed and re-contextualized as public infrastructure serving the contemporary needs of the community. Studying specifically the Adalaj Stepwell, it explores how renewed public space can be created by deeply rooting thoughtful architectural interventions in the collective memory of the building. These interventions balance preservation with revitalization by providing the services and spaces needed to give the historic monument new life as a contemporary public library.

Acknowledgements

I would like to thank my supervisor Cristina Verissimo for her unwavering support, tireless guidance, and accidental yet imperative wake-up calls.

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My friends and family know the ride this journey has been; no one achieves anything in this life alone and so I thank you.

To the pillars of this life, my parents and my sister Sajni, thank you for always holding me up.

To my boyfriend Alex, I cannot express in words how thankful I am for you, but know I am your biggest fan.

To Reema, who during long days and late nights cheered me on every single day and to Luca who helped me laugh through the pain, I thank you both.

Chapter 1: Introduction

1.1 Introduction

Sacred monuments often remain static in time, whether or not that is the state in which they are preserved, are left untouched and decaying, or are forgotten altogether. The study of sacred monuments is aligned with the help of theorists like Mircea Eliade, Louis Kahn, Moshe Safdie, Diana Eck, and Thomas Barrie. In each case, the original function of the historic building has been reduced or removed. The specific archetype studied is the Western Indian stepwell in this thesis, where it no longer serves its intended utilitarian function of providing drinking water to a local home, community, or town. The sacredness of these water monuments remain but is not visible in the context of the community due to its obsolete use since the introduction of modern water management and the increasing ground water depletion. As stepwells lost their function in society, they lost at the same time, an important public gathering space.

The question then is how can underutilized sacred monuments like the stepwell archetype be reprogrammed to serve the needs of contemporary society while retaining it's value? To answer this question through informative thesis research, the site Adalaj ni Vav (Adalaj Stepwell) located in a small town outside of Ahmedabad, Gujarat, was chosen for it is a fusion of architecture from different cultural backgrounds that assimilate within the local community. The thesis is divided into three sections, first, Chapter 3 and 4 dictate the research and analysis of historic narratives, of understanding the contemporary needs within the community, of peoples existing relationship to water and of the urban artifacts'

building analysis. This section identifies what services are needed within the community and provides a premise for why stepwells can once again become centerpieces of public life. Stepwell research is supported through work of experts on the topic such as Morna Livingston and Jutta Jain-Neubauer. In Chapter 5, with the help of Thomas Barrie and Bernard Tschumi, the method of trans-programming allows for conflicting programs to work together. This thesis proposes that a Contemporary Public Library and the celebration of water can work together to give the monument new life. Lastly, Chapter 6 articulates a design method around a palimpsestic approach with allies such as Tim Ingold. Palimpsest allows for deeply rooting architectural interventions in the collective memory of the building. All proposed interventions and trans-programmed spaces bear visible traces containing narratives of the people, the history and the form throughout the urban artifact. Building on the existing and then in inhabiting now, the spaces are again reimagined. Investigating a Contemporary Public Library, a facility that includes a library, exhibition spaces, workshop areas, and maintaining the spiritual relationship with the water mediates between preservation and revitalization. Spaces are activated through the addition, subtraction, and delicate detailing around form. The complexity of sacred monuments such as the stepwell can evolve, change, and grow with new functionality over time as the proposed architectural interventions become a part of the urban artifact and once again becomes as a center for public life within the city's locus.

1.2 Motive

As a South-Asian woman who was born in Ahmedabad, Gujarat, raised for a short while in Dubai, but primarily grew
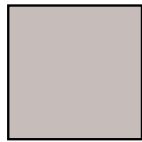
up in Toronto, Ontario, I feel as though I have a foot in two different worlds. Through childhood and into adulthood, I struggled to blend two opposite cultures into my day-to-day life. I was surrounded by people that were part of immigrant families and by people that were not and life experiences had me questioning my identity and where I actually belonged. Community, tradition, food, language, and religion are aspects of my culture that are rooted to my Indian identity. Being a proud Canadian also means embracing these roots wherever they stem from, as is the case for many immigrants and first-generation Canadians. Having visited my native land throughout my life, the curious surroundings of how the old with the new coexist made me eager to understand my cultural past. Having said this, one can understand my burning interest of historic monuments in India.

Studying architecture in North America with a predominant focus Eurocentric studies feels as though a holistic approach to architectural studies is amiss. With particular interest in revisiting my roots and indulging in memories of my own experiences, this topic came into being over a particular memory at Adalaj ni Vav. This particular stepwell was one I visited and remember thinking how extraordinary it was. In pursuing this architectural thesis, the study of stepwells notably allows me to feel connected to a place that has become somewhat foreign in recent years. Through this thesis, I intended to understand the pasts and presents of social, political, and economic constructs that led to the development, use, and disuse of stepwells, which informed my approach in reviving these types of structures.
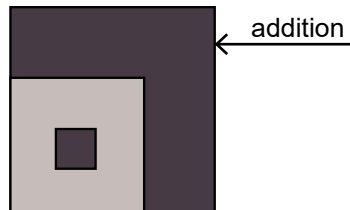
1.3 Critique

Adaptive reuse is common practice in contemporary architecture yet due to their scared nature these types of structures are often preserved in an ideal state, remain untouched and left to decay, or are forgotten all together.

Adaptive Reuse of Historic Buildings

Three States of Sacred Historic Monuments

Existing Historic Building

Existing Sacred Historic Monuments

addition

imitation of original

The existing historic building changes with adaptive reuse as it is often added to and preserved as a shell for new activity while restoring and preserving the historic character.
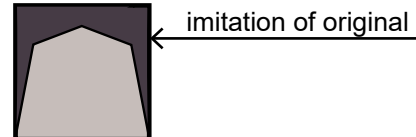
Condition 1: Sacred monument are preserved in an ideal state, by imitating original material and replicating motif.
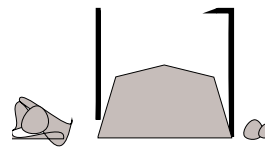
Condition 2: The sacred nature of monuments leaves them to remain untouched from activity and often are in a state of ruin.

Condition 3: Sacred monuments can become forgotten over time as nature reclaims the monument or as city expands and builds over the building.

RESILIENT SPACES

GUJARAT, INDIA

WHAT DEFINES THE RESILIENCY OF A SPACE?

ADAPTIVE SPACE

ARCHETYPE

HISTORIC ARCHITECTURE

COLLECTIVE MEMORY

MONUMENT

DESIGN WITH RESPECT

FORM

WHAT ARE OTHER ARCHITECTURAL FORMS THAT ARE SIMILAR?

HOW ARE THEY USED?

PALIMPSEST

STEPWELLS

CROSS-PROGRAM

CONTEXT

PUBLIC BUILDINGS OF MANY USES

HISTORICAL EVOLUTION OF THE CITY & SITE

SOCIOECONOMIC CHANGES SINCE THE 15TH CENTURY

CURRENT USE

NOW DISCONNECTED FROM PRIMARY PURPOSE

NEW PROGRAM

ONE OF THE RARE FORMS OF ARCHITECTURE THAT COMBINE HINDU, JAIN AND ISLAMIC MOTIFS AND PRINCIPLES

MASSIVE DIVIDE BETWEEN SOCIOECONOMIC STATUS

PRESERVED, DECAY, OR FORGOTTEN

REFUGE

WATER

SPIRITUAL

SHELTER

RITUAL

WOMEN

RAIN

WATER COLLECTION

PUBLIC INFRASTRUCTURE

CONTEMPORARY NEEDS OF COMMUNITY

Mind map of thesis proposal, the map situates the thesis topic within adaptive reuse and informs research avenues with relationships to theory and design.

Chapter 2: Theory

2.1 Restoration Theory

One cannot provide a comprehensive analysis of ancient structures without insight on strategies on architectural restoration. Research on the approach for historic restoration provides insight into reinventing the stepwell. John Ruskin and Eugene-Emmanuel Viollet-le-duc, an English art critic and a French architect of the nineteenth century debate the earliest and predominant opposing ideas on architectural restoration. Ruskin leans on figures of allegory and Viollet-le-duc on symbolism (Spurr 2012, 142).

2.1.1 John Ruskin

Ruskin argues in favour of the aesthetics of architectural ruins against its restoration. One major drawback of this approach of ruins in the landscape is that they are forced to be static in time, unused and will decay due to neglect. It is certain that John Ruskin interpreted Joseph Paxton's Crystal Palace as an "anti-spiritual" building. Referring to the Crystal Palace one can conclude that even if buildings are not built as monuments, they can become monumental (Fernández de Córdova 2013). This is the case with the stepwell where the urban artifact was built not as a monument, but has gained historical significance as it retains spiritual value and memories of public space that is now lost in the community.

Ruskin's analysis does not take into account that every building can have historical significance and if structures cannot and should not come back to life (Ruskin 1989, 244) then the city becomes obsolete with ruins littered in the landscape. If we do not have the right to touch these

historical buildings then I believe their meaning is not fully understood, and actually forgotten in the locus of the city. The ruins, historic buildings and monuments that Ruskin believes should remain without change are defined as primary elements of the city by Aldo Rossi. These elements act as catalysts for activity within a given form (Rossi 1982, 87). It is the events within these places that marks the creation of the urban artifact. Without activity, these structures remain as a ruin.

2.1.2 Emanuel Viollet-le-duc

In 1858 Viollet-le-duc writes, "to restore a building is not to maintain it, repair or rebuild it, but to re-establish it in a complete state that may never have existed at a particular moment" (Choay and Ragon 1999, 710-711). Viollet-le-duc argues that the ruin of ancient monuments is to be avoided through their continuous rebuilding to transform them into monuments of permanence (Spurr 2012, 148), seeing architectural restoration as a new science.

In this way, Ruskin and Viollet-le-duc commemorate the notions of truth in architecture in which the appearance of a building corresponds to its actual structure and material composition (Spurr 2012, 147). Though I do not align myself with either point of view, my argument is of a hybrid category. Historic monuments should be left untouched in rawness to express the stories of the past, but buildings should be repurposed intelligently to allow for the city to be lived in and that is a right. Restoration when needed, should of course take place, but unlike Viollet-le-duc's method, it should not blend in with the historic architectural elements, but rather be added on as a bold layer to the historic building as a display of new memory.

2.2 Artifact Theory

2.2.1 Aldo Rossi and The Urban Artifact

Aldo Rossi's hypothesis of the city as a man-made object, as a work of architecture or engineering that grows over time (Rossi 1982, 34) is the foundation of this thesis's theory. The stepwell that has become stagnant in its function adopts Rossi's attitude to the urban artifact and the city.

The stepwell is an object that has been constructed, that constitutes memory and permanence (Rossi 1982, 34). Similarly, if a design intervention were to be ephemeral, it would still constitute memory and permanence within the locus. It is the activity generated within the form which is remembered within the city's collective memory. Perhaps a renewed public space within the subject site of Adalaj ni Vav asks as a catalyst of similar types of spaces within other stepwells in Gujarat and Rajasthan. The archetype then, that embodies a collective memory of water, women, great architectural merit, can also become known for a new form of public space in the city.

Form can evolve with its program much like Palazzo Della Ragione in Padua. One can read the allegory of the building at its origin in parallel with the story told through the renewed design intervention. These palimpsests speak to one another in the same space.

> The city is the locus of the collective memory. This relationship between the locus and the citizenry then becomes the city's predominant image, both of architecture and of landscape, and as certain artifacts become part of its memory, new ones emerge. This is entirely positive sense great ideas flows through the history of the city and give shape to it. (Rossi 1982, 130)

Aldo Rossi describes the urban artifact as a building, a street or a district, it is made richer by its history, and if built
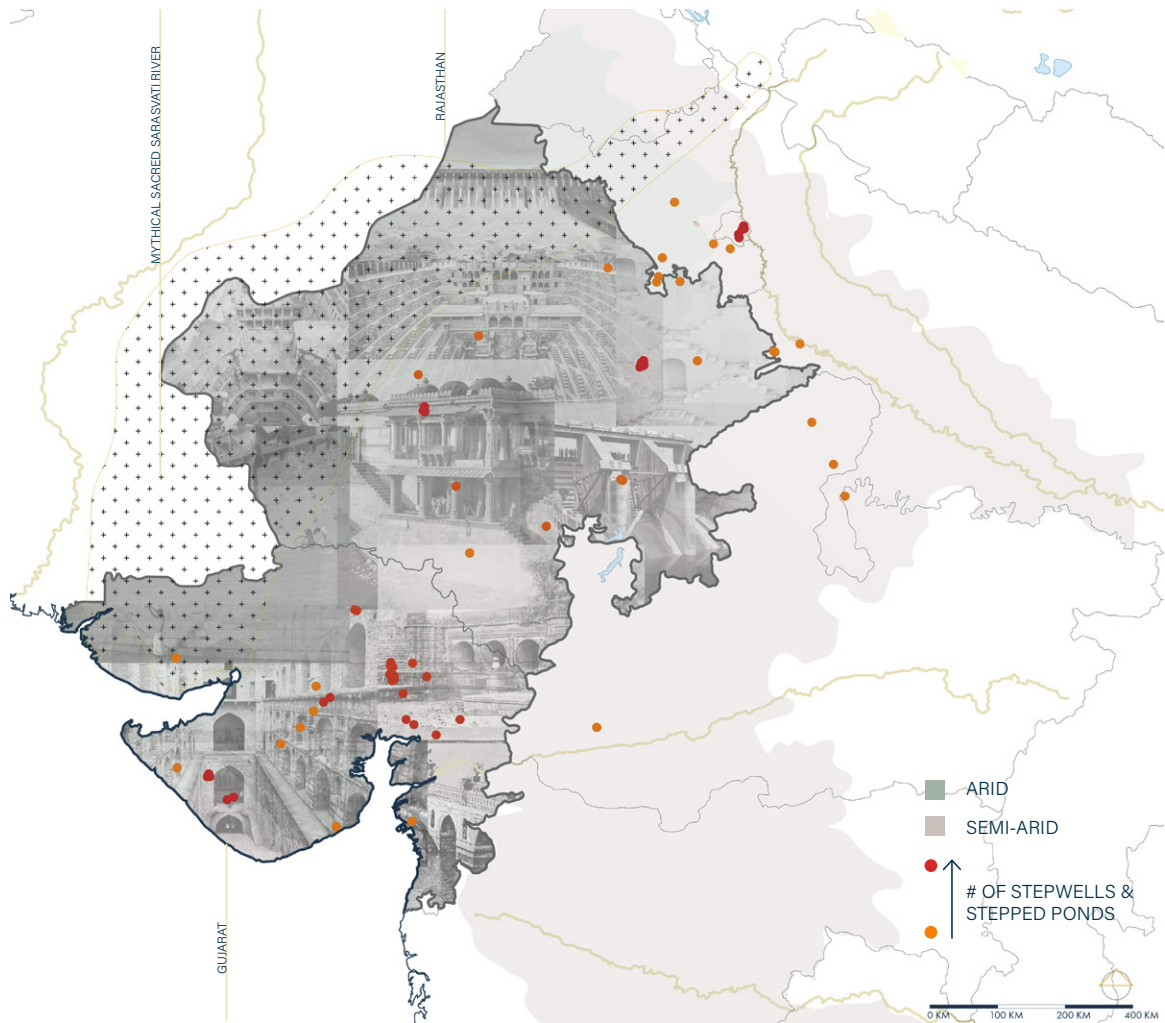
This archetype is common in Western India. There are close to 3000 stepwells and stepped ponds in western India, in the states of Gujarat and Rajasthan, home to arid and semi-arid climates

today, it would not have the same impact on the city as it has done. The artifact is defined by growing, changing, and having different uses over time but the form remains the focal point of these changes. The method of my research is rooted in Rossi's theory in addressing the social history and geography of the sites. Addressing the historic form of stepwells through historic texts, motifs, folklore stories and religious associations are all part of the locus that acts as the collective memory and basis of new design decisions. Urban artifacts such as the western Indian stepwell change with time and needs and functionalism is physiological.
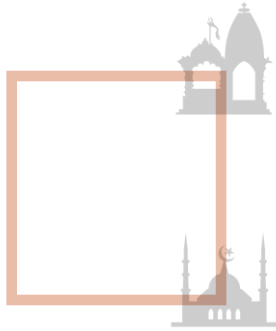
Stepped ponds are always adjacent to places of worship

Plan and section of
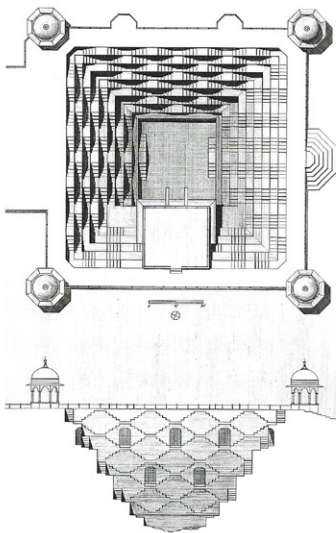Panna Mia Stepped Pond
(Livingston 2002, 110)

The locus, individuality, and memory are all equal in design (Rossi 1982, 46). The revitalization of stepwells is rooted in Rossi's theory of the urban artifact.
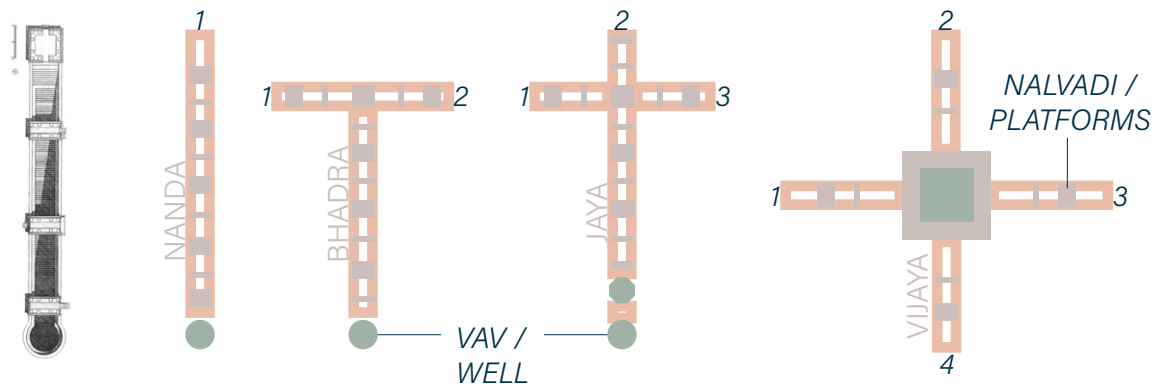
2.3 Monument Theory

2.3.1 Monument and Historic Monument

Up until now the research has tended to focus on ideas of preservation and defining the urban artifact. These theories are the underlying basis of insight on how to approach restoration and the motive for form changing function. To begin to understand monuments a distinction must be made between the monument and the historic monument.

Francoise Choay distinguishes between the "monument" as a deliberate creation whose purpose is established prior and the "historic monument", which is not initially desired and created as such but constitutes posteriori by the converging gazes of the historian and the amateur, who chose it from the mass of existing edifices (Tatom 2002) and thence defined it as a historic monument.

Stepwells are often linear, T-shaped, or cross-shaped in form, but other variations such as Stepped Ponds, resemble inverse pyramids
Left: Plan of Vikia Stepwell (Livingston 2002, 5)
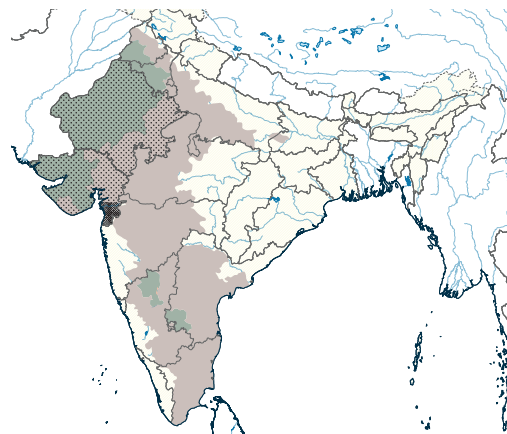
Gujarat and Rajasthan are located in arid and semi-arid regions

2.3.2 Politics of Monuments

Globalization of Western values, which UNESCO is emblematic, constitutes conservation bureaucracy of monuments to be preserved in to other cultures. The "Noah Complex" attributes any artifact in the past that is deemed valuable to tourism, as protected for infinite preservation (Tatom 2002). This tactic freezes the urban artifact in time, and renders it useless to new life. Though many times, historic monuments should be protected, stepwells should not. This thesis argues against any bureaucratic conservation that demobilizes new function. Though some stepwells fall into the category of heritage buildings in municipalities, to preserve the well without its intended function, especially when that function can easily be revived, does an injustice. The use value of the monuments have been converted into economic value not only through the techniques of preservation, generally legitimate in their scholarship, but also through strategies of "enhancement" designed to educate and attract new consumers of history. Adalaj ni Vav is a good example of this where it is designated as a UNESCO world heritage site, and is robustly maintained in comparison to most other wells. Choay presents the idea of heritage as a cautionary tale: The industrial and commercial

exploitation of the historic heritage contains the seeds of a dehumanizing demobilization of creativity and cultural invention (Tatom 2002). If stepwells continue to go under bureaucratic conservation, any attempts to generate culture within them will be diminished.

2.3.3 Sacred and Secular

> …contemporary sacred spaces include landscapes, monuments, and museums which evoke great commitment, pathos, and sacrifice on the part of a community of individuals. In this respect, religious buildings and sacred landscapes rarely function simply as isolated expressions of largely sectarian experiences. (Britton 2010, 19)

The thesis aims to test this theory of how sacred spaces such as the stepwell can be more than expressions of a sectarian experience. Stepwells and historical water infrastructure contributed significantly to day-to-day public life. Stepwells, though deemed sacred could create secular experiences centered around water. Reintroducing water alongside the civil program is key in the success of this hypothesis. The most civil spaces such as waterfronts that have lakes, riverfronts, the ocean, and plazas that often have fountains are all designed around the need, want and allure of water.

Stepwells, like all good architecture is organized in a hierarchy of space. The hearth to a house, or the nave of a church is usually the most important space in a building. Rudolf draws on the hierarchy of spaces where some are placed and designed to evoke deep human emotion (Otto 1968, 20). Adalaj ni Vav's hearth is the octagonal shaped light shaft that cascades 5 storeys below grade to where the water emerges. This shaft lights the well and evokes a variety of emotion at different times of the day. For a religious person, space is not homogenous; they experiences interruptions, and consequently some parts of space are

Water Stuctures
Old

Wells

Stepped Ponds

Stepwells

Sluice

Water Reservoir
Artificial Lakes

Canal & Dams

Water Structure
New

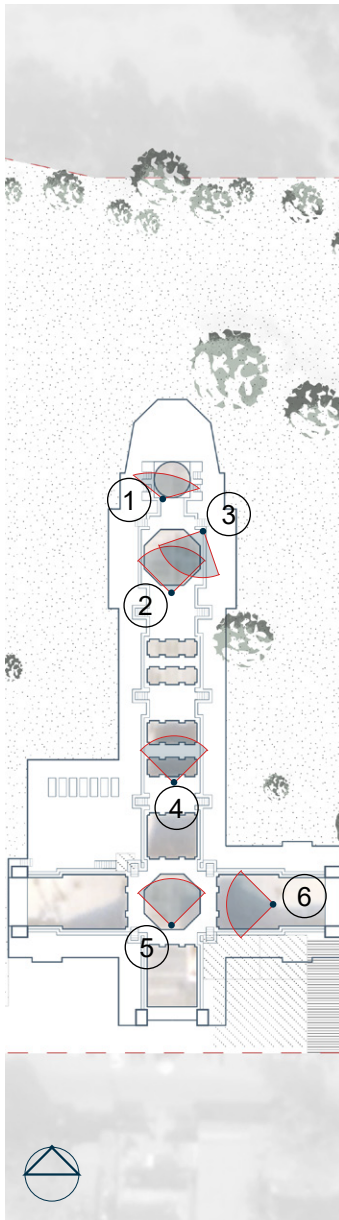The evolution of water infrastructure in India

qualitatively different from others. There is, then, a sacred space, and hence a strong significant space; there are other spaces that are not sacred and so are without structure or consistency and are amorphous (Eliade and Trask 1987, 20). This in the context of the stepwell, similarly there are areas that are amorphous, not sacred, that create opportunity for design intervention. This thesis is not attempting to design a sacred space, but rather to intervene around the sanctity of it. It is only through the understanding of sacred spaces can this thesis attempt to identify architectural potential for change within it.

> Monuments are the expression of [a person's] highest cultural needs. They have to satisfy the eternal demand of the people for translation of their collective force into symbols. The most vital monuments are those which express the feeling and thinking of this collective force- the people. (Ockman, Eigen, and Columbia University 2007, 24)
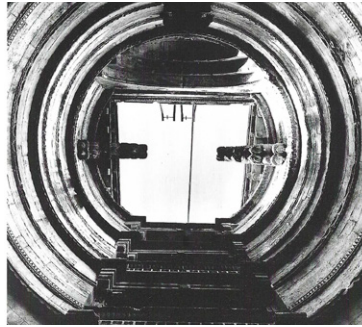
Britton expands that call for a need of re-organization of community life through the planning and design of civic centers, monumental ensembles, and public celebrations which would serve as symbols for communities (Britton 2010, 22). This will be possible once replanning is undertaken multiple at small scales which will create opportunities for public space in the now decaying areas of our cities. This thesis strives to follow this rule, then interventions to historic monuments could be built upon and within for the collective force, people who have the right to these spaces. Choreographing spaces such as the Holocaust Memorial, which "has to do with desacralizing the space, to make it more everyday, ordinary, so there would be no special and thus clumsy relationship between German and Jew." People have lunch there, sunbathe, there are people in love, encompassing it into the ordinary (Britton 2010, 213). This memorial takes a socially charged event in German

history and recontextualizes it through the mundaneness of its program. In translation to the charged spaces within stepwells, it is not enough to bring back water to the sites, it needs to adopt a similar desacralization of space through the intended program and architecture like the Holocaust Memorial to make room for the everyday for people who are divided into different socio-economic and gender groups.

Looking up from Level -5. (Livingston 2002, xviii)

Facing north at Level -4. (Livingston 2002, 99)

Level -4 at octagonal shaft (Livingston 2002, 98)

Procession down the central corridor at Level -2. ("Purcell's Design Programme - Stay Home: Stay Creative" n.d.)

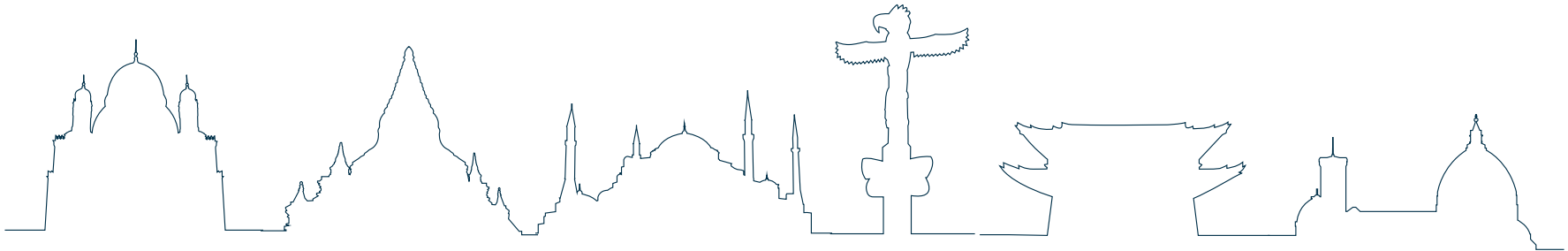Entrance Platform at Level -1. (Jinwala n.d.)

Procession down east staircase at Level 0. ("Adalaj Ni Vav" n.d.)

Existing site plan and view locations at Adalaj ni Vav
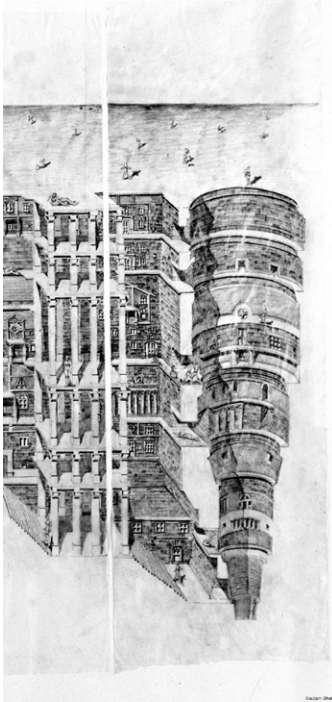
Sacred monuments are usually built ground-up, shaping the skyline.
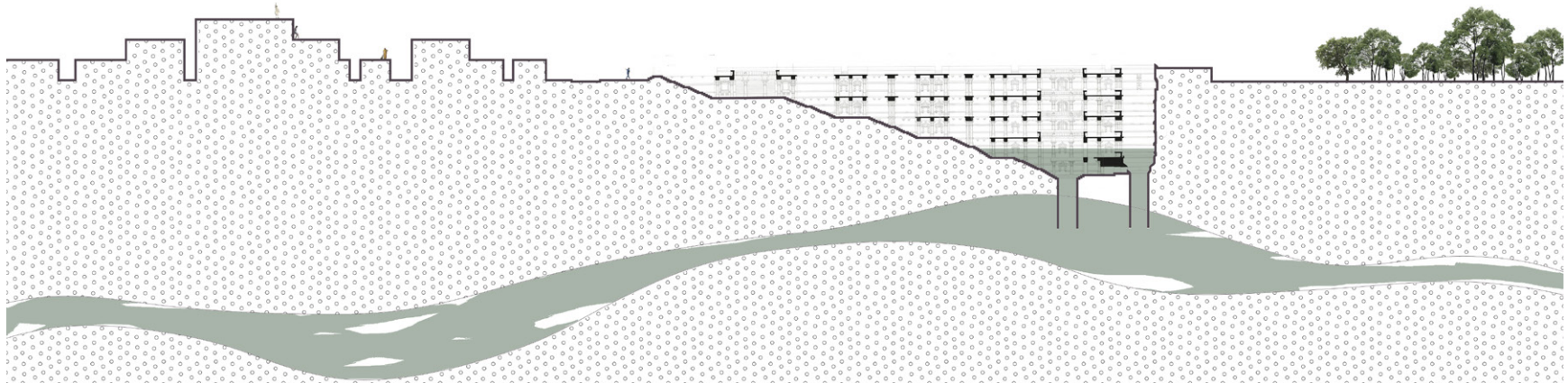
Stepwells feature a procession into the earth that generally ranges from three to nine floors below the surface to be able to access water from the acquifer
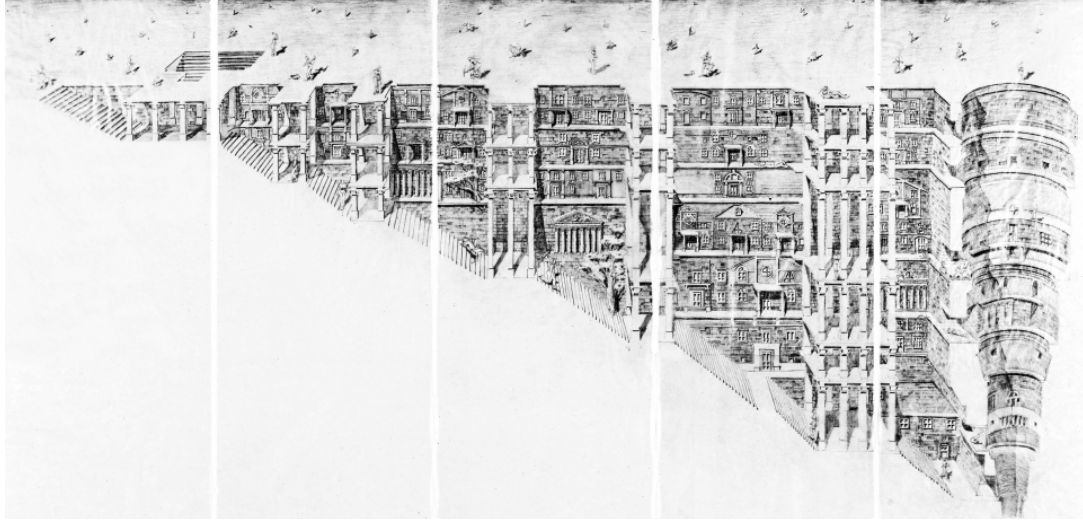
An adaptation and imaginary scene of life within a stepwell by Gautam Bhatia (Bhatia 2004)

An adaptation and imaginary scene of life within a stepwell by Gautam Bhatia (Bhatia 2004)

Chapter 3: Research

3.1 The History

Key women have influenced and provided deep insight in understanding the social and architectural constructs of stepped ponds and stepwells. They are Morna Livingston, Jutta Jain-Neubauer, Victoria Lautman and Julia Hegewald.

3.1.1 What is a stepwell?

Stepwells and stepped ponds are elaborate water structures with stairs that usually range from three to nine stories below the surface. These underground buildings were integral to life in western India. An estimated three thousand were built between the seventh and mid-nineteenth centuries A.D (Livingston 2002, xix). These places were for the community and invested in religious meaning. One is to not mistake these with other water structures such as tanks, cisterns, paved stairways along rivers (ghats), and cylindrical wells found elsewhere in India. Stepwells and stepped ponds are indigenous to the arid and semi-arid climate of Gujarat and Rajasthan.

Construction

Construction starts with digging the well shaft until reaching water aquifer through pulley excavation with the help of cattle. Then, through a scaffolding system, the stepwell was dug and arranged tier by tier in the interlocking stone vocabulary of columns and beams we see today (Livingston 2002, 48).

Settlement Patterns

The settlement patterns of stepwells in communities follow a few key rules. First, stepwells were usually located near seasonal rivers, streams and ponds to knowingly reach a confined water aquifer. Second, stepwells were located at the lowest geographic condition for efficient water collection. During monsoons, rainfall and floodwater was harnessed for growing crops surrounding stepwell sites (Livingston 2002, 10).

Sanctity of Water

Stepwells came out of a need for water in times of extreme drought. This is perhaps why water is symbolic in religion, the practice of ablution is a ritual that is shared by all of the worlds religions (Barrie 1996, 74). Specific to Hinduism, its roots and their importance to water, Hindus, Buddhists and Jains, visit sacred sites for ritual bathing in the Ganges. The Mahabharata states:

> Just as certain links in the body as purer than others, so are certain places on earth more sacred- some on account of their situation, others because of their sparkling waters, and others because of their association or habitation of saintly people. (Barber 1991, 85)

Water is precious, it is spiritually charged, and it is scarce in the western Indian climate. The rate at which water evaporates is so fast that landscapes change through the

year from wet to dry. There are seasonal rivers and streams during the monsoon months (Livingston 2002, 10). From this, came a need to store water throughout the entirety of the year. Monsoon is starts in June and ends in September with the highest amounts of rainfall in July (World Weather & Climate Information 2019).

Contemporary water management created the Narmada Canal that runs between the subject site in Adalaj and Ahmedabad. In 2012-2013, a total of 8,461 mcm (million cubic meters) was released from the main canal, of this 3,318 mcm was officially given to agriculture and 1,615 mcm to urban areas to Gujarat's water management companies. There is no proof of where the remaining 3,528 mcm of water went (Chakravartty 2015). Water is political, who controls is has the power to see who receives it, in this case the state has this power. Water should be free and accessible to all, and currently it is inequitably amongst the organized social structure in India. These findings have presented opportunities for further research by Indira Hirway and Patel in "Dynamics of Drinking water in Rural Gujarat" and by Cecilia Tortajada in "Women and Water Management". An essay by Jasyhree Soni named "Water Accessibility and Marginalisation of Dalits: Some Observations of Rural Gujarat" has also contributed to understanding the inequitable relationship between water and people deemed a lower social class.

This thesis strives to create opportunities for equity. As described in Chapter 5, a public program is proposed in hopes to transfer the politics of water into the hands of the community. By introducing a contemporary library alongside the visibility and interaction to clean water will incline people rich and poor to have equal access, hence changing the
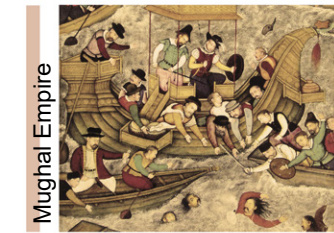
Tracing the historical political regimes of Hinduism Jainism, Islam, and of the British
Top: Rulers indigenous to India (Shah 2019)
Middle: The era of the Mughals, image shows the death of Sultan Bahadur Shah of Gujarat at Diu against Portuguese in 1509 ("1458: Indian Sultan Mahmud Begada Comes to Power" n.d.)
Bottom: ("The Reception of the Mysorean Hostage Princes by Marquis Cornwallis, 26 February 1792 | Art UK" n.d.)

perception of each other. The relationship between women and the use of stepwells explained in section 4.3 means that women today have a historical right to these spaces and could be more inclined for change in water management. The contemporary library is defined as a space that incubates knowledge, creates room for knowledge transfer such as a transfer of trade and artisanal skill in the arts or food from generation to generation.

Public Space and Water

There are two notable places in Ahmedabad, outside of the many varieties of stepwells in precolonial India that are designed as public spaces and water reservoirs. The first is Sarkhej Roza, who was a precursor to the Mughal period. The design of this complex has a mosque and tomb around a man-made ghat ("Sarkhej Roza" n.d.). The complex had a sluice that bridged a man-made river from the Sabarmati River that kept the water controlled within the complex. The steps to water acted as social spaces on a multitude of levels. Second is Kankariya Lake, a round water reservoir that surrounds itself with public program. Identifying other water reservoirs that were also used as public space argues that the stepwell intervention for public space is justified. It reveals a direct link between water infrastructure and a right to water in daily life. Today, water is only advertised as accessible. The Narmada Canal riverfront development romanticizes access to water and masks larger issues of drought and depletion of underground aquifers explained in the Sanctity of Water section. The thesis proposes that the natural ecology of the adjacent areas must always be preserved and must remain as a protected landscape to not compromise the water table, and by association allowing the stepping well to flood seasonally.

AUTUMN/WINTER (OCTOBER TO FEBRUARY)
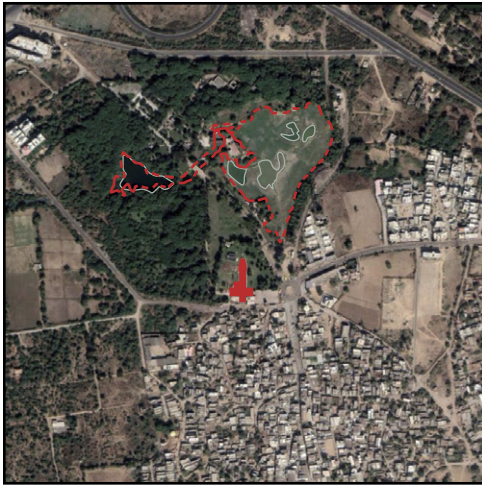
SUMMER (MARCH TO MAY)

MONSOON (JUNE TO SEPTEMBER)

Water in the stepwell is directly related to its surrounding context. The highlighted areas are located north of Adalaj ni Vav where there is a lake that floods seasonally and therefore replenishes the aquifer

Left: Google Earth imagery show floodplains adjacent to subject site

FEB 2001

JUNE 2002

OCT 2003

SEPT 2005

Winter   Summer   Monsoon

Aerial imagery from Google Earth is assembled to show a progression of lake conditions
seasonally and over the years

Winter   Summer   Monsoon

Aerial imagery from Google Earth is assembled to show a progression of lake conditions seasonally and over the years

Winter   Summer   Monsoon

Aerial imagery from Google Earth is assembled to show a progression of lake conditions seasonally and over the years
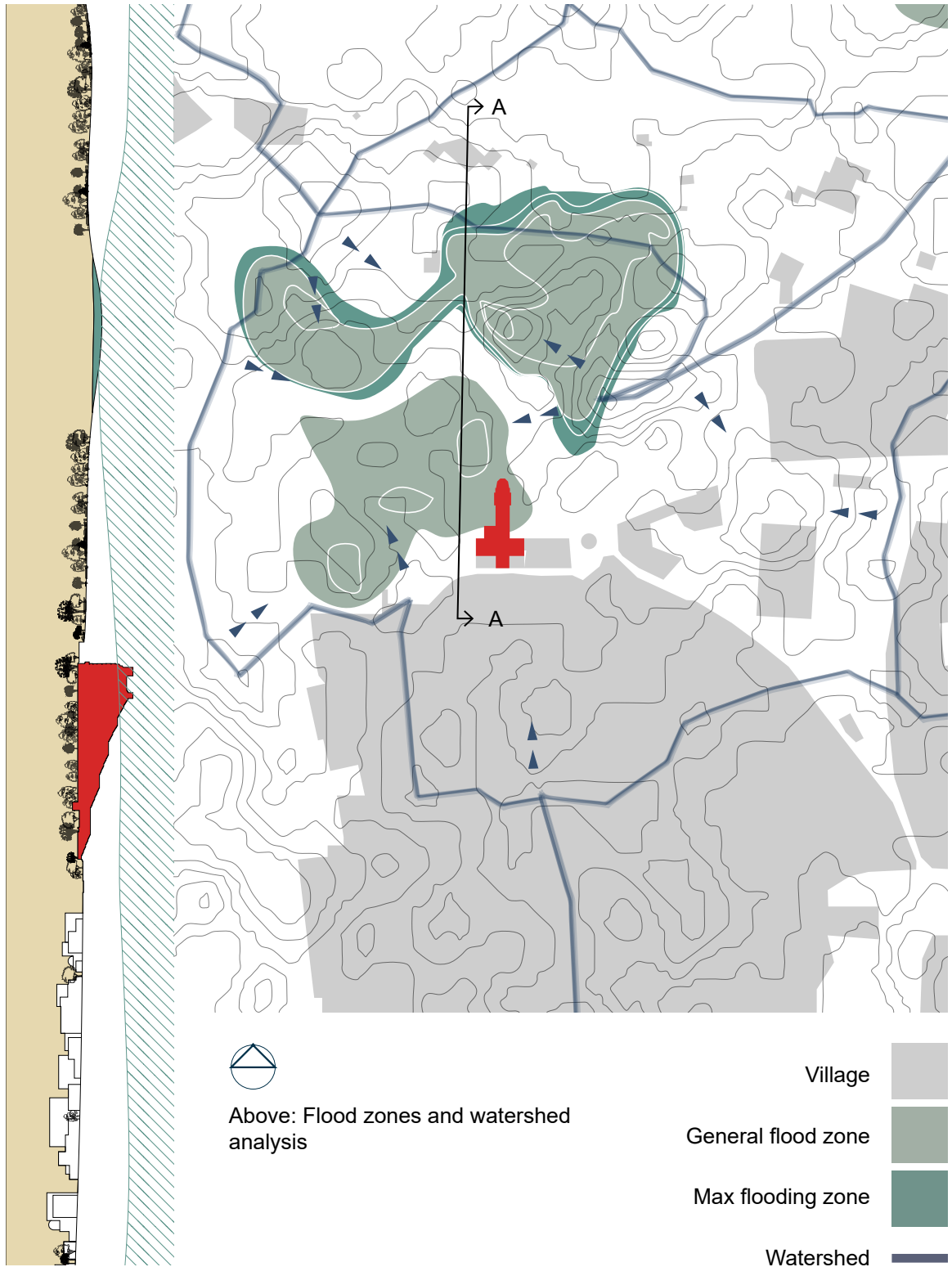
| Winter | Summer | Monsoon |
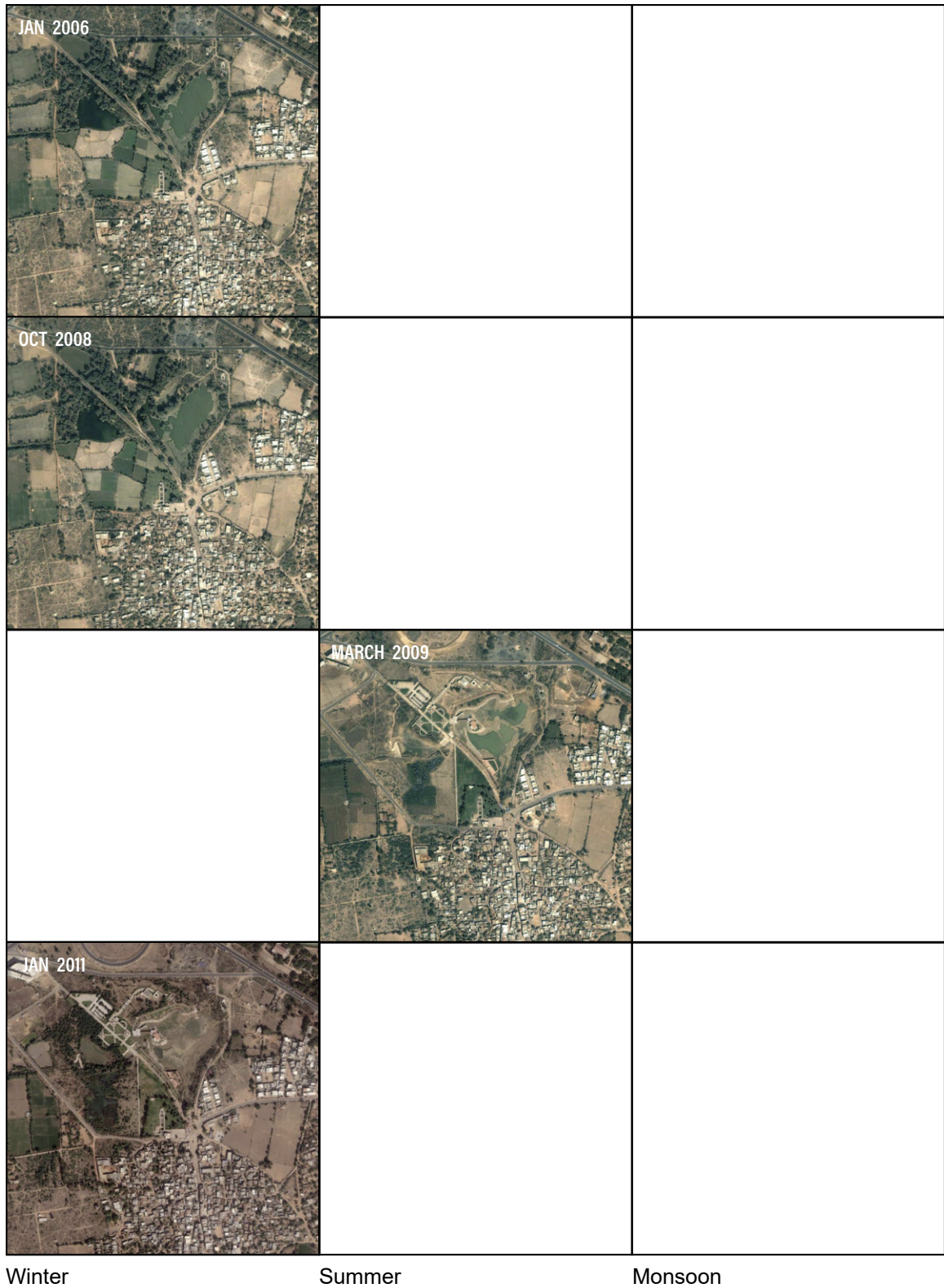
Aerial imagery from Google Earth is assembled to show a progression of lake conditions seasonally and over the years

Above: Flood zones and watershed analysis

Village

General flood zone

Max flooding zone

Watershed

Left: Site Section A
1:2500

Seasonal lakes are common in Western India. In the town of Adalaj, Adalaj Lake floods in the monsoon and appears in the landscape in contrast with a dried landscape in the summer months. This analysis has proven that this ecological system adjacent to the Adalaj ni Vav must be preserved to allow the site to flood and replenish the water table seasonally.
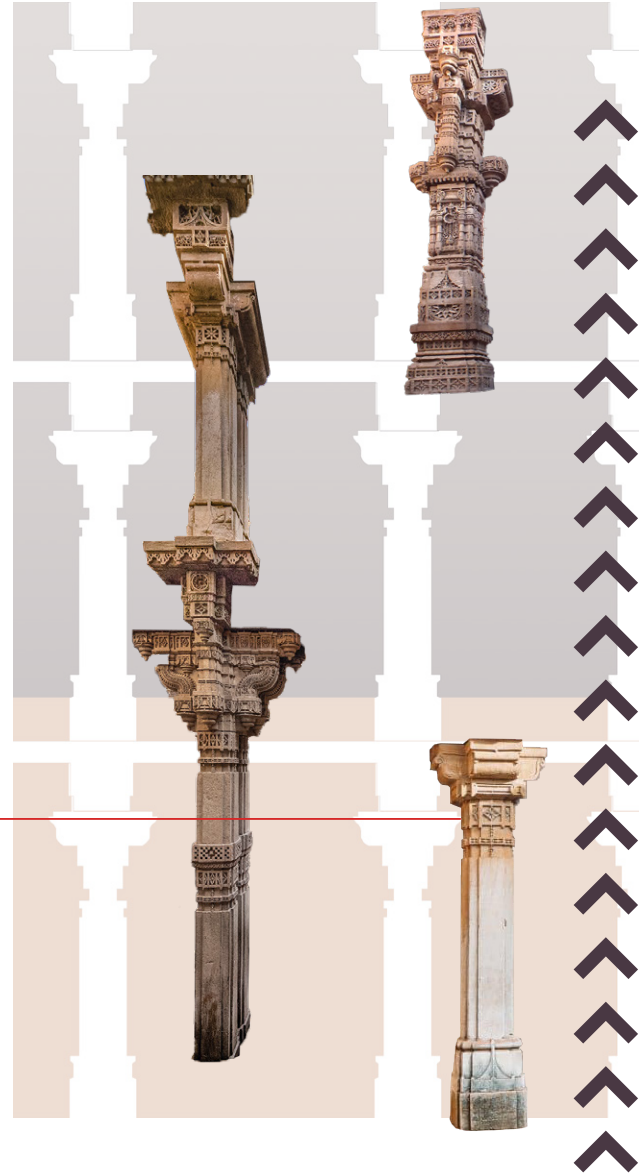
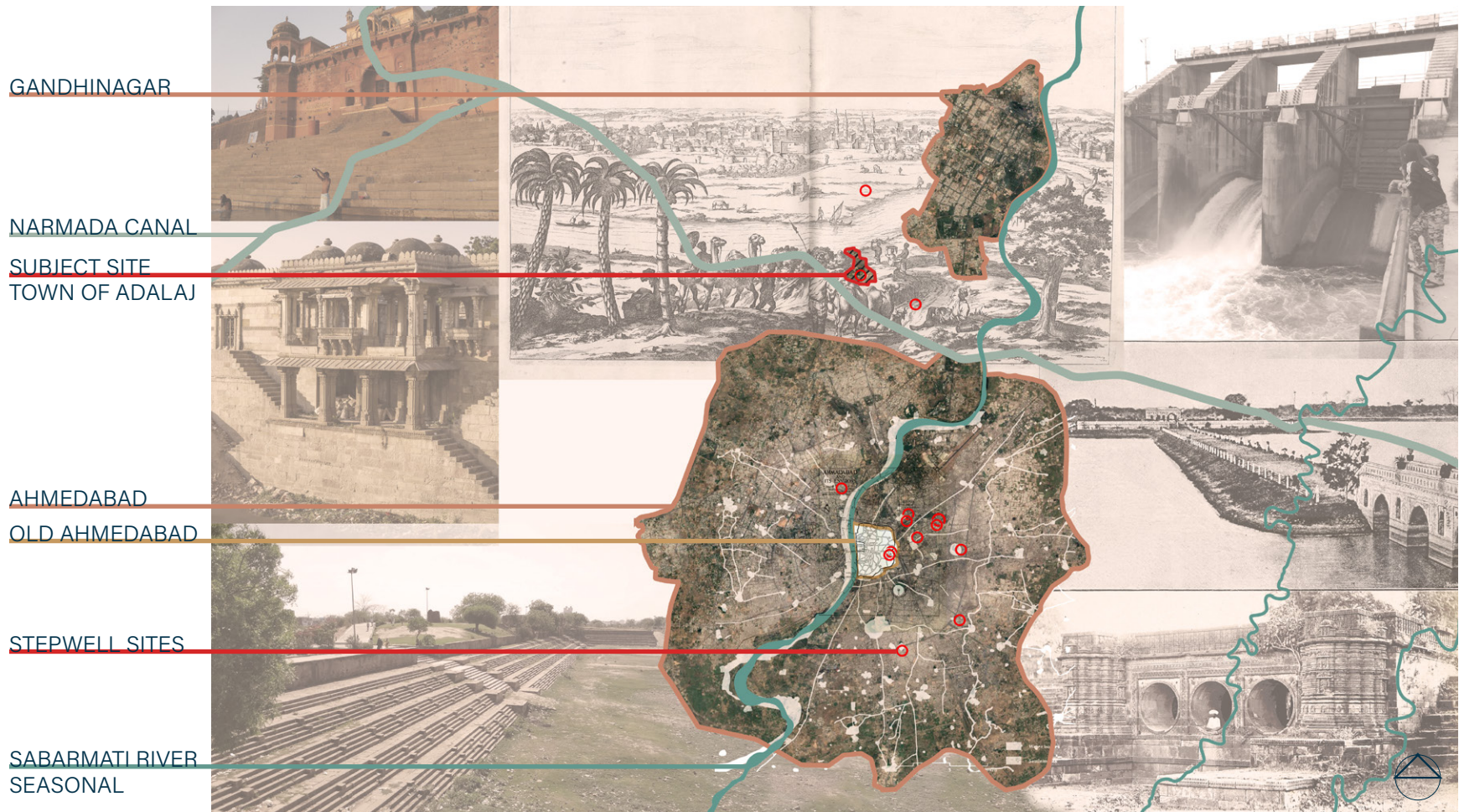This was an analysis to indicate how water plays a role in the construction of building tectonics of the stepwell. The motifs within the pillars and walls are scarce at the bottom, where it is prone to weather and erode form seasonal flooding. The form is very basic in comparison to the intricate motifs from Level -3 and above
Top left: View looking down from Level -3 (Livingston 2002, 94)
Bottom Left: View facing east at Level -5 (Livingston 2002, 85)

GANDHINAGAR

NARMADA CANAL

SUBJECT SITE
TOWN OF ADALAJ

AHMEDABAD
OLD AHMEDABAD

STEPWELL SITES

SABARMATI RIVER
SEASONAL

Traditionally, stepwells are located on the edge of towns and cities, but today cities have grown around them. Water infrastructure like stepwells, stepped ponds, reservoir lakes, steps to rivers (ghats), and even canals and dams continue to function as public spaces in India
Bottom left and middle left: Photograph of Sarkej reservoir lake and mosque ("Sarkhej Roza Mosque in Ahmedabad, Gujarat, India." n.d.), Top left: Varanasi Ghats (Bryant-Mole 2016), Top middle: Ahmedabad sketch in 1672 (Baldaeus 1996, 31) , Top right: Karai dam ("Karai Dam" n.d.), Middle right: Kankariya Lake reservoir (Arnold 1891), Bottom right: A sluice (Hope 1866)

Islam

Hindu

Jain

Fusion of motifs and cultural influences at Adalaj ni Vav

3.1.2 Precolonial Political Control Influences Fusion Architecture

The historical political influences within Gujarat helps contextualize how a fusion of architectural elements from people of different religious groups occurred in a sectarian structure such as the Adalaj ni Vav.

The 16th century Mughal Empire under the rule of Akbar was religiously and culturally diverse. Akbar's Unity in Tolerance policy adopted acceptance and reconciliation between different groups. The Unity in Tolerance policy:

1.   Reduced the Shia-Sunni conflict and avoid sectarian struggles,

2.   Abolished the Jizyah tax and lift decrees of forced religious conversion, and

3.   Opened the government to people of different cultures and faiths (Invicta 2020).

Given the recognition of peoples differences, it is easy to assimilate architectural fusion and multi-faith influence into secular architecture such as these water reservoirs.

Akbar's reconciliation of many faiths stems out of his patronise of learning. He established centers of education and libraries. He found wisdom in all teachings and tried to unite them. This is significant because even in the 16th century India, the notions of libraries instigated an establishment of unity amongst people.

Though the Mughal Empire claimed the lands of Rajasthan and Gujarat, there were still Hindu rulers such as the Vaghela Dynasty who ruled over the subject site of Adalaj. Rana Veer Singh and Rudabai were patrons of the land.

Individual architectural motifs from various cultural impacts fuse together in composition of this window. Unlike most sacred monuments that are built around one particular community, stepwells offer a unique place within monuments to embrace other influences within its construction
Top: Window shrine at entrance platform (Livingston 2002, 88)

However, Rana is said to have been killed in battle against the Muslim ruler Mahmud Begada (Jain-Neubauer 1981, 58). Mahmud asked for Rudabai's hand in marriage after his battle with her late husband, she agreed on the terms that they finish the construction of Adalaj ni Vav. Upon its completion, according to the inscription on the site, she committed suicide within the well itself, her love was always for Rana. The Vagehela Dynasty was a branch and feudatories of the Solanki Dynasty who ruled Gujarat 10th to 13th centuries. The Solanki left no heir, so it was passed onto the Vaghelas, the last and most powerful chieftains of Gujarat (Pandya 2005, 40). Adalaj has Hindu motifs such as the *kalpavriksha* and *Ami Khumbor* that survived the Islamic construction and even blended well with Islamic motifs (Jain-Neubauer 1981, 76).

3.1.3 Colonial and Modern Disendowment of Traditional Water Infrastructure

When the British colonial regime took over Ahmedabad in 1817, the use of wells and stepwells was actively discouraged. Water structures were forced to be viewed as disease bourn and unhygienic. This only came to be when people stopped their rituals that maintained the cleanliness of the stepwells. Municipal commission was established to undertake civic projects, including the provision of water. 1849 marked the beginning of state-administered piped water and sewage in Ahmedabad (Jain-Neubauer 1981), replacing traditional households and communities as the primary stewards of water provision and sustenance (Sheth, Jain, and Tayyibji 2018).

HINDU INFLUENCE
JAIN INFLUENCE

ISLAM INFLUENCE

**1500-200 BCE
VEDIC PERIOD**

300 BCE
MAURYA DYNASTY

1ST CENTURY
WESTERN SATRAPS (INDO-SCYTHIAN) SAKA RULERS

450
KSHATRAPA DYNASTY

8TH - 10TH CENTURY
3 MAJOR DYNASTIES:
NORTHWEST INDIAN GUJARA-PRATIHARA
SOUTH INDIAN RASHTRAKUTA DYNASTY
EAST INDIAN PALA EMPIRE

960-1243
CHAYLUKYA (RAJPUT) DYNASTIES- PATAN BASED

1298-1407
ISLAMIC COLONIZATION
DELHI SULTANATE:
TUGHLAQ DYNASTY

**1292- 15TH CENTURY
VAGHELA DYNASTY-DHOLKA BASED
LAST HINDU RULERS OF GUJURAT**

PRIOR 13TH CENTURY
HINDU & JAIN INDIGINOUS COMMUNITIES

EARLY 15TH CENTURY
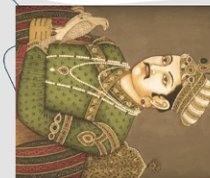GUJARAT SULTANATE:
MUSLIM RAJPUT KINGDOM

1458
MUGHAL EMPIRE:
AKHBAR- RULED ENTIRE REGION

*Port-Diu:
1509: lead the war
against Portuguese*

ADALAJ
RANA VEER SINGH
*1498: Vaghela Dynasty of
Dandai Desh*

*1458: Sultan Mahmud Begada
comes into power*

AKHBAR
*Unity between faiths and cultures
through the Tolerance Act by Akbar*

The different political powers over the centuries have shown that architecture was a fusion of the indigenous Hindu and Jain influences, following the styles brought forth by people from the Mughal Empire, and the stepwells became obsolete when the British colonized
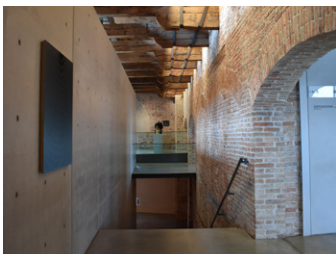Right: Mughal Emperor Akbar the Great (itimes 2014)

Stair detail

Door detail

Beam detail

Wall and Space between

Tado Ando's approach to adaptive reuse is to come close to but not touch the existing building. All photographs above are of Punta Della Dogana in Venice, Italy and were taken in 2019

3.2 The Tectonics

3.2.1 Claim Through Motif

Through thorough study of existing features, columns, engravings, motifs, a combination of Hindu, Jain and Islamic features make up the test site of Adalaj ni Vav. Unlike many other sacred monuments that follow a religion targeting a particular community of people, stepwells are inherently secular. What makes these monuments sacred, yet secular is that they were utilitarian but public spaces that held water which was deemed as sacred. Furthermore, the embodied architecture is a combination of elements found in architecture of many different faiths such as Hindu, Jain, Islam, and even Persian influences.

### 3.2.2 Case Studies: A Tectonic Approach

Case studies of the adaptive reuse in historic buildings derives from my observations of tectonics, light, and materiality to key buildings in Venice, Italy.

Punta Della Dogana

The first is Tadao Ando's mediation between his work and the restoration of Punta Della Dogana. Built as a customs house in the 17th century and restored in 2007. He places pure concrete volumes to organize space. It is the detail in which these forms come very near to but do not touch the original structure that is most striking. In the same way, this thesis design composes of a similar approach to the treatment of new architectural elements with the existing. To elaborate, there is a clear gap between the staircase and the original wall, suggesting one is not to touch the existing, and thus incrementing its monumentality. Concrete walls are placed some feet apart from the original brick structure

Carving away to make room for new intervention ("Il Fondaco Dei Tedeschi / OMA" 2016)
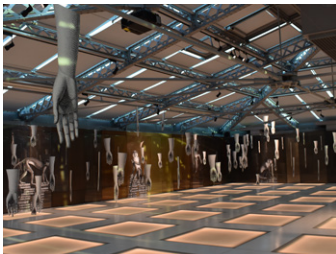
New roof
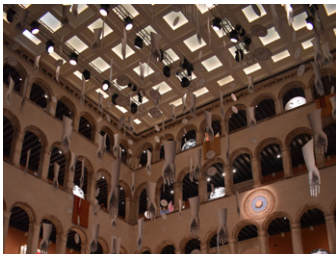
New roof, looking from below

Handrail detail

OMA carves away existing while retaining the character of the place and introduces light delicate interventions. All photographs above are of Fondaco Dei Tedeschi in Venice, Italy and were taken in 2019

to create a hallway but, to clearly distinguish the old from the new, juxtaposing with two very similar but different materials of their time.

Fondaco dei Tedeschi

The second is OMA's restoration in 2009 of the 16th century Fondaco dei Tedeschi in which some elements have been completely removed or modified. For example, the partial removal of the roof unlocked the opportunity for the addition of a vantage point. Another is a wall that is carved away in the form of an inverse arch, a form that is repeated throughout the existing structure, to create visual connection into different spaces. In the same way, the approach this thesis takes is not create nostalgic reconstructions of the past, nor to treat the entirety of the building with the equal amounts of sanctity. Like OMA, this thesis attempts to demystify the 'sacred' image of a historical building. Additionally, new entrances and vertical circulation has been added in the voids of space to not touch the adjoining rooms. The added circulation is represented in bright red to guide the eye through the building and to differentiate from the existing. In moments where any new element touch the existing, such as retail shelving or balcony railings, it is done delicately as the elements are thin, minimalist, and light in its anatomy.

The Olivetti Showroom

The third approach is not a restoration but a tectonic approach to materiality and bridging of elements that can be applied to restorative work. The Olivetti Showroom designed in the late 1950s by Carlo Scarpa displays techniques to control spaces with colour and directionality. When Scarpa transitions between two elements, there is always a third acting as a bridge. For example, he bridges concrete and

Metal mediates between two different materials

Observations of gaps and spaces.

Colour and hue

Observations between stair and intentional gap to reveal metal connections

Carlo Scarpa uses a third material to bridge between two others and to evoke feeling through colour
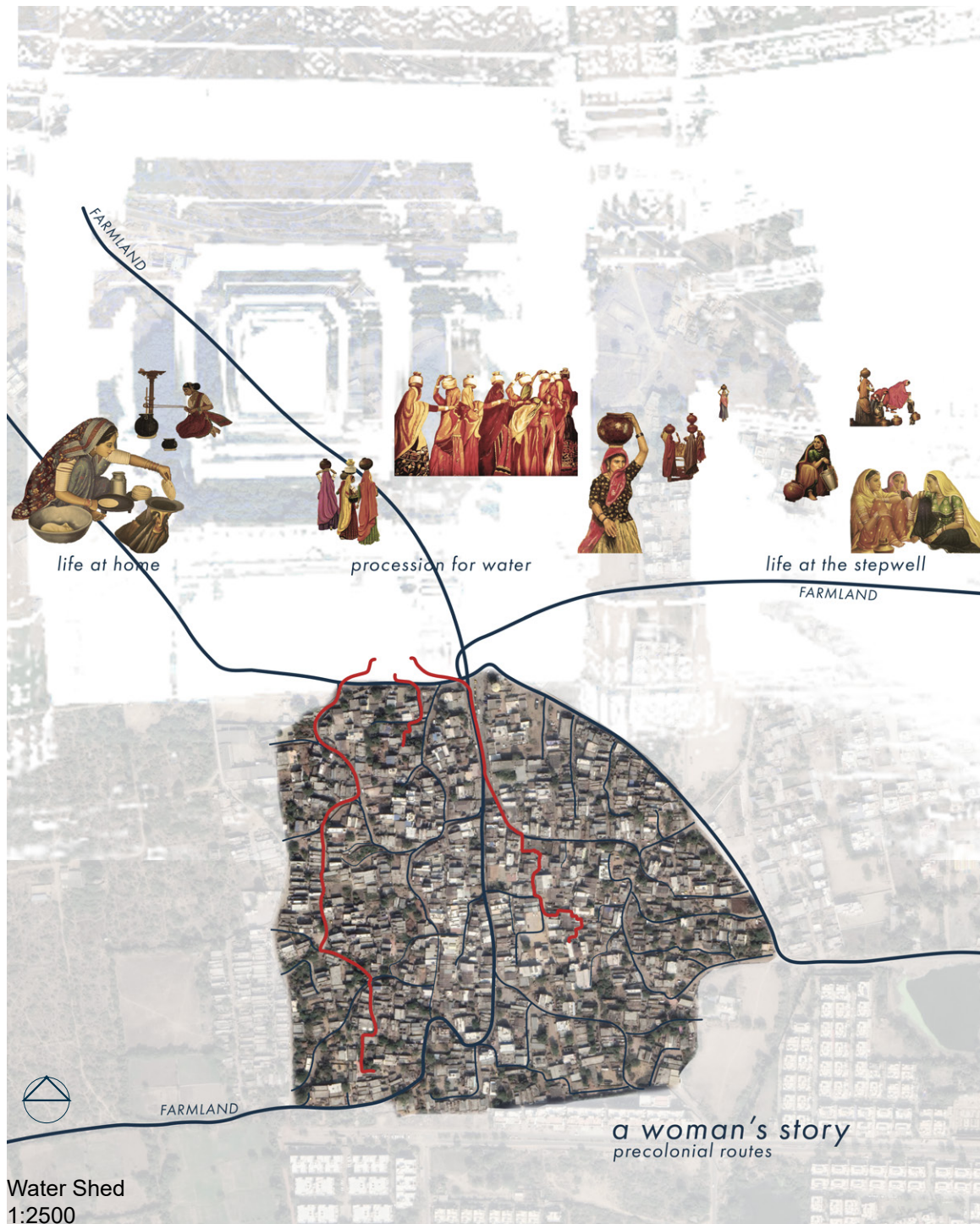All photographs above are of the Olivetti Showroom in Venice, Italy and were taken in 2019

wood with a brass connection. The brass is the connective tissue that guides the eye around the room and leads the viewer to different rooms within the showroom. In the same way, this thesis will bridge the existing sandstone and the proposed intervention with third material connecting in between. This distinction visually links the uses of the past with the new. Additionally, Scarpa differentiates the rooms with the colours of the glass tiled floors that reflect different hues of light in the room. This thesis will similarly use materials that are reflective in their intervention to animate activity and natural light into the darker areas of the stepwell.

3.3 The Memory

3.3.1 Stepwells and The Devine Female

> Victorious is the mother of the three worlds, the supreme sakti, kundalini, by name whose feet are praised by gods and men (and) who ever (exists) in the form of stepwells. (Ray 2005, 529-530)

A third of all stepwells are commissioned by women, public works was a civic responsibility (Livingston 2002, 20). In Hinduism females are valued as a blessing, female deities such as Sarasvati (Goddess of Knowledge), Laxmi (Goddess of Wealth) and Parvati (Goddess of Strength). In some cases, stepwells are converted into places of worship that house these female deities. As a result, stepwells were conceived as the embodiment of female power. A woman who had the status and means to construct a stepwell did so for the benefit and nourishment of birds, animals, and human beings alike. Though femininity is highly valued spiritually and worshiped at these water monuments, women in the social and economic constructs of todays society are treated with immense disparity.

FARMLAND

life at home

procession for water

life at the stepwell

FARMLAND

FARMLAND

a woman's story
precolonial routes

Water Shed
1:2500

Tracing a woman's narrative of a day in the life, allows understanding of life around a stepwell. Women, outside of they life at home, they would walk to get water, alone or in groups, where they would meet others in a place where they felt safe to socialize.

3.3.2 Disparity Within Social and Gender Groups

Caste

The Indian constitution states:

> WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a [SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC] and to secure to all its citizens: JUSTICE, social, economic and political; LIBERTY of thought, expression, belief, faith and worship; EQUALITY of status and of opportunity; (Aparijita 2006, 177)

As a people, it is the hope and aspiration that as a Socialist society, wealth should be shared equally through distributive justice, and not concentrated in the hands of few (Constitution of India, n.d). Through this lens of the Indian Constitution, the social structure is at a glance balanced, but the realities of how wealth is distributed within society is very different. In order to understand the social divide in Indian society, it is important to understand in the state of Gujarat, 88.57% of the population identify as Hindu, and 79.8% Hindus average in India as of 2011 (The Hindu 2015). Social inequality stems from a society that is organized along the lines of a caste-based system. Hindu scriptures dictate brutal caste inequality and violence that are upheld by the State, by the courts, by the political representatives, and by economic structures which are all dominated by people of the three powerful varnas Brahmin, Kshatriya, and Vaishya (Reporting to Remember Caste, n,d). This graded inequality is based on Hindu ideas of purity and pollution, which has allowed each caste to justify reason behind inflicting violence on a lower caste. This social construct is important to understand because victim blame in caste violence ensured victims cannot seek justice through constitutional means. This means rape, institutional murders and any form of injustice blames the victim by calling deaths 'suicide' and rape 'affairs'

We sleep to create new narratives for our bodies, ourselves, and our public environments.
We, Meet To Sleep, to fight fear, we have long been taught to carry.
We, Meet to Sleep for the right to live defenceless. Trusting even.
We, Meet To Sleep, to create a new reality, through collective action.
We, Meet To Sleep because collective action is powerful and can create new collective memory.
Our bodies will, through new learnt experience,
tell new stories ; located in belonging, connection, pride. Replacing fear, shame and violation.
We Meet To Sleep, to heal.
("About Meet To Sleep" n.d.)

Confronting one's own fears by asserting presence in city spaces ("Being Idle" n.d.)

and blame is extended to the families of the victim's caste community.

The stepwell, a secular structure by nature bringing people together around the atonement of water, an element that knows no difference of religion, caste or gender. The Indian constitution secures all its citizens within a Secular society.

> Secularism is a part of the basic structure of the Indian Constitution and it means equal freedom and respect for all religions. (Panghal, 2020, 160)

All people are free to profess, practice and propagate naturally through their respective beliefs. The services and spaces proposed within the stepwell is to provide opportunities for a socialist and secular society that the people of India strive to achieve. These opportunities are the spaces for people to have services so they can work in the workshop spaces, to sell, to exhibit their work, to access technology and knowledge and most importantly for people to feel safe in coming to a public space that is not dictated by the order of caste, but by the opportunity for change.

Women

The following explore rape, gender, and caste inequality in India as a means generating program that can break barriers and address the issues through generating architecture that is meant to protest, provide refuge, and/or create a new system that hosts a more liberal approach. With gender inequality, and at times in combination with caste inequality, those at the bottom, bear the heaviest burden when there is sexual violence against women. Reasons for sexual violence and the feared perception of public space come from:

Today, women gather through cultural festivals at stepwells (Livingston 2002, 177)

1.   infanticide- baby girls are deemed less than baby boys,

2.   erotic desires are deemed inappropriate which disturb the 'pure and sacred' notion of a woman and wife,

3.   'boys will be boys' attitude,

4.   fear of losing patriarchal power (Joy, Belk, and Bhardwaj 2015, 1740).

These are the reasons to why women and society have an imperfect perception of public spaces.

The stepwell provides an opportunity for women to claim public space through unapologetic walking. ("Step By Step Guide to Unapologetic Walking" n.d.)

Call for Change

They create testimonials to end sexual and gender based violence through art. ("I Never Ask For It - Exhibit" 2019)

Public space for women has negative associations. Today, Indian women have created a community public art project called Blank Noise that confronts harassment. They have created public testimonials of sexual violence as a way of finding their voice in society. They have used garment as memory, as a testimonial to assemble garments for display in sites of public significance. They have created a national movement to change a woman's own perceptions of public

Workshops where women heal through shared experiences ("Listening Circles + Workshops" n.d.)
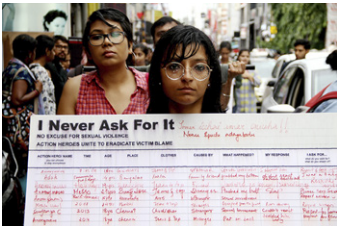
Public testimonials of sexual harassment to spread awareness ("Blank Noise" n.d.)

Building empathy through Talk to Me workshops (Architecture Now 2015)

space known as Meet to Sleep and Being Idle where they will themselves to confront their own fears ("Home - Blank Noise" n.d.). They take charge to overcome warning signals of a conservative notion and they so assert their presence in city spaces. Being idle and sleeping in public space is a movement to reclaim their right to public space. This thesis's design will provide a reclamation through architecture, by providing a public space for women designed by a woman where they do not have ay a claim on a place that has always been theirs.

Women have built Listening Circles with Blank Noise to create a safe space for survivors of violence, to each one at a varying degree to speak, be heard and be believed. Listening Circles are a community of individuals who have initiated the healing process though solidarity and empathy. These circles and workshops bring in garments they wore when experienced sexual violence (Build a Listening Circle with Blank Noise, n.d.).

> Meeting and interacting with each other helped to escape from the shackles of a patriarchal system temporarily. (Jain-Neubauer, 2016, 8)

The design has dedicated the exhibition space to be used for more than space for individuals in the community to display art. This space provides a safe haven for women to have Listening Circles and workshops where through exhibition, they are able to speak freely and heal. Similarly, when women used the stepwell to collect water, they used the spaces in the stepwell to do just that, heal.

In Jasmeen Patheja's experimental work Talk to Me which took an alley in Bangalore which was nicknamed the "rapist lane". The name references altercations that occur in this alleyway of men often catcalling and harassing women that

Literacy in Gender Disparity

URBAN

2011 NATIONAL STATISTICS OFFICE

RURAL

2011 NATIONAL STATISTICS OFFICE

There is significant gender disparity between men and women.

are on their way home. Her intervention in this alley was for men and women to are unfamiliar with one another to sit down and have a conversation over tea and samosas in order to address fear and build empathy. The simple act of adding a few table and chairs, flowers, snacks and the willingness to try and make other people familiar. At the end of each encounter, the 'Action Heroes' offer each participant a flower, a gesture of good faith (Architecture Now 2015). She says:

> It requires a purposeful uncleanching of the fist. Fear creates fear, Defense creates defense. We need to build safe cities with empathy. (ArchitectureNow Editorial Desk, 2015)

The simplicity of claiming public space through conversation with strangers and healing around food can be applied at the Adalaj ni Vav. The stepwell resonates safety in memory of women of the past and of protection from the Mother Goddess within the stepping well, it's appropriate that the walls between men and women can begin to dissolve as through conversation people begin to build empathy towards each other. These conversations amongst strangers can occur in gathering spaces on the ground floor, on the platforms of the stepwell, and at the water levels as people can begin to heal their souls in the process.
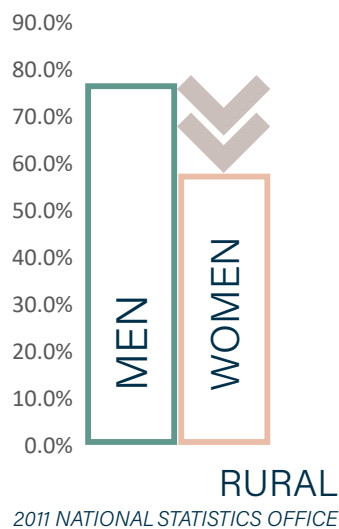
3.3.3 Education
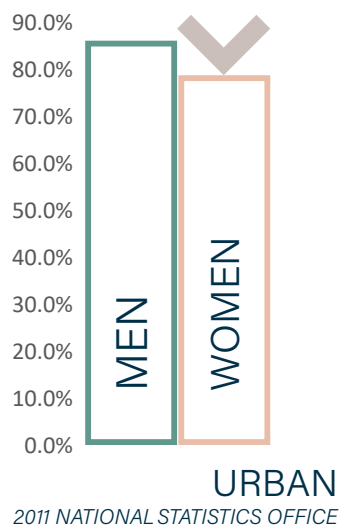
Background

> Capitalism enlists and intensifies relationships of domination based on inherited and indelible social identities (Rani and Dhir 2017, 549).

Public programs break systematic constructs of oppression. Generating activity though architecture can be a vehicle for change among social groups. The following provides insight in seeing organized social class structure in India.
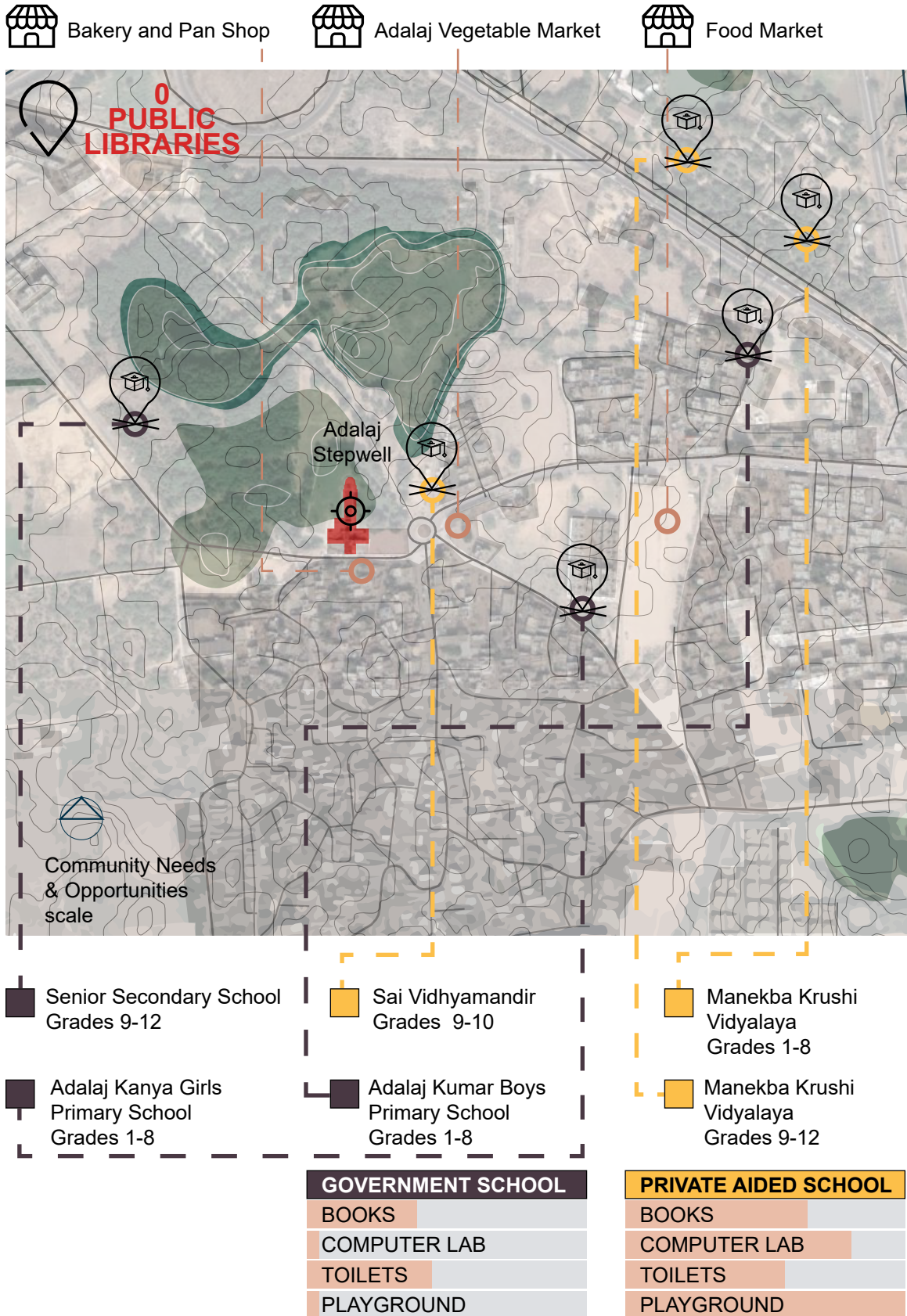
Hindus constitute the majority of India's population, which is separated into four mutually exclusive caste groups. They are:

• Brahmins (traditionally priests and teachers, represent the highest caste)

• Kshatriyas (traditionally warriors and rulers)

• Vaisyas (traditionally moneylenders and traders)

• Sudras (traditionally perform menial jobs constitute as 'other backward classes' OBCs, also known as 'untouchables') (Borooah et al. 2014, 279).
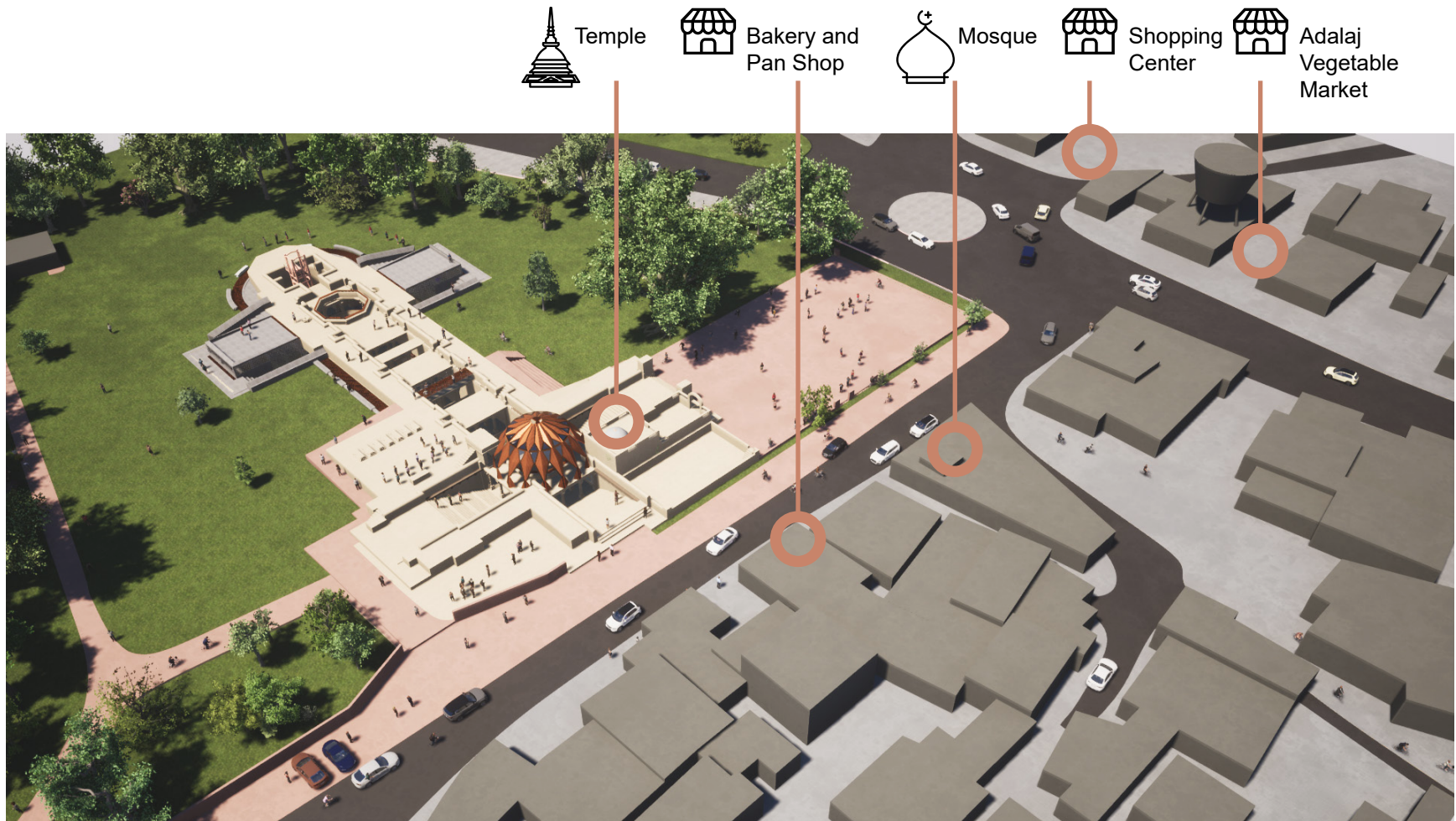
Identity based social oppression is constitutive of people's relationships to their means of production and reproduction. This leads to greater impoverishment among *dalit* (untouchables) and *adivasis* (tribal ethnic minorities), with particularly implications for women (Rani and Dhir 2017, 549).

Center for Public Life

The literacy rate for women is below the state average of Gujarat and Rajasthan. Overall, people of the social class Sudras tend to attend public schools which lack funding, teachers, and basic amenities within buildings. They are also the same people that have the least access to water (Joshi 2011, 58). This thesis provides this socioeconomic context as a basis for why a contemporary library, a center for learning, art and expression is an important intervention in public spaces. With a lack of free public libraries in Gujarat, one that incubates equity would be most accepted amongst people who feel the affects of systematic oppression.

Bakery and Pan Shop

Adalaj Vegetable Market

Food Market

0 PUBLIC LIBRARIES

Adalaj Stepwell

Community Needs & Opportunities scale

Senior Secondary School Grades 9-12

Sai Vidhyamandir Grades 9-10

Manekba Krushi Vidyalaya Grades 1-8

Adalaj Kanya Girls Primary School Grades 1-8

Adalaj Kumar Boys Primary School Grades 1-8

Manekba Krushi Vidyalaya Grades 9-12

GOVERNMENT SCHOOL		PRIVATE AIDED SCHOOL	
BOOKS		BOOKS	
COMPUTER LAB		COMPUTER LAB	
TOILETS		TOILETS	
PLAYGROUND		PLAYGROUND	

Inequity between social groups, those who go to private versus public schools.

Temple

Bakery and Pan Shop

Mosque

Shopping Center

Adalaj Vegetable Market

Though Adalaj ni Vav is located at the edge of the city, it behaves as the heart of the town because located nearby is the temple, the mosque, the town's vegetable market, the shopping center, and many small shops.

Chapter 4: Building Analysis

4.1 Existing Conditions: Adalaj ni Vav (Step-well)

The stepwell is an architecture of subtraction. The architectural elements in the Adalaj ni Vav consist of a vertical well (*kupa*), the stepped corridor, a secondary pair of spiral stairs that lead to the 3rd storey below, and the tower-like pavilions within built as open halls (*mandapa*) in the stepped corridor made of pillars and platforms. The only presence stepwells have above ground is through a dome pavilion marking the entrances to below, and the gateway pavilions marking the progression downwards.

Through this reading of the site, the natural relationship to the sky, the 3rd storey below is the point at which the relationship to the sky discontinues and transitions into a relationship with the water and the experience becomes a spiritual experience having arrived at the water, and deepest parts of the well.

This thesis proposes that storeys 1 to 3 below be programmed for relationships with knowledge, and continue to have an architectural relationship with the sky. Level 3 is an exhibition space, Level 2 becomes one for production of culture in these maker's spaces, and areas for books, Level -1 as open classrooms, and an existing sacred spaces. Traditionally, knowledge was linked to music, oral stories through poetry and performance before the construct of reading and writing. From the 3rd storey, stepped corridor and its landings to the entrance pavilion transmits the knowledge through exhibition of new cultural production from the maker's spaces, or continues to host performance

in the entrance pavilion. Then storey's 4 and 5 continue to have a relationship with the water but in a contemporary way. This thesis proposes areas for drinking water at these levels, retaining its original and intended program, as a way of spiritual cleansing through water. These new moments of interacting with water enhances the spiritual significance of water within the stepwell and restores people's relationship to a significant water resource within the community.

4.2 Form Analysis

Subtraction

Subtraction of earth is the key architectural move that allows a stepwell to exist as underground structures, hidden from life above ground. Subtraction is the method that relates to procession downwards. It creates a relationship between water from the aquifer and water from the sky. The narratives of movement of people and of water through the voids, collected from the ground and down the steps is rooted in the stepwell archetype. This thesis takes architectural approach and reinterprets subtraction in the proposed architectural interventions to:

1.   Creates new architecture without interfering with existing light wells in the monument that lets in natural daylight and rainfall. New subtractions of the earth and form are hidden like the stepwell itself. Interventions do not compromise the existing essence of the monument; key views across each floor are retained.

2.   Creates new forms of procession, access to existing platforms and create new relationships with water.

3.   Creates a way to allow services (plumbing and electrical) to a renewed contemporary building in order to activate new and underutilized spaces.
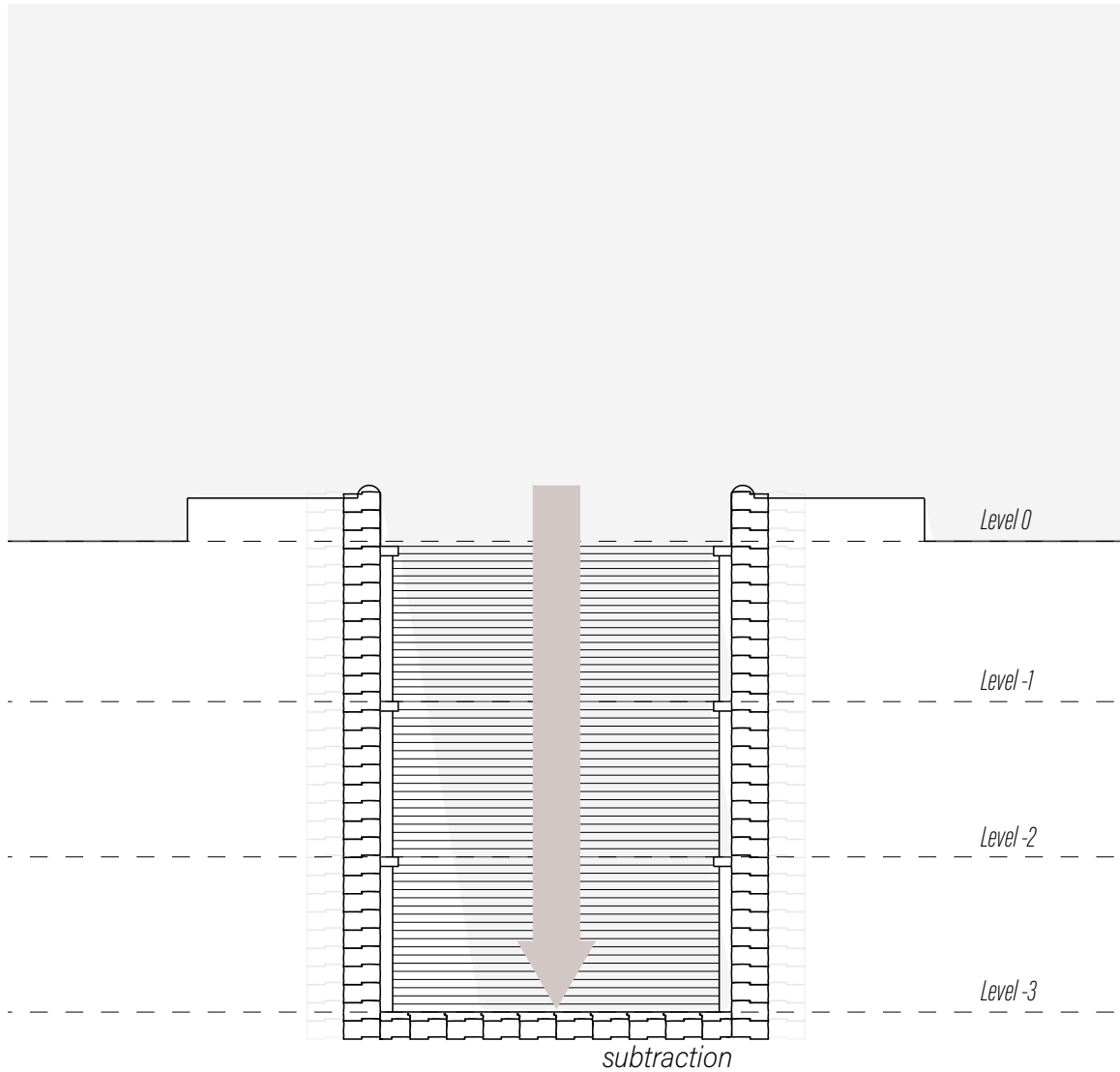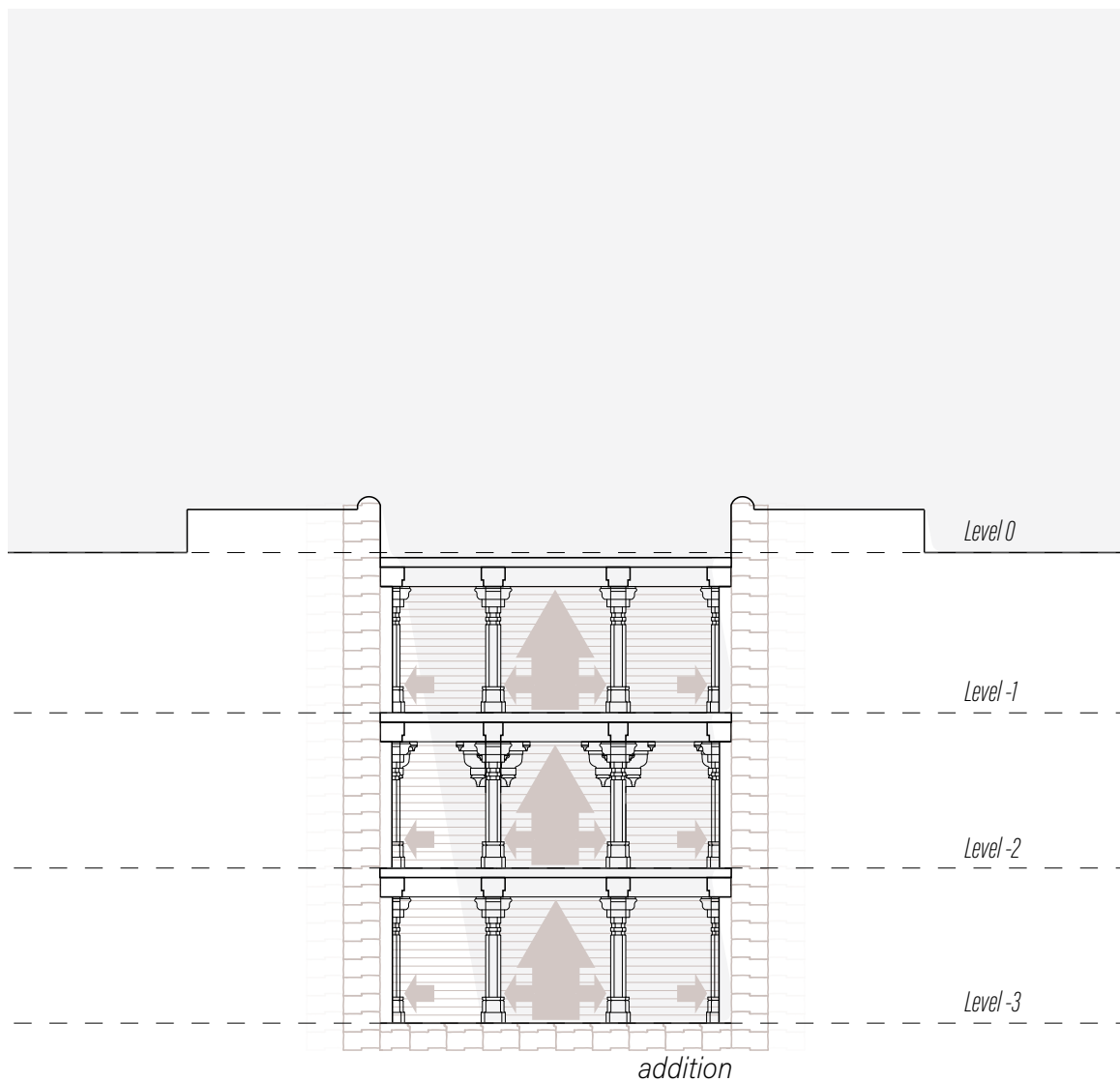

subtraction

The original construction of stepwells include a method of subtraction of earth to allow for downward procession and a means of water collection from above, the ground, and below.

Addition

Addition within the stepwell is related to the addition of the pillars and platforms, that are structural interventions to uphold retaining walls. The many platforms at each level below grade acted as informal spaces for people in the

community to congregate. The approach to addition as way to enable program and interaction between people is instilled in artifacts history. This thesis takes architectural approach and reinterprets addition in the proposed architectural interventions to:

1. Create new rooms within the proposed subtraction of form to generate and enable new contemporary program.

Level 0

Level -1

Level -2

Level -3

addition

After the initial subtraction, there is a process of addition of platforms and pillars. These platforms provided opportunities for gathering for women, community celebration, and refuge for travellers. Through these opportunities within the stepwell, it became it an essential space for the community in the past.

VERTICAL WELL | KUPA
Hauling water up by buckets

STEPPED CORRIDOR |
The stepped corridor leads down several storeys into the earth
starting from the entrance pavilion and ending at the water level

PAVILIONS | MANDAPA
Numerous tower-like pavilions built as open halls (mandapa)
the stepped corridor. The first is found at the entrance a raised
platform simple, on pillars

LANGUAGE
STEPWELL - ENGLISH
VAV - GUJARATI | WELL
BAOLI - GUJARATI | WATER RESERVOIR
KUND - GUJARATI | WATER RESERVOIR
BAORI/BAVDI/VAVDI - HINDI & MARATHI | STEPWELL
KUVO - GUJARATI | CAVE
VAPI/VAPIKA - SANSKRIT | WATER RESERVOIR

MATERIALS:
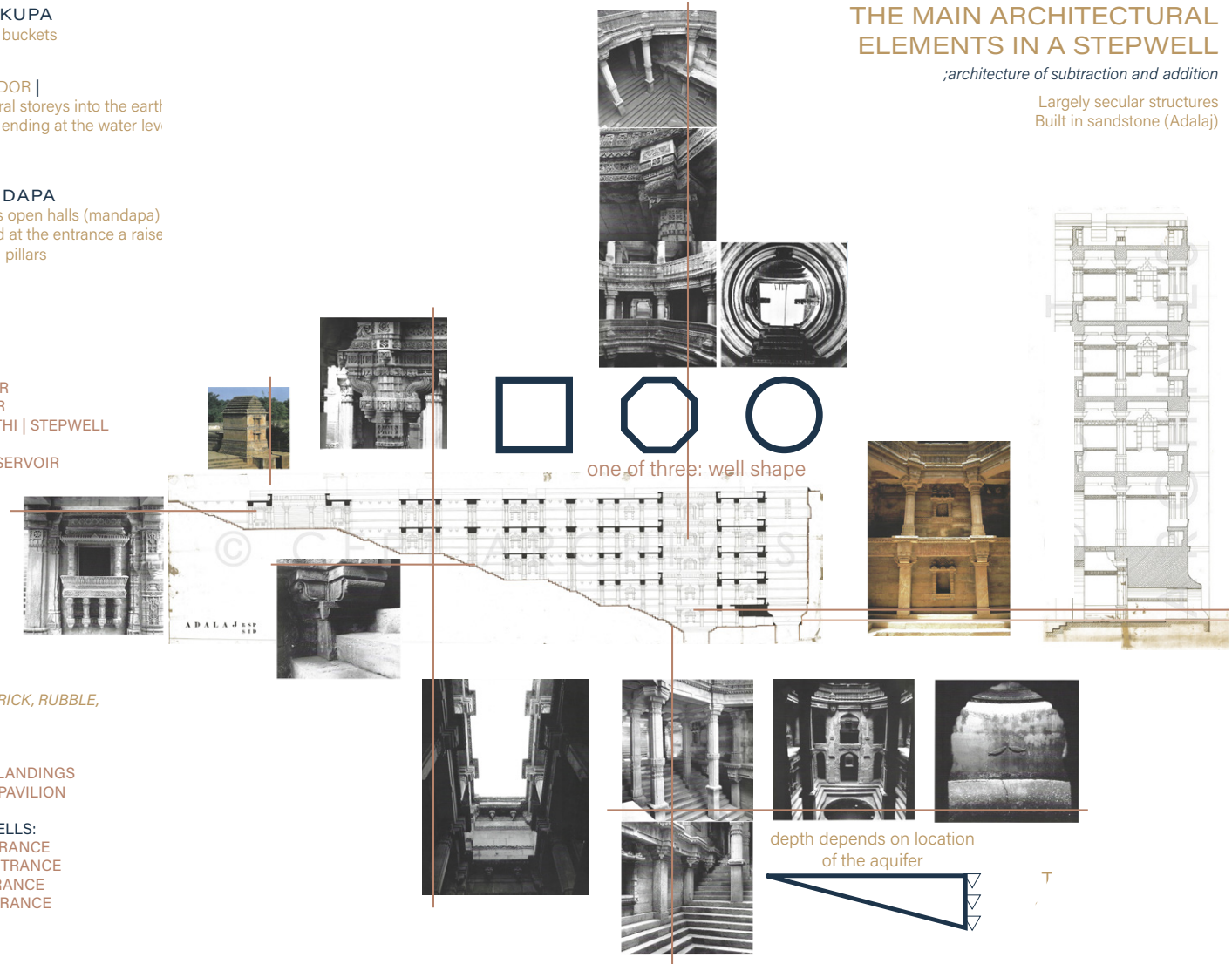*MORTAR, LIMESTONE, SANDSTONE, BRICK, RUBBLE,
AND OCCASIONALLY MARBLE.*

DEFINITIONS:
NALVADI VAV/NALADI - PLATFORMS/LANDINGS
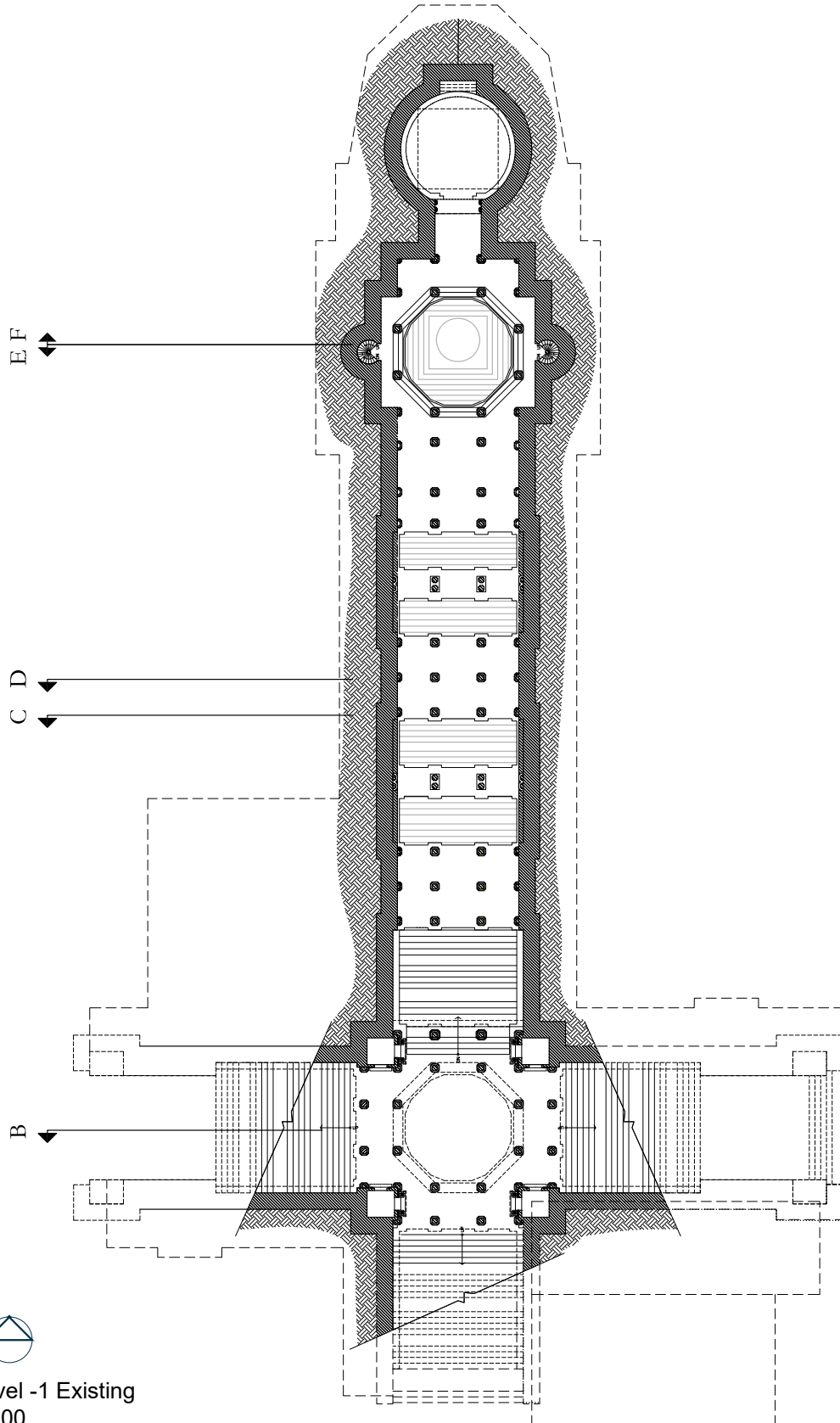*MANDAPA/MANDAPIKA* - ENTRANCE PAVILION

DIFFERENTIATING BETWEEN STEPWELLS:
NANDA: A STEPWELL WITH ONE ENTRANCE
BHADRA: A STEPWELL WITH TWO ENTRANCE
JAYA: A STEPWELL WITH THREE ENTRANCE
VIJAYA: A STEPWELL WITH FOUR ENTRANCE
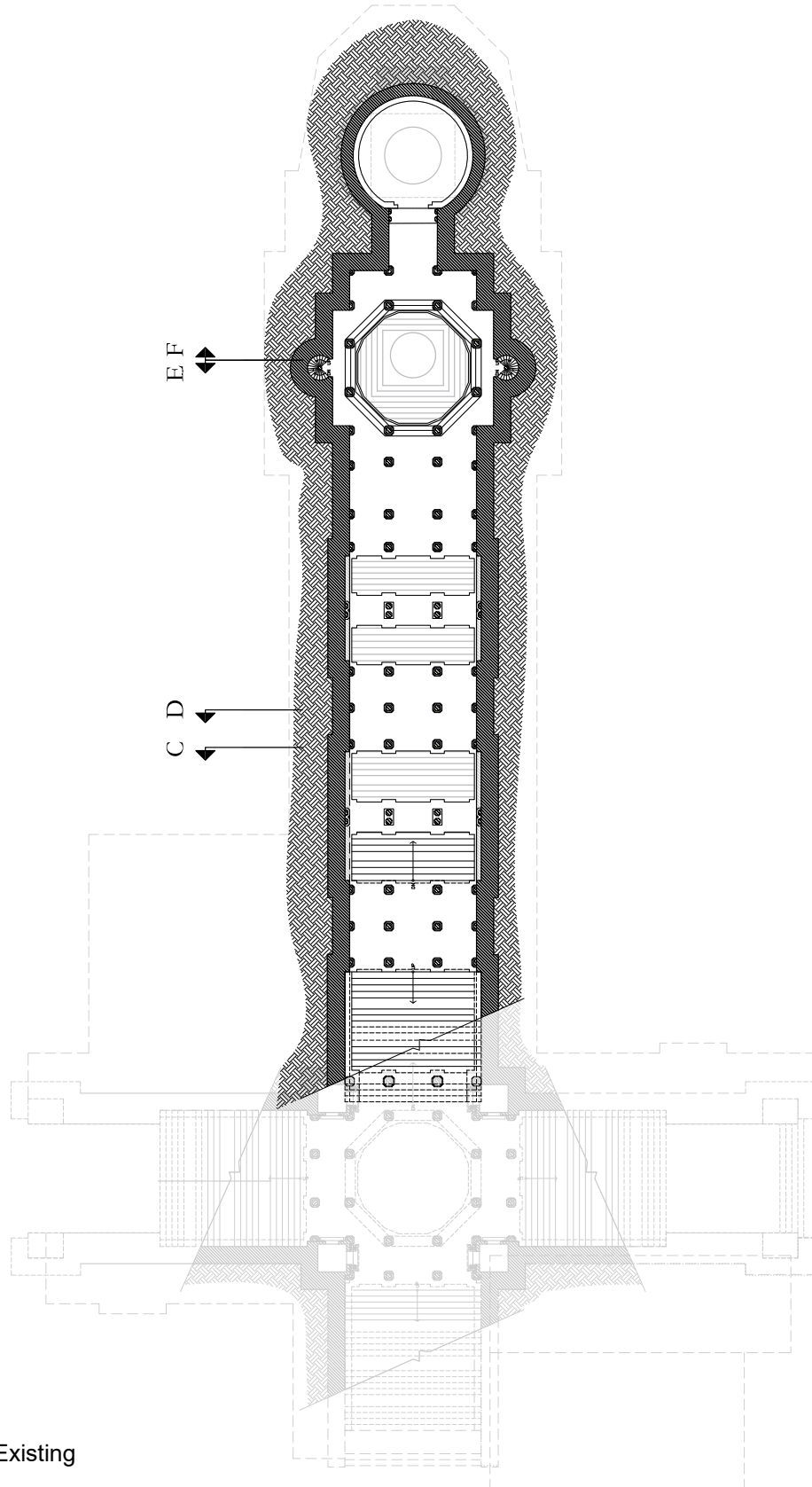
THE MAIN ARCHITECTURAL
ELEMENTS IN A STEPWELL
;architecture of subtraction and addition

Largely secular structures
Built in sandstone (Adalaj)

one of three: well shape

depth depends on location
of the aquifer

Mapping and terminology of Stepwells, specifically Adalaj ni Vav. (Livingston 2002, xviii, 83-88, 94-101)
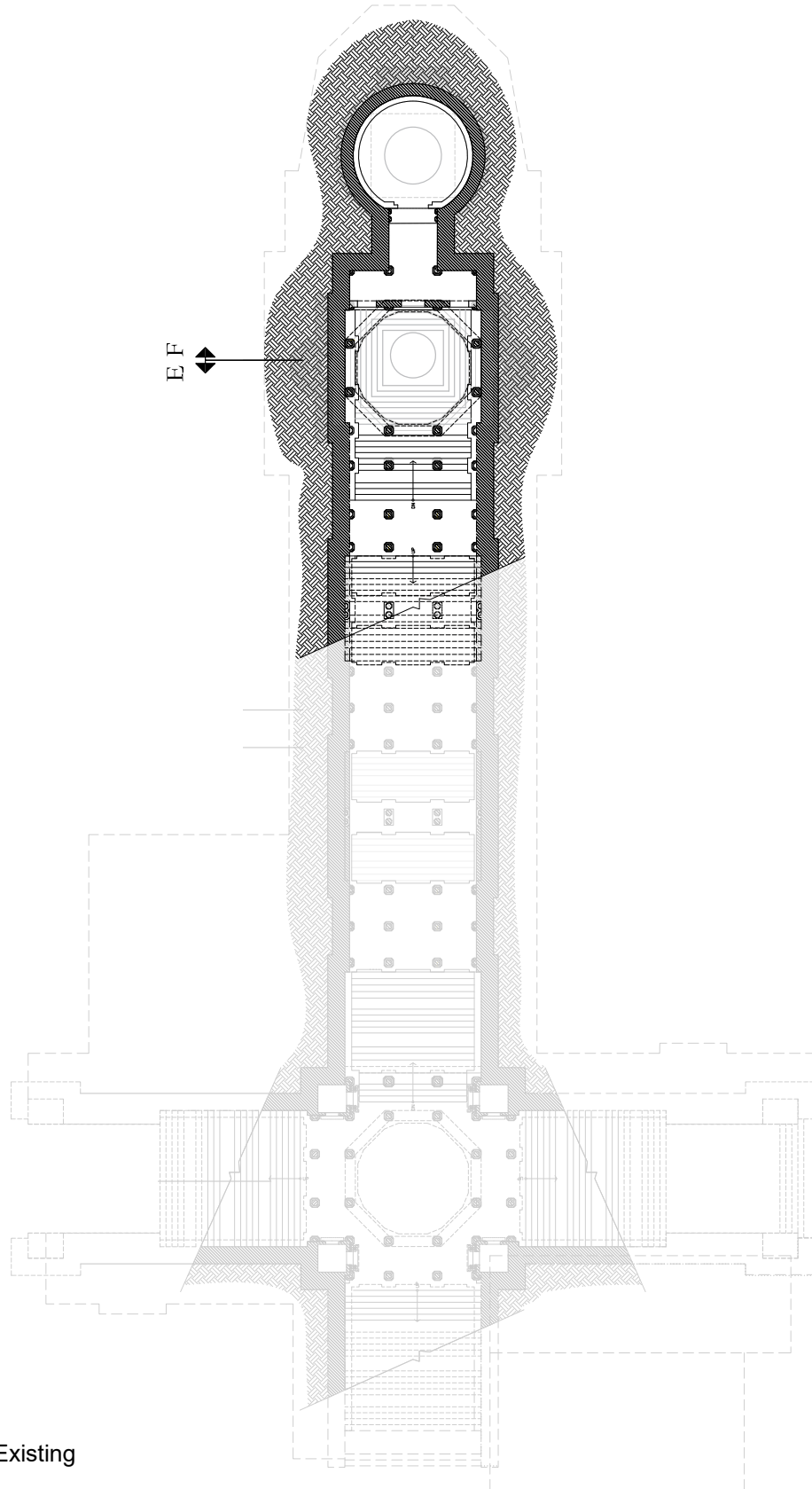
E F

C D

B

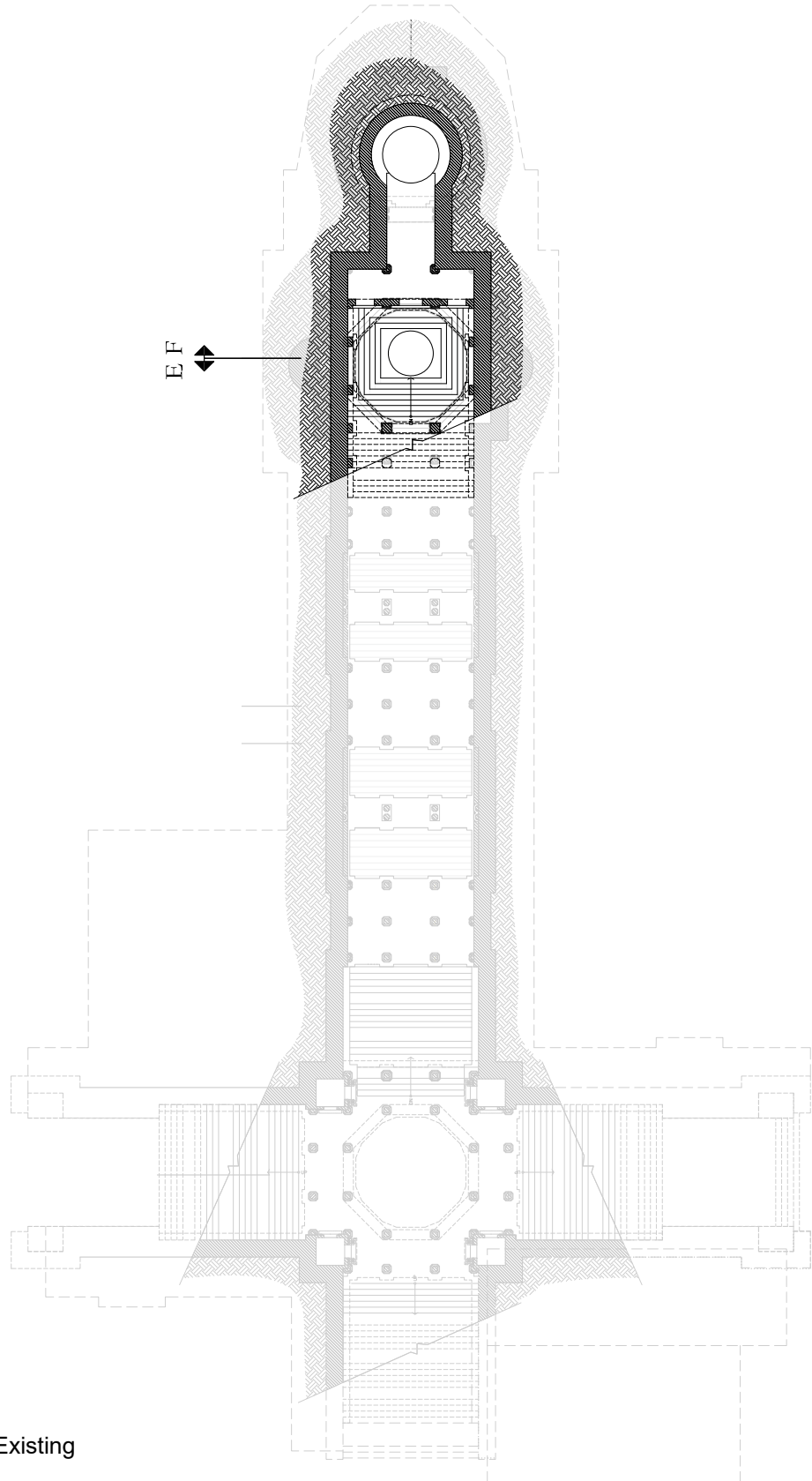Level -1 Existing
1:400

E F

C D

Level -2 Existing
1:400

E F

C D
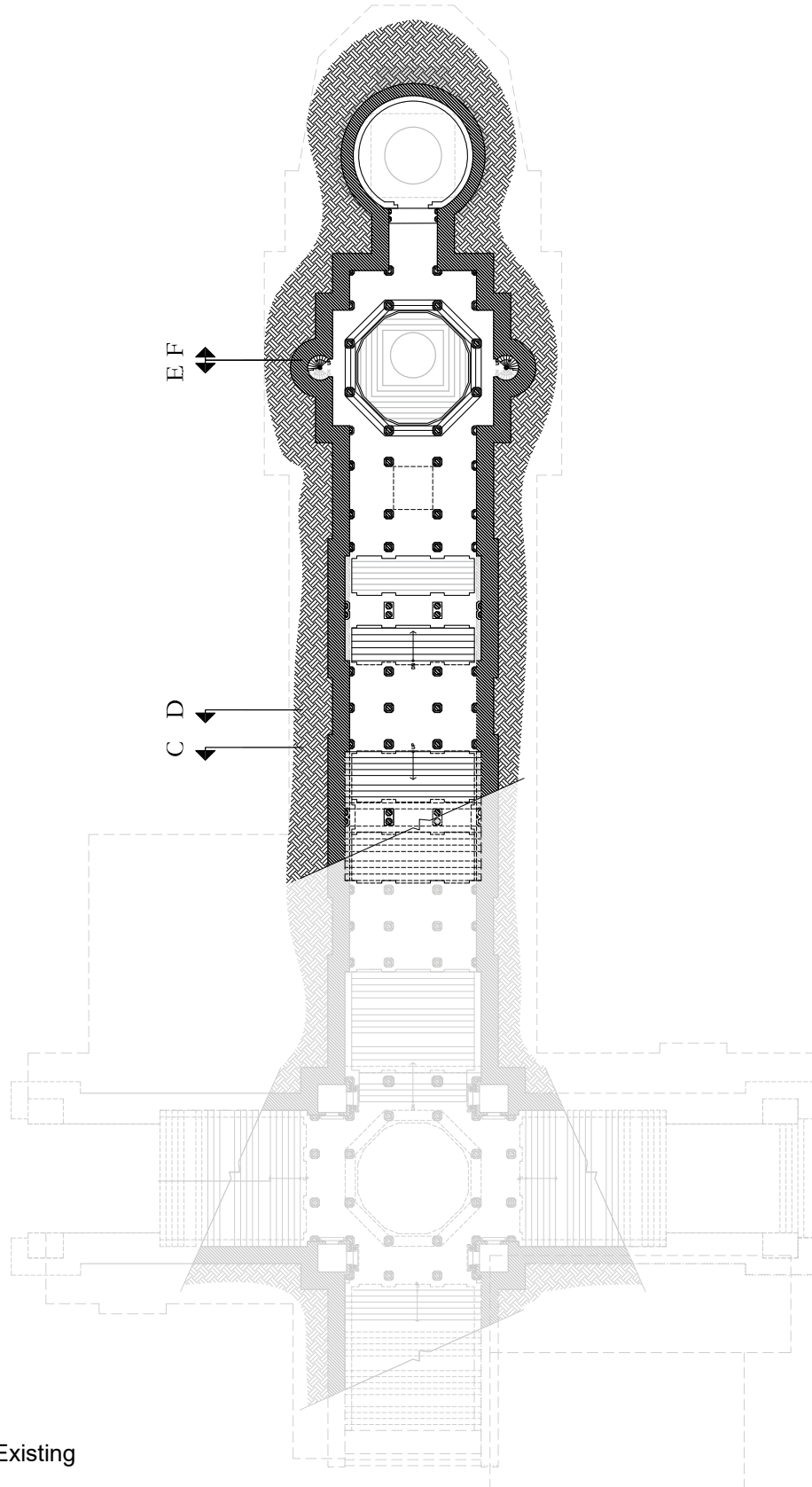
Level -3 Existing
1:400

E F

Level -4 Existing
1:400

E F
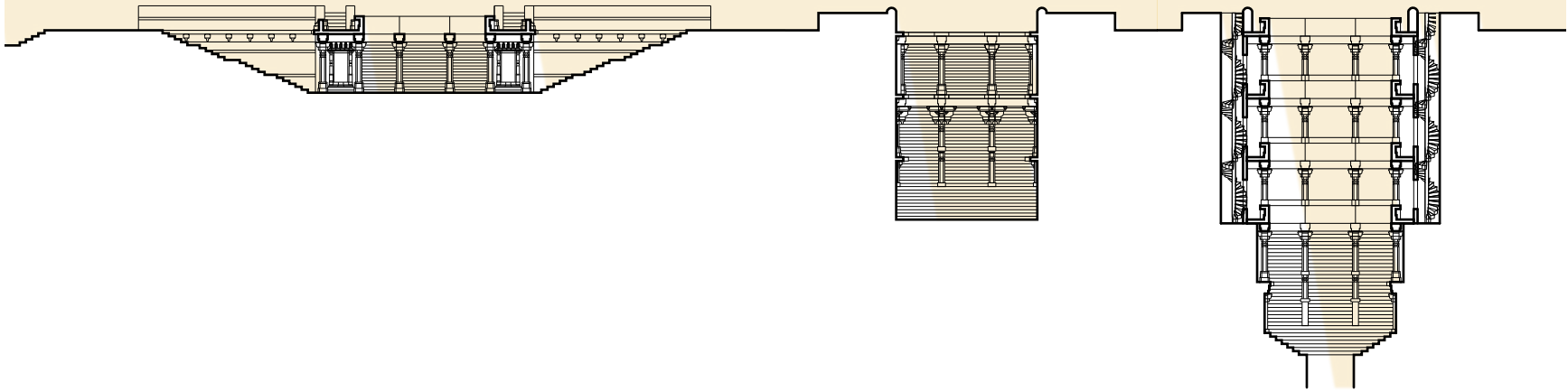
Level -5 Existing
1:400

Cross Section B Existing

Cross Section C Existing

Cross Section E Existing

Long Section A Existing
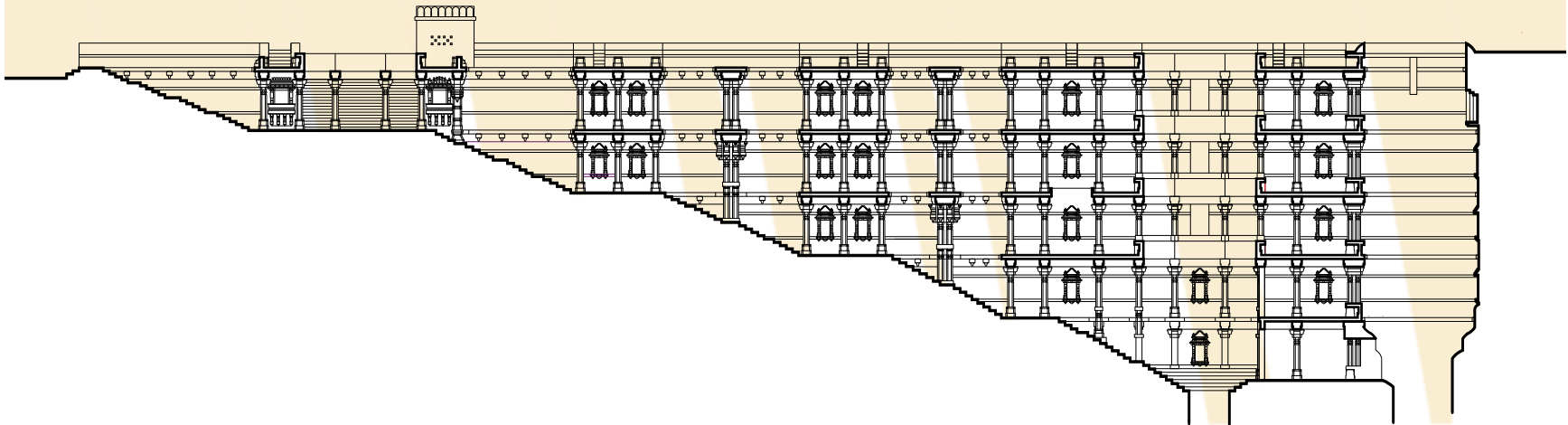
The following sun shadow study shows that in being close to the equator allows for direct bright light to penetrate to the deepest levels. Natural daylight from between the platforms is important in preserving the original qualities of light and shadow within the well

Rain & Voids
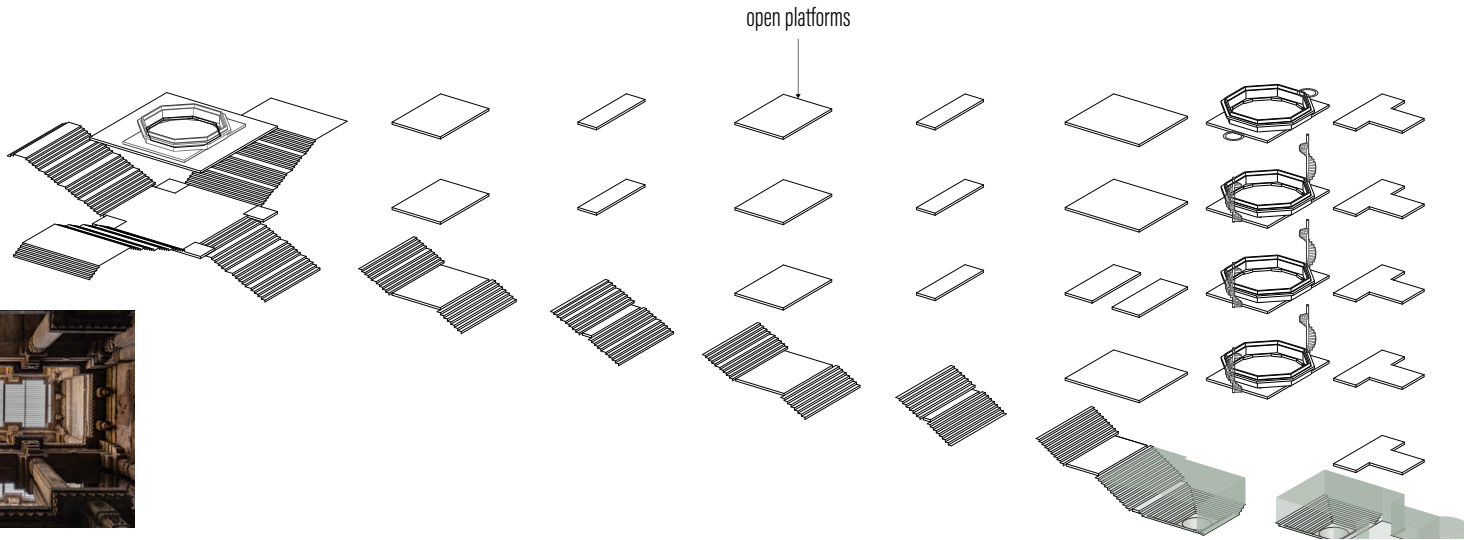
open platforms

Looking up between
platforms (Gandhe 2018)

Water Collection
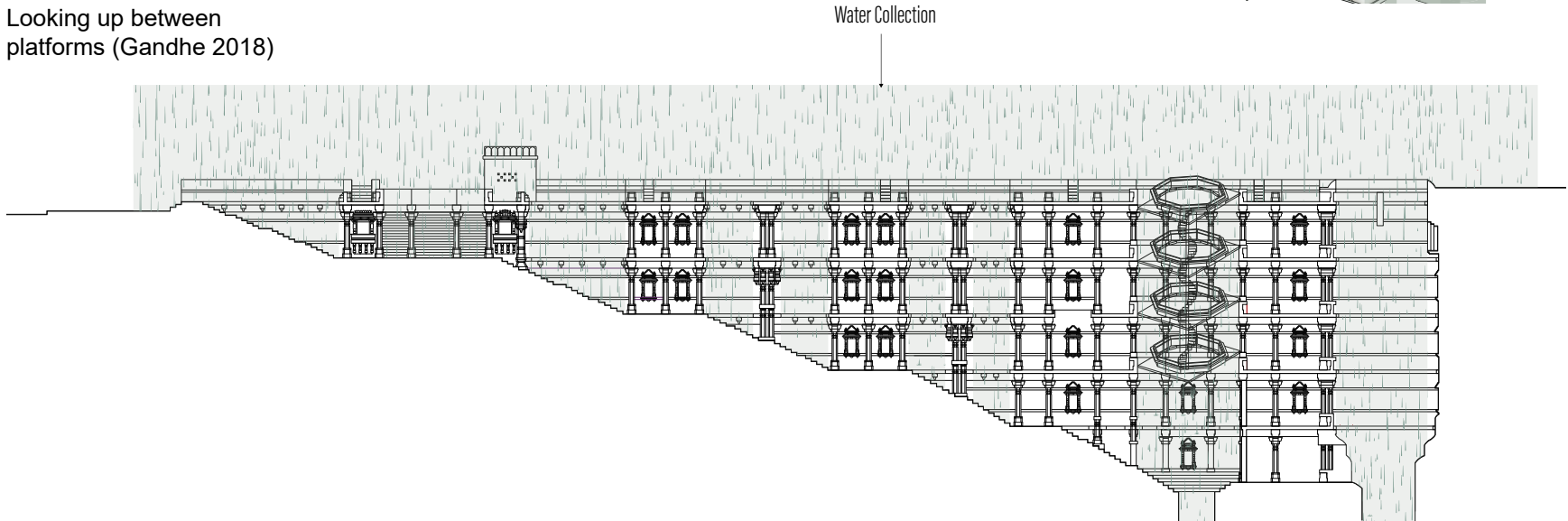
The stepwell is an open structure. Rainwater is enters the structure between platforms at each light-well

Key Views vs. Privacy

important view to sacred symbologyv

most private platform

important view to sacred symbologyv
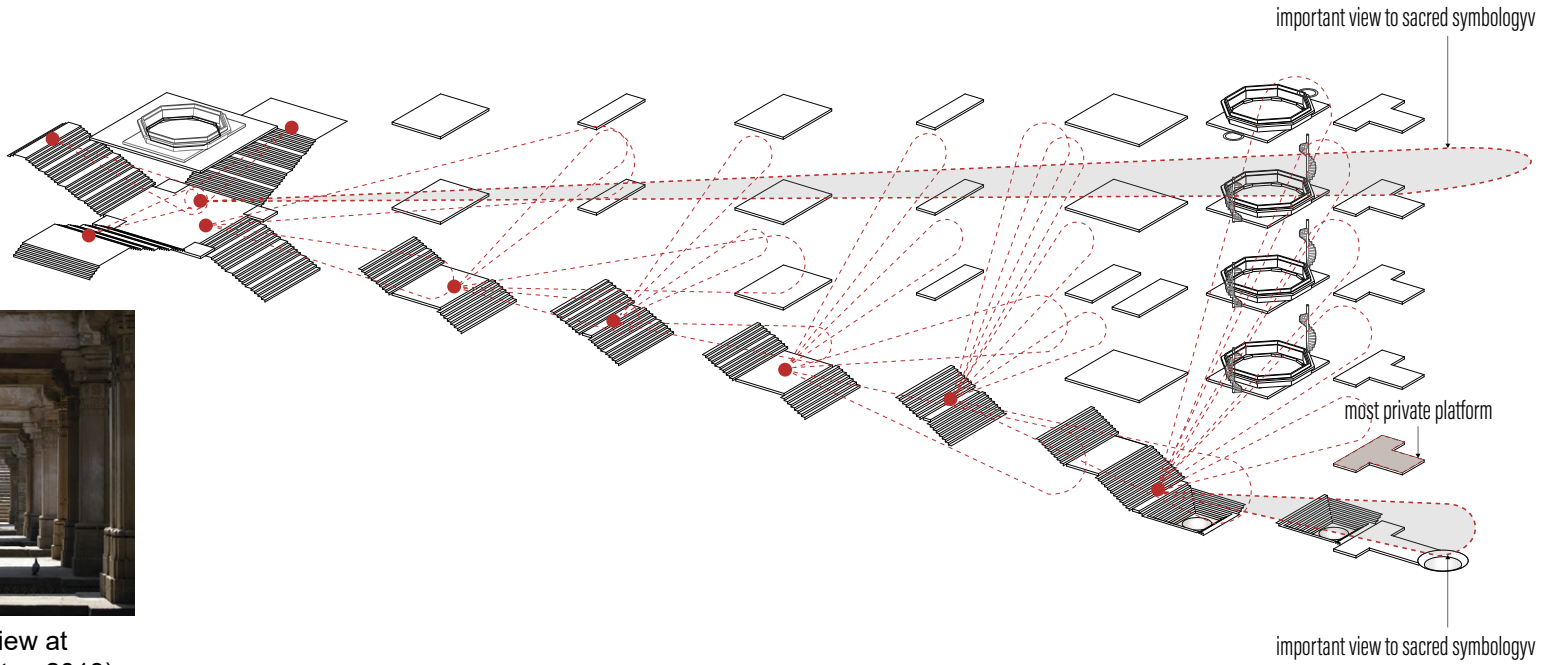
South facing view at
Level -1 (Achetan 2013)

public

public

public
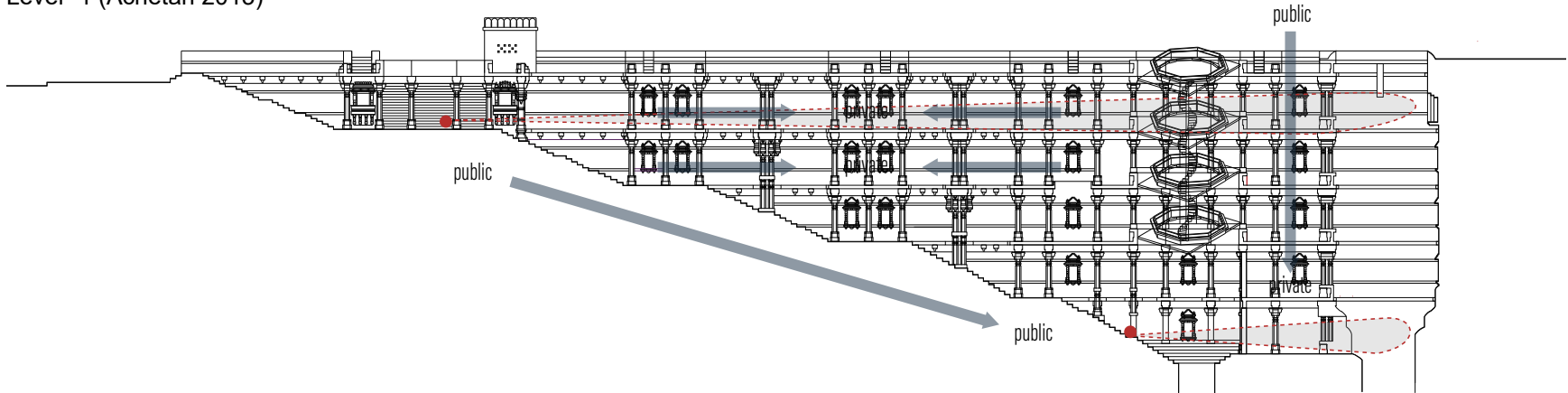
Symmetry and rhythm of the platforms on each level allow for visibility across the entirety of the monument on each individual floor

Sacred Spaces

[healing] ashok leaves

ritual space

[water-pots & goddess] lota symbology

[tree of life] kalpavruksha symbology
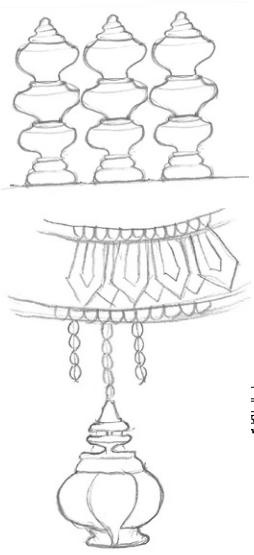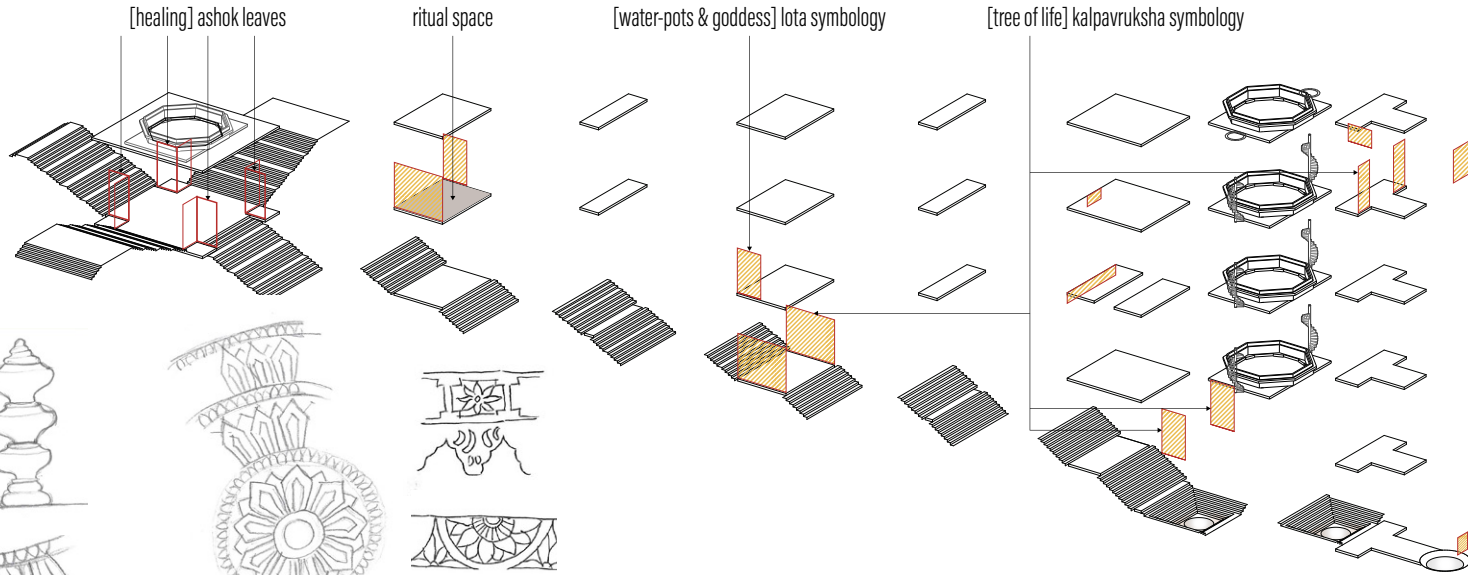
Lotus motifs signify purity, and rebirth

Clay pot motifs relate
to the Mother Goddess,
protection of the stepwell
and knowledge
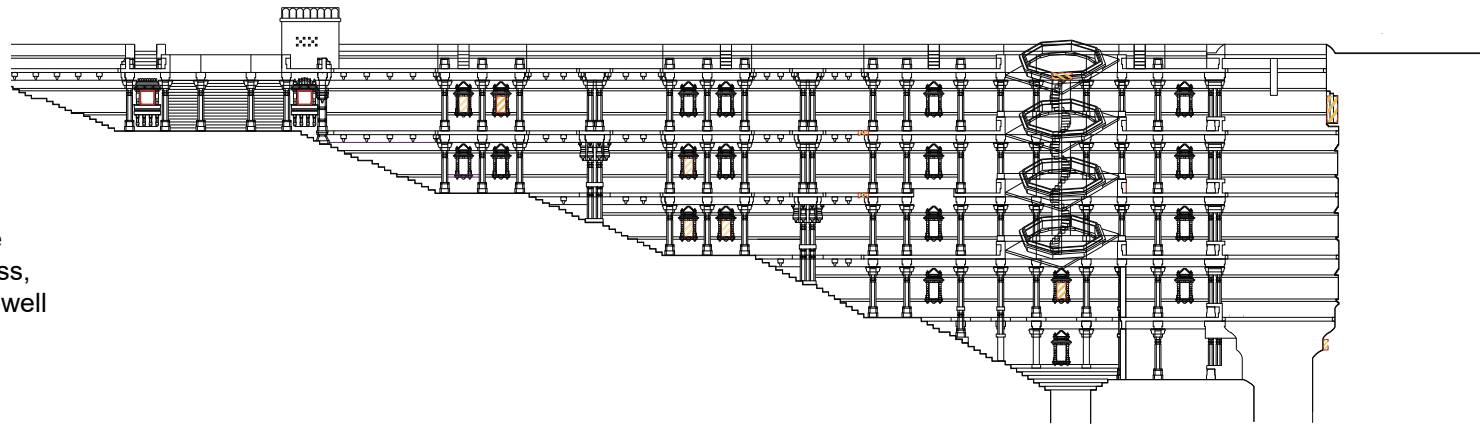
Some platforms are presently used as spaces for ritual. There are many more sacred shrines, motifs, and sacred narratives within the monument that should be preserved

Potential Occupancy vs. Current Use

[lost] accessibility from raised platform

accessibility from raised platform
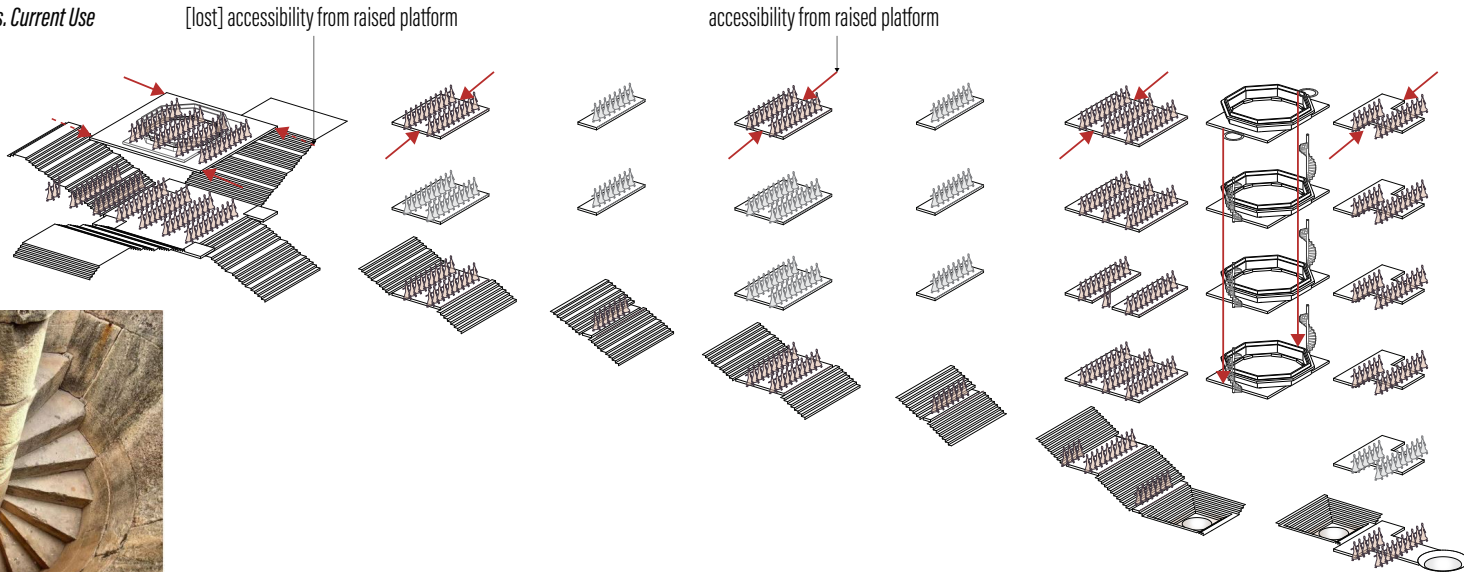
A narrow spiral staircase
leads to Level -3 (RBB n.d.)

[current] occupancy

[potential] occupancy

x8

x4

x7

x4

x7

x6

x3

x12

x4

x7

x4

x7

x4

x7

x3

x3

x3
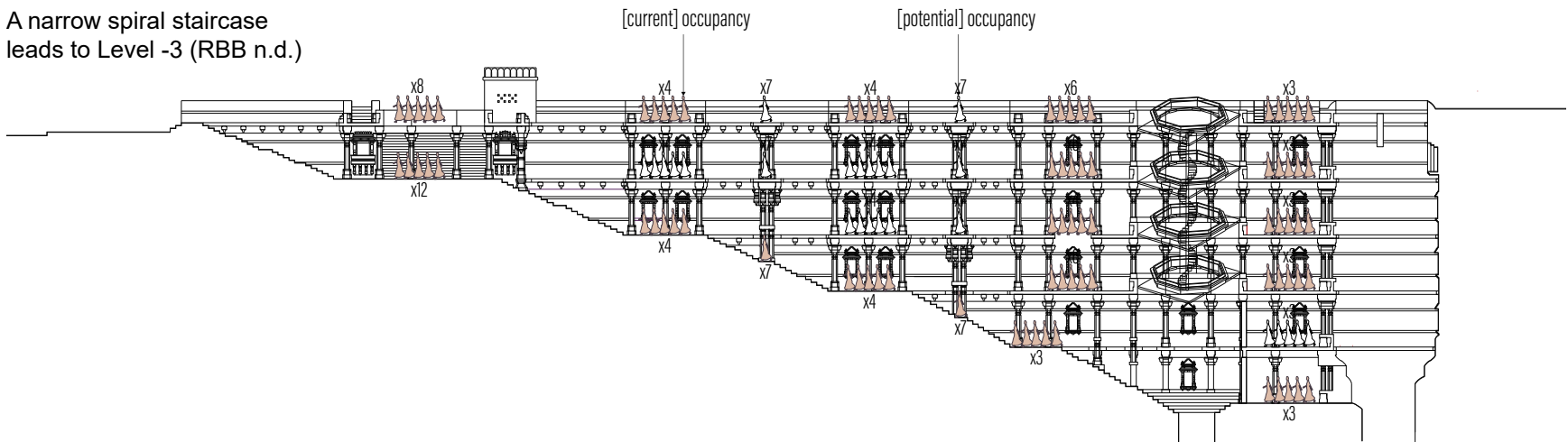
Currently only the central corridor and platforms that meet the ground floor are occupied

Accessibility vs. Inaccessibility
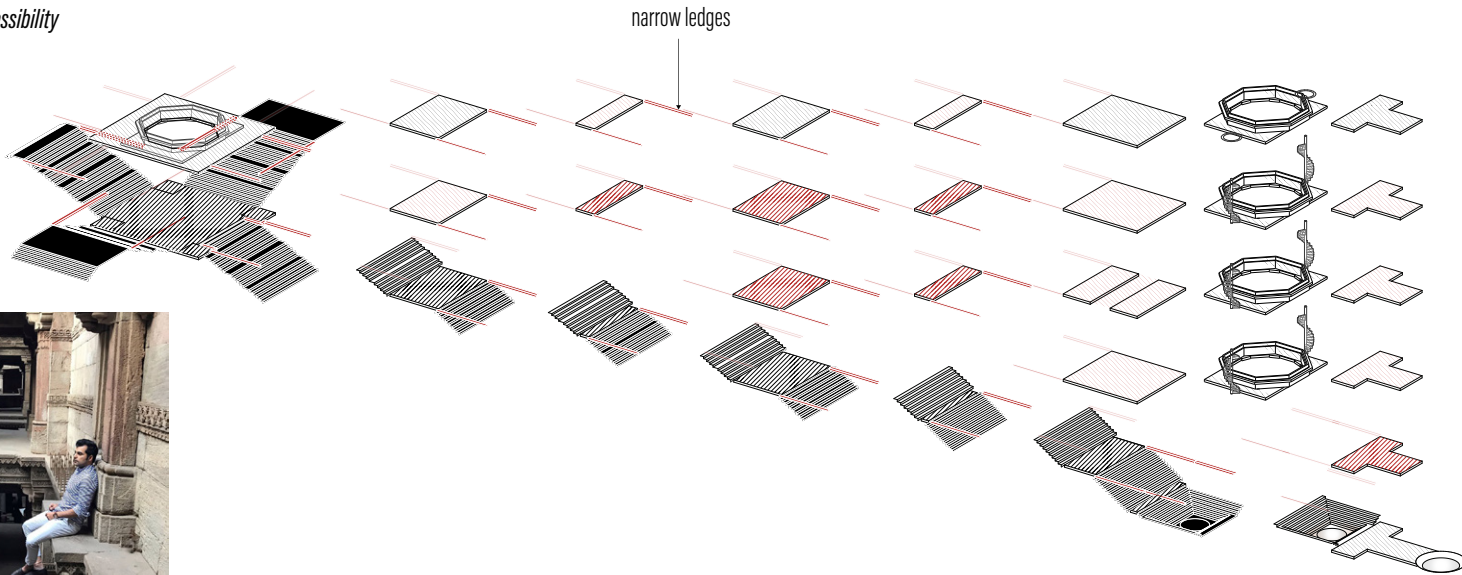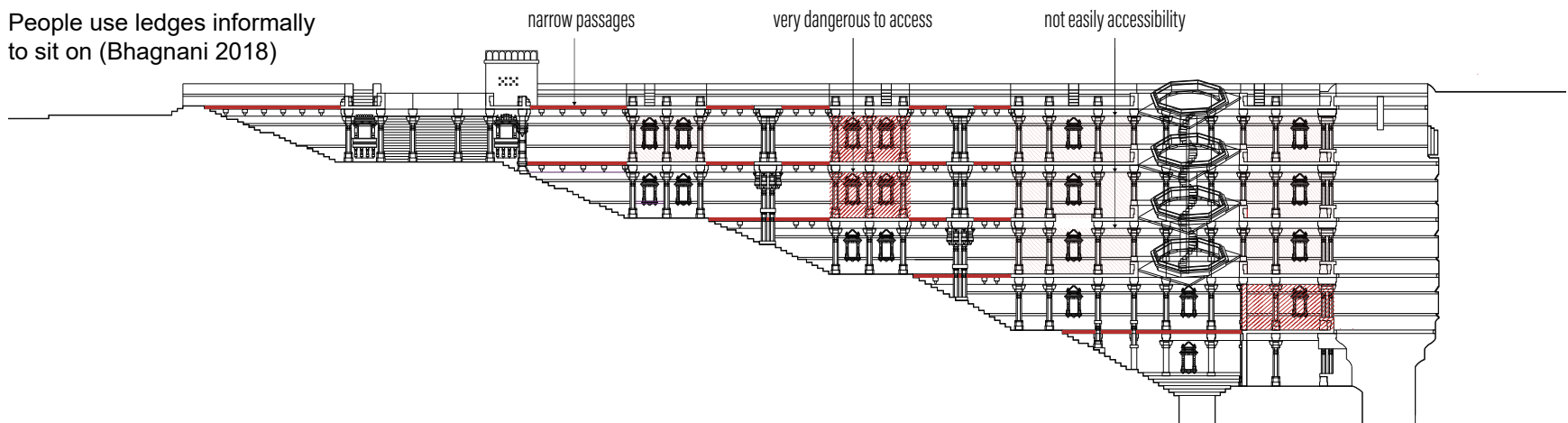
narrow ledges

Access to the other platforms is difficult and unsafe because of narrow ledges

[unfinished] entrance pavilion   [unfinished] dome   [erased] water tank

Level -1

Level -2

Level -3

Level -4

Level -5

relationship to the *sky*

relationship to *water*
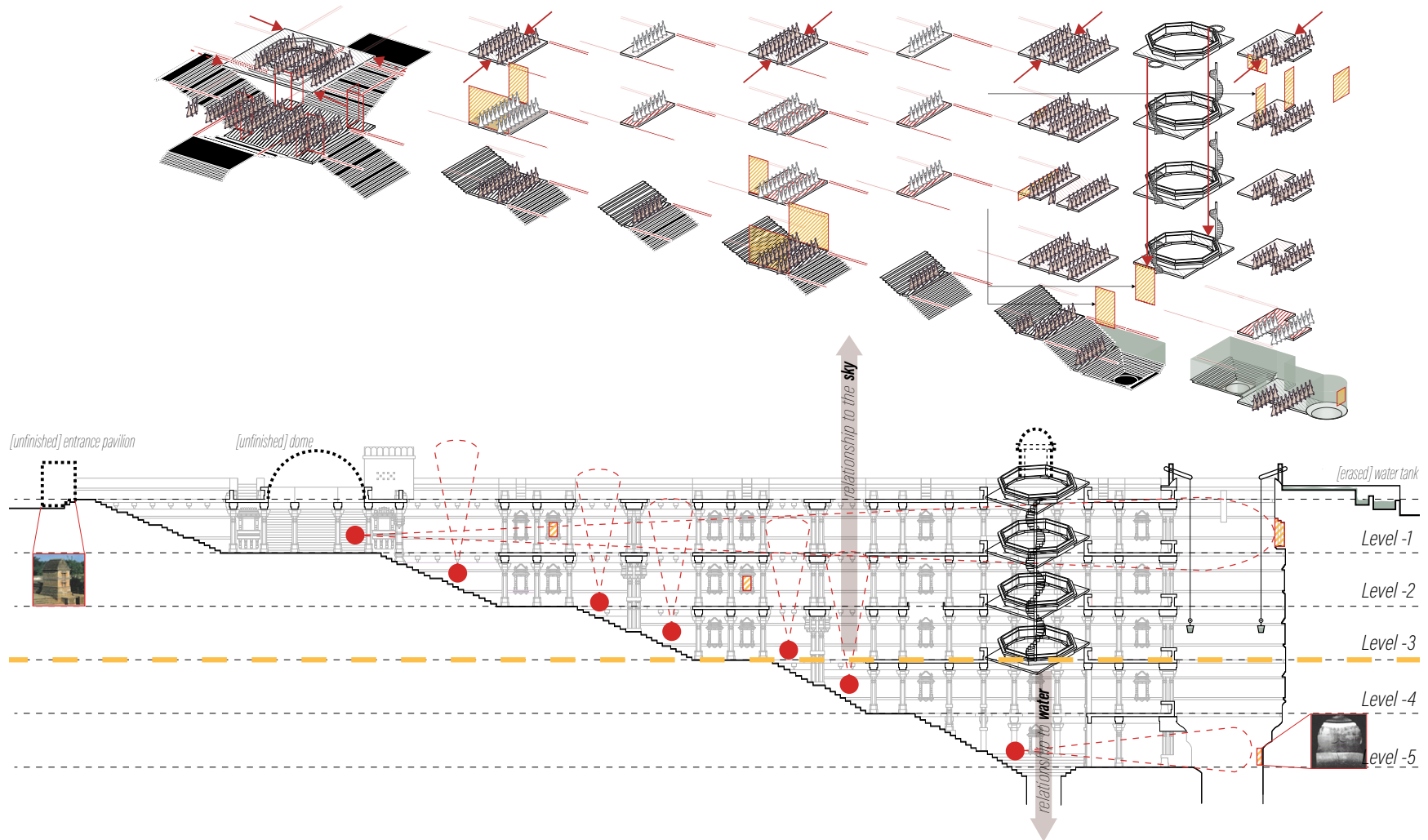
Overall Building Analysis: The 3rd storey below is the point at which the relationship to the sky discontinues and transitions into a relationship with the water and the experience becomes a spiritual one having arrived at the deepest parts of the well. The building analysis demonstrations that the design must preserve the qualities of light, views, sanctity, must reintroduce water and historical narratives, and introduce accessibility to platforms to make better use of the monument.

[unfinished] dome   [unfinished] entrance pavilion

Level 0

Level -1

Cross Section B

Level 0

Level -1

Level -2

Flood Line   Level -3

Cross Section D

relationship to the **sky**

Level 0

Level -1

Level -2

Flood Line   Level -3

relationship to **water**

Level -4

Level -5
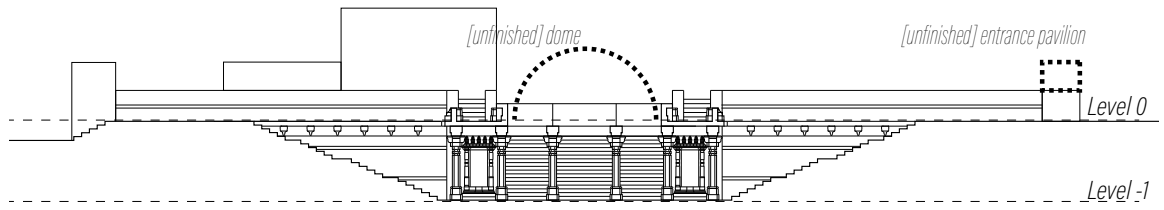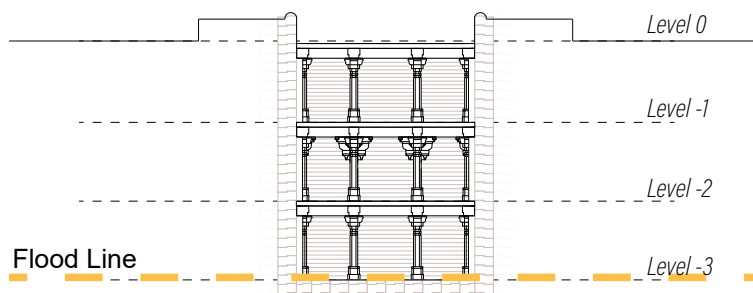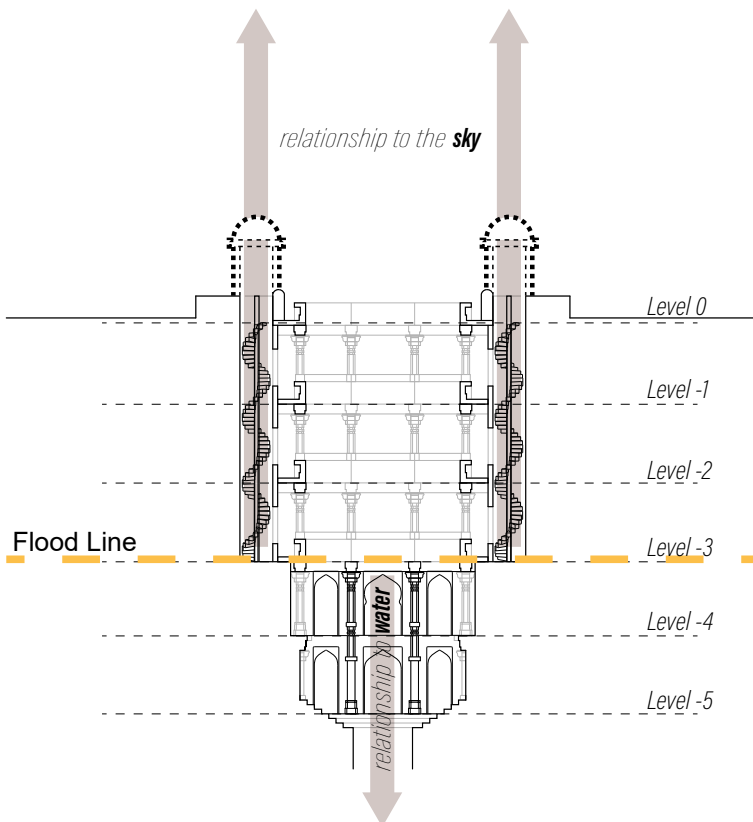
Cross Section F

Chapter 5: Program Approach

5.1 Programme and Conflict

> These buildings are the visible architecture that mark entry to the invisible landscape of underground water throughout the region, providing life and sustenance to towns and villages. (Livingston 2002, xix)

Though they don't provide life and sustenance anymore, they can be reprogrammed to provide nourishment once again. Dolores Hayden addresses an important around the question what kind of programme and how will it sustain itself? She says "...most social history landmarks cannot be turned into commercial real estate to pay for their physical preservation, nor can they function as income producing museums" (Hayden 1997, 197). This raises the question how does one create functional landmarks that help neighbourhoods and can pay for themselves and their physical preservation?

Perhaps, referring to Tschumi could generate some innovative programme ideas. Tschumi proposes superimposing and conflicting ideologies can create

> …disjunction between space and event, together with their inevitable cohabitation, was characteristic of out contemporary condition. Architecture, then, could not only import certain notions from other disciplines but could also export its findings into the production of culture. (Tschumi 1999, 18)

1) **Reciprocity**: when the program is shaped so that it coincides with the form, or the form is shaped so that it reciprocates the configuration given to the program.
2) **Indifference**: when a selected form can accommodate any program.
3) **Conflict**: when program and form intentionally clash. (i.e. pole vaulting in a chapel).

RECIPROCITY   INDIFFERENCE   CONFLICT

Diagrams adapted by and courtesy of Brennen Jelinski of Bernard Tschumi's approach to organizing form and program relationships, from class seminar (Jelinski 2020)

Architecture and Disjunction endeavours into the political and social effects in society and the challenges associated with this imperative. Tschumi proposes two types of strategies, "exemplary actions" and "counterdesign" as ways to arrive to new social and urban structures (Tschumi 1999, 11-12). The Archizoom's No-Stop City and Superstudio's Continuous Monument proposals reject planning processes in there evocative images that show the absurdity of a system by which people live. It is a cultural as well as a political statement. In the same way, this thesis will address stepwells in their imperative socially and politically. The design will test Tschumi's theory on trans-program, to create conflicting and interesting opportunities in programing water infrastructure with public program. The objective is to generate culture rather then to assimilate within Le Corbusier's notions of 'the functional city' similar to the Archizoom and Superstudio examples.

Architectural preservation asserts a visual presence in the spaces of the city and is usually less concerned with accountability and more expensive than community-based public history (Larice and Macdonald 2007, 197). Most wells are within local communities and villages, and do not have the support of the tourism industry to financially maintain these urban artifacts. Programme complimenting a community-based intervention is well paired in creating an opportunity for people to feel accountable for these artifacts again.

> Libraries raised me. I don't believe in colleges and universities. I believe in libraries because most students don't have any money. When I graduated from high school, it was during the Depression and we had no money. I couldn't go to college, so I went to the library three days a week for 10 years.

> -Ray Bradbury (Steinhauer 2009)

Water historically was free. To any new function that will gentrify and displace surrounding residents adjacent to stepwells is consequential. Thinking of Venice where there is access to fresh water in the middle of the streets, is what this thesis strives for. Except bringing back water is not enough, it needs to bet trans-programmed with another function of unrestricted and free space, a library. It is appropriate to pair these two unlikely programs in one building to fulfill a need to nourish both body and mind.
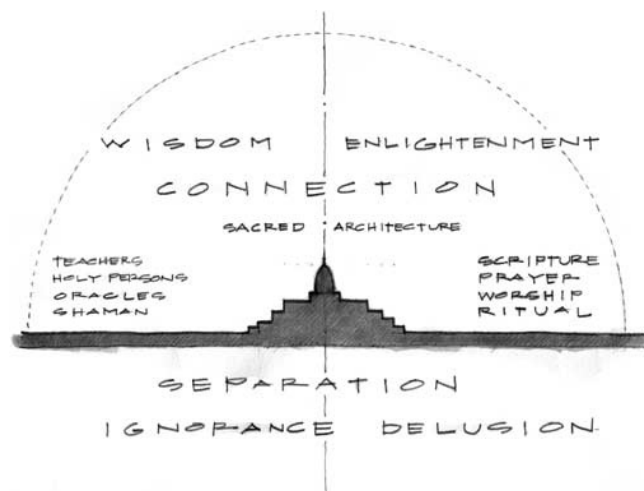
Thomas Barrie describes sacred spaces as an intermediary zone for people to join, connect, and unveil spiritually. (Barrie 2012, 80)
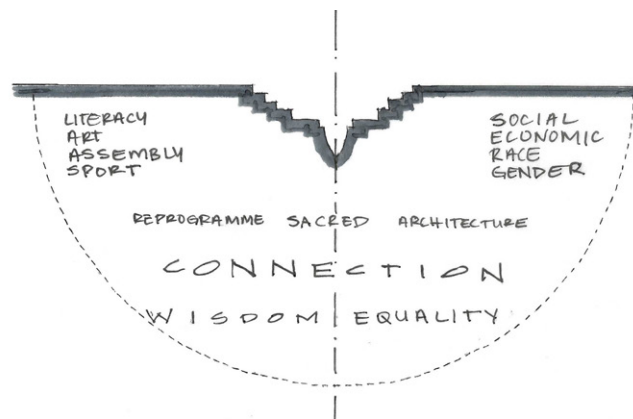
I've taken this approach and recontextualized it as an intermediate zone between literacy, art, assembly, play and people of different social classes, economic classes, race and gender.

5.1.1 Architectural Elements and Proposed Water Remediation

> A dam tears all the interconnected webs of river valley life. (McCully 1998, 7)

When Indians regained control of their government, the British pattern of ignoring stepwells as a water resource continued. Increased irrigation led to new deep bore wells that gave the illusion that water is plentiful when it emerges. Pumps draw water out of wells much quicker than the monsoon can refill them, bringing brackish water and salts in the soil to the surface (Livingston 2002, 143). India's water structures including stepwells, stepped ponds, open reservoirs have always coexisted with social life around water, as water is a unifying element between all people. Today dams such as the Karai Dam closest to Adalaj within Ahmedabad has also become a place of public gathering that applies a false sense of security around water in an arid region like Gujarat.

> Perhaps more than any other technology, massive dams symbolize the progress of humanity from a life ruled by nature and superstition to one ruled by science, and superstition vanquished by rationality. They also symbolize nation-builders and autocrats. When a dam is given such a symbolic role, its economical and technical rationale, and potential negative impacts fade into insignificance in the design-making process. (McCully, 1998, 237)

As Morna Livingston explains, water buildings will never return and serve as they once did, but a sharp awareness of how they worked might help to reengage local communities with their own water management systems (Livingston 2002, 144-146). It is especially important for Gujarat, and towns such as Adalaj to reengage with their existing water monuments because deep drilling for petroleum in the northeast is creating depressions in the water table. The water table can become filled with minerals, salts or oil and cannot

be made fresh again (Livingston 2002, 146). Therefore, it seems inadequate to propose to simply preserve the existing ecology and watershed that contributes to replenishing the aquifer in Adalaj. This preservation will allow the community stepwell to flood seasonally but what happens to the water once it arrives in the monsoon? When the stepwell floods, a combination of a hydraulic and passive systems are at play at Level -4, where there is room to store and clean water.

Water, the soul of stepwells will continue to flood at Adalaj.

1. There is an introduction of a cistern at Level -4

2. During the monsoon when the stepwell floods and collects water from the sky, some of which will be pumped into the cistern

3. Stored water will be pumped to the water fountain interventions

4. The surface fountain architectural intervention has allowed for miniature canals in the ground to take the excess water pumped out and lead it back to the bottom of the well.

5. The tectonics of the railings are sloped and cupped to lead the water down to level -1 and into the well through scuppers that come out into the octagonal shaft.

6. The activating elements all introduce grates at the surface and at each level below to allow natural light into the new spaces within the earth. At level -3, the deepest level that light can penetrate, there is a drainage channel. Though these subterranean spaces are predominantly lightwells, they are designed to collect and move water towards the well through scuppers that come out into the octagonal shaft. These lightwells can be enclosed to remain
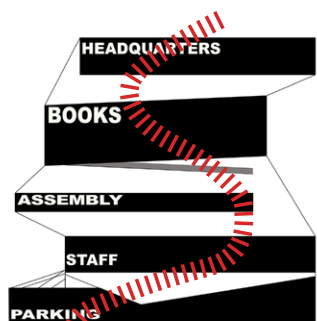
Platforms
("Gallery of Seattle Central Library / OMA + LMN" 2009)
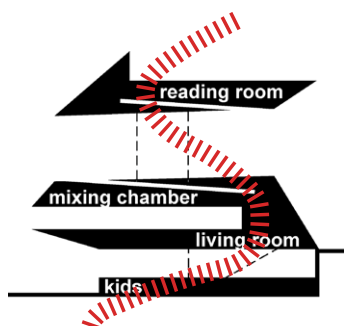
In-between Spaces
("Gallery of Seattle Central Library / OMA + LMN" 2009)

An abstraction of seamless and intertwining program between the platforms and in-between spaces. This composition aims to promote social interaction between people that would otherwise never meet.

solely for light, but as the interventions weather with the preexisting stepwell, and these interventions were to come a part of an open structure such as the stepwell itself, it has accommodated for the movement of water in these spaces.

5.1.2 Defining a Contemporary Library

A Contemporary Library is a cultural, social and civic hub. In the modern world where there is a myriad of diverse activities from yoga to 3D printing, are housed in library buildings that are only given one third of the space to books (Dowdy 2019). This reinvented contemporary space is designed in a way to encourage social interaction and education. A library in this definition commits to promoting lifelong learning, active citizenship, democracy and freedom of expression (Dowdy 2019). These commitments to an active and safe civic space are the intention behind reinventing Adalaj ni Vav into a contemporary library.

Seattle Central Library was a precedent that informed approach to program. The Seattle precedent intertwines spaces that are 'private', the host of a particular program with ones that are 'public', the in-between spaces for people converge. One must walk from the Reading Room through the Books to arrive at the Mixing Chamber that passes the Assembly that leads to the Living Room, winding one's path down the building seamlessly through each space.

In the same way as the Seattle Central Library, intervention at Adalaj ni Vav aims to activate the platforms and carve out new spaces to host a particular program. Then all the spaces in between become places for people to converge. The program proposes to create makerspace workshops, exhibition areas, computer learning labs and dedicated performance spaces alongside many spots for gathering

PRAY LEARN MAKE BOOKS SHARE
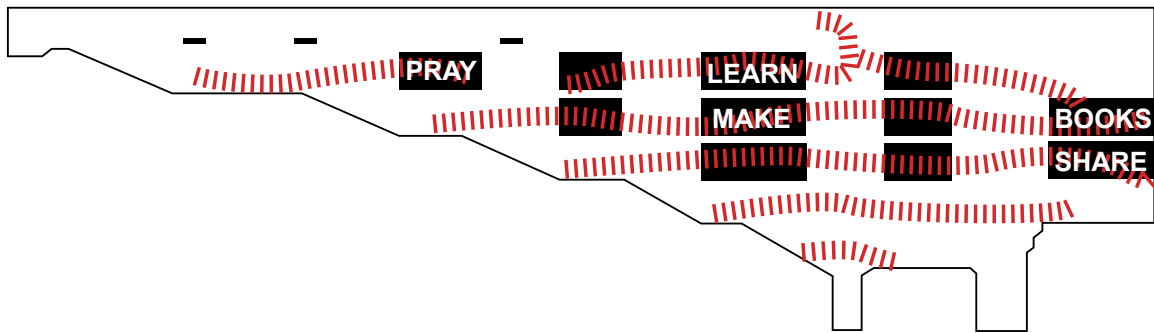
Existing platforms and new spaces inhabiting proposed program.

EATING AND DRINKING GATHER PERFORM MIXING

In-between spaces are places of performance, gathering, and social interaction.

throughout. The aim for Levels -4 and -5 is to teach the townspeople about the water ecosystem. By introducing the cistern and water fountains, the community can learn new ways to use and access water within the stepwell through the proposed hydraulic and passive systems. The objective is for a renewed sense of community ownership of public space.

Vastu Purusha Mandala (Venugopal 2012, 7)

The program organization and approach stems from the building analysis that indicated that dry program is for levels 1 to 3 below grade and wet programs for levels 4 and 5 below. Alongside this, the Vastu Purusha layout design of the mandala inform where the particular programs are placed.

The Vastu Shastra is a product of Vedic science which literally means 'Science of Architecture' and the Vastu Purusha mandala one part of the text that consists of a metaphysical plan on of a building that refers to energy, power or the soul. The mandala is recognized as a square but also prescribes to a circle and octagon. It has a concentric nature of increasing importance towards the centre, it is the most sacred part of the mandala. The soul of the building is said to be at its center and as the square expands outwards, the Brahman (man superimposed on the mandala) is connected to the

external qualities of the environment (Venugopal 2012, 5). In analysis of the stepwell, it became apparent the soul of the structure was at the heart of the octagonal shaft where the water sprung. As a result, the decision to preserve water came from understanding the mandala. The soul of the stepwell is by means of its water. Expanding outwards from the water, the exhibiting, making, and learning interventions all connect to the external environment by means of light wells, that always connect to the sky. The programs all invoke a form of knowledge of the mind. Learning is closest to the surface to allow the community easy and direct access. Makerspace workshops, knowledge through making are on Level -2 because the motif of 9 clay pots located here is a symbol of the Mother Goddess, femininity and knowledge. Exhibition spaces located on Level -3 is to manifest culture and bridge divide between people by way of sharing.
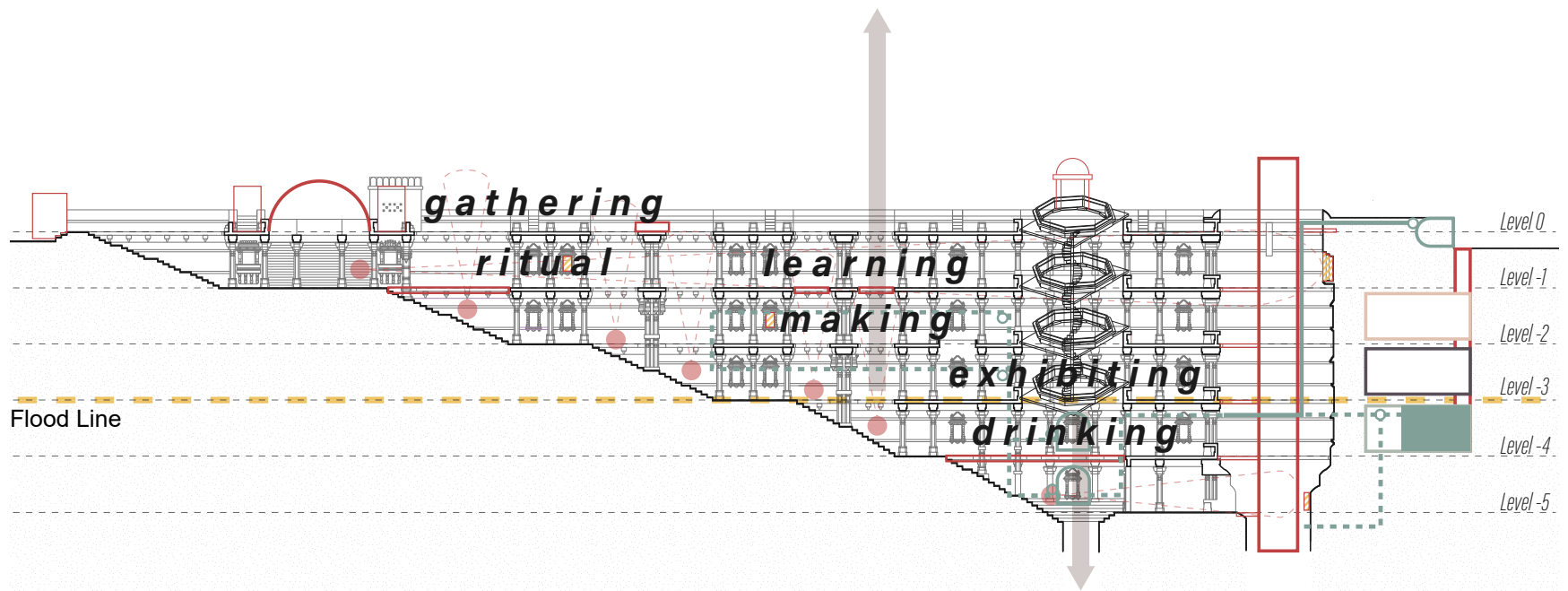
5.2 Women Within Renewed Public Spaces

Stepwells, once epicenters of public life for women can once again become a place they can claim as wholly their own at certain times of the day. As explained in Section 3.3.2, women can use the following spaces to build Listening Circles, create Talk To Me workshops, can practice being idle, and create people through Meet to Sleep, reclaiming parts of the completely between 3 PM and 6 PM. At this time, girls will be leaving school, making their way to the market for fresh vegetables for their family, to tuition and to home. At this time women will leave work and to a place of worship, to a bakery or the market and then to walk home. Stepwells are located at the edge of the medieval town of city, but today many cities have ground around stepwells. Adalaj is a growing town on the east and west ends of the stepwell. Though Adalaj ni Vav is located at the edge of the city, it
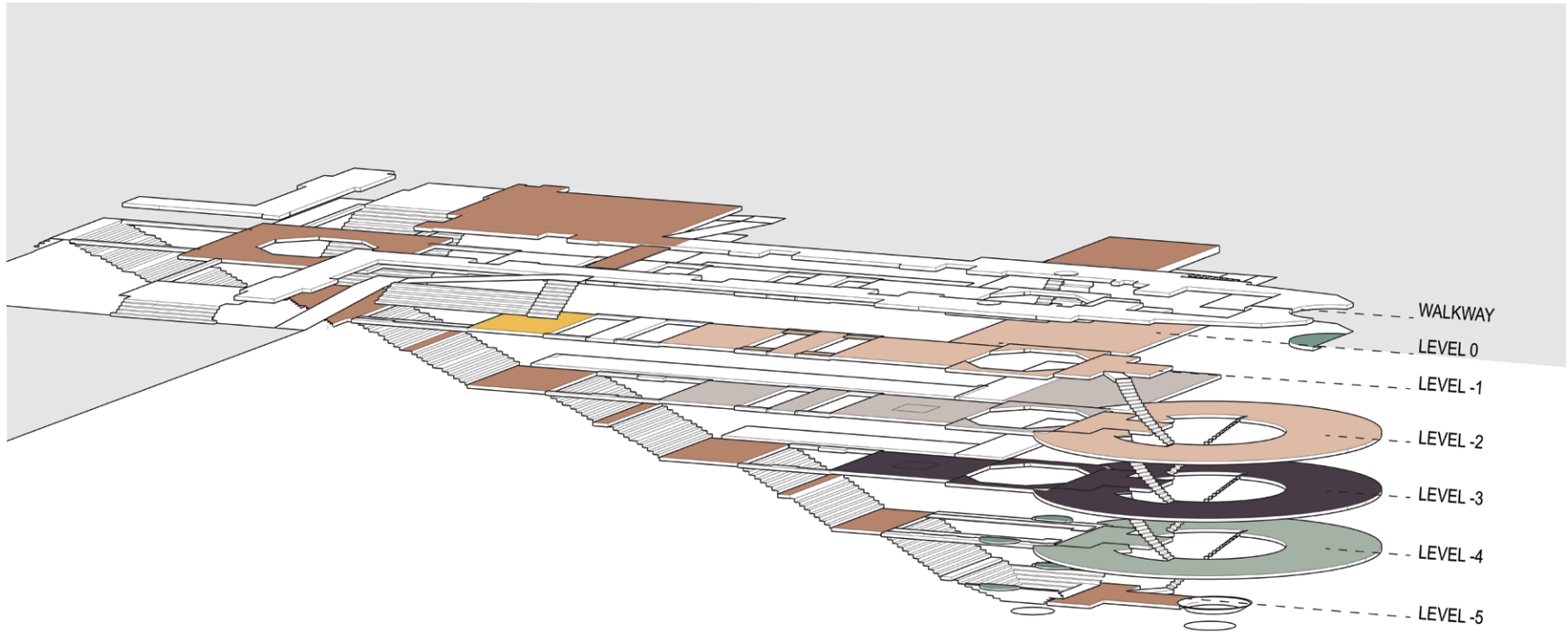
behaves as the heart of the town because located nearby is the temple, the mosque, the town's vegetable market, the shopping center, and many small shops. Between 3 PM and 6 PM, women of all ages can inhabit all parts of the stepwell at a given time.

1. Exhibition of women's "I Never Ask For it" testimonials at all time's of the day on the exhibition spaces at level -3.

2. Women meet for Listening Circles in the evenings after they are done school or work to speak freely about the sexual violence to create solidarity amongst women and heal in the process.

3. In the gathering spaces on the raised platform, as they get snacks and chai from the trollies , women and men attend the "Talk To Me" workshops to meet strangers to address their fear and create empathy between people.

4. Women part of "Unapologetic Walking" from the street south of the stepwell, into the plaza to the east and west and entering into the central corridor of the stepwell and walking down to the Water Fountains. They wear what they please, walking with their heads held high to embrace the changing world.

5. In between, "Be Idle" spots on the raised platform adjacent the surrounding park and street to resonate a sense of belonging out of one's comfort zone.

These opportunities of new programs alongside interaction with water that cleanses one's soul helps to achieve the change in public space Indian women strive to achieve. New sense of independence and energy echo in the walls that are five hundred years old and which currently resonate social segregation from a complex Indian history.

gathering

ritual   learning

making

exhibiting

drinking

Flood Line

Level 0
Level -1
Level -2
Level -3
Level -4
Level -5

Proposed contemporary public library: division of program

WALKWAY

LEVEL 0

LEVEL -1

LEVEL -2

LEVEL -3

LEVEL -4

LEVEL -5

Proposed contemporary public library: program relationships

74

WORSHIP

SUNRISE   SUNSET

LEARN

SUNRISE   SUNSET

PERFORMANCE

SUNRISE   SUNSET
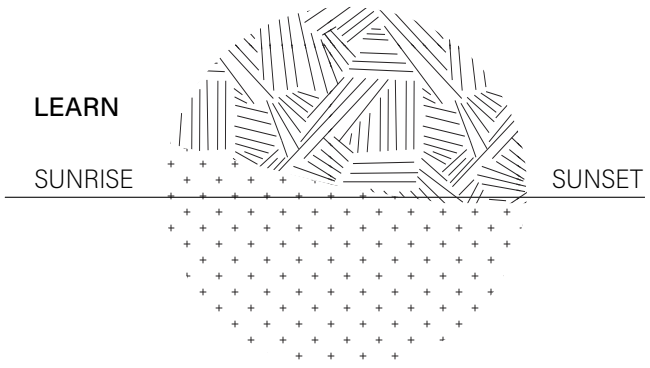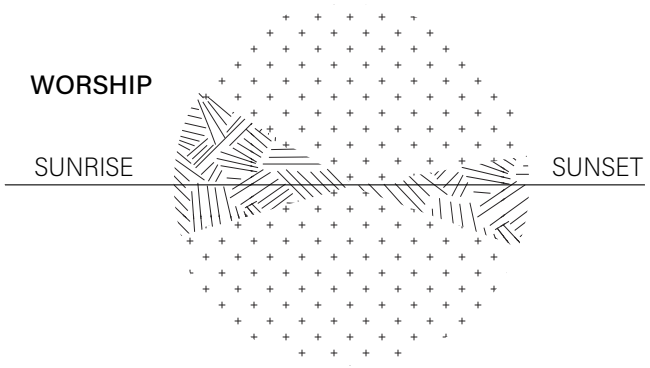
Can occur at a variety of
locations, stepwell platform
and central corridor.

MAKER'S SPACES

SUNRISE   SUNSET

Uses at different times of the day.

EXHIBITION

SUNRISE   SUNSET

WATER

SUNRISE   SUNSET

FLEXIBLE

MONSOON   WINTER

FLOOD
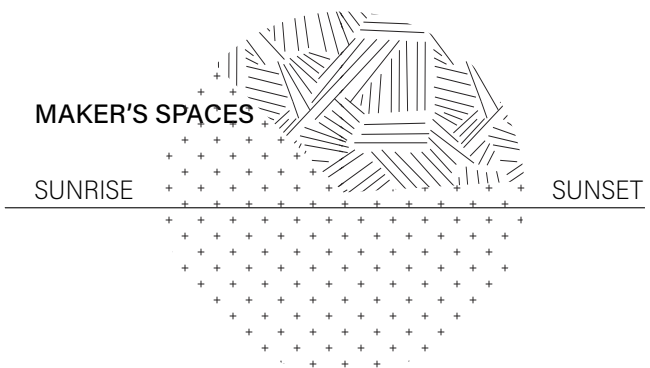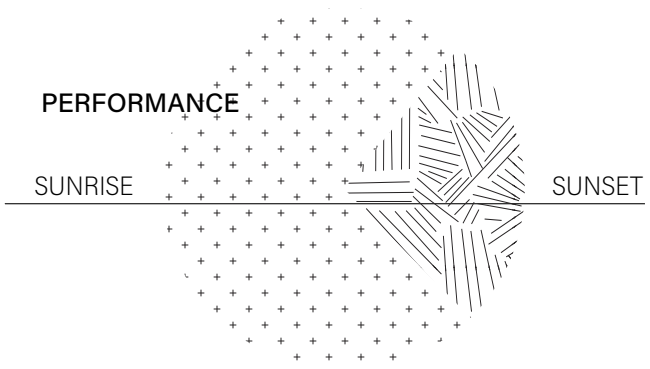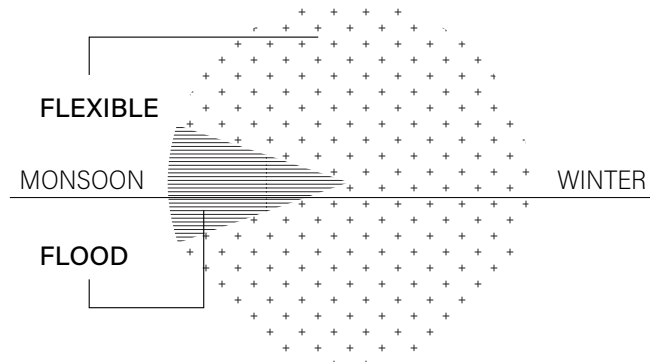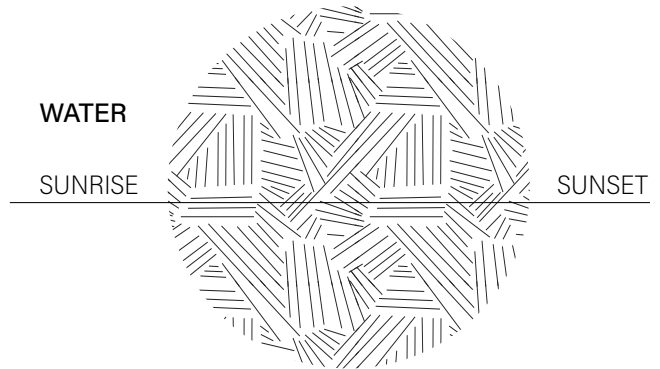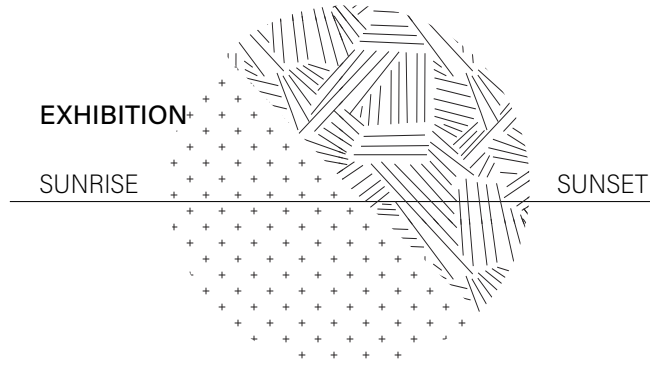
Uses at different times of
the day.

Chapter 6: Design Method

Through my research I identified a methodology. Beginning by identifying the programmatic needs of the local community, providing what is needed to enable the sacred monuments to support these programs. Architecturally intervening in a way that balances revitalization with preservation of the historical monument, and root interventions in the collective memory of the building. This section focuses on the latter, aspects of balance between the monument and proposed interventions and how to root interventions in collective memory.

6.1 Palimpsest

Palimpsest provides a valuable way of working in relation to collective memory. Palimpsest reveals a condition where a layer of previous work can be seen for rediscovery and reinterpretation. Palimpsest can be viewed in two ways; it is an entity that makes room for reuse though rediscovery and reinterpretation and the other represents a vessel for meaning (embodiment of history and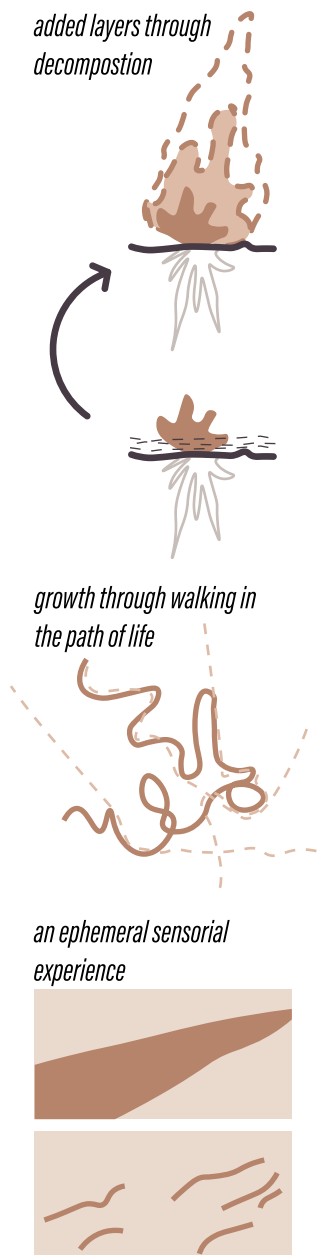 memory). We can trace palimpsest layer in walking through events that occurred, desire lines can be part of understanding where we are in order to recreate an experience of space.

Memory is always transitory, notoriously unreliable, and is haunted by forgetting. As public memory is subject to change through political, generational, and individual exchange, it cannot be stored forever, nor can it be secured by monuments (Huyessen 2003, 28). Reinterpreting and retracing narratives otherwise forgotten at Adalaj ni Vav through proposed architectural intervention transcribes new meaning to such a civic space. For example, completing the unfinished dome and recreating the above ground water

added layers through decompostion

growth through walking in the path of life

an ephemeral sensorial experience

Palimpsest Theory.
Top: On the Ground
Middle: Along the Path
Bottom: In the Wind
(Ingold 2010)

basin that has disappeared at some point in time enables the building to take on new form without striping the monument of its memory.

This section is divided into two sections; Section 6.2 explores how palimpsest is used to recontextualize program, procession and water and Section 6.3 explores a design approach to mediating between the old and new.

The following is a general definition of palimpsest:

> Palimpsest can be viewed in two ways; on one hand, it is an entity that makes room for reuse and on the other, it represents a vessel for meaning. (Venart 2020)

Tim Ingold describes palimpsest as ideas of On the Ground, Along the Path, and In the Wind. These three ideas incasing his theory inform the proposed architecture within the urban artifact. In the Footprints through the Weather-World: Walking, Breathing, Knowing, Ingold discusses the relationship between bodily movements and the temperate experience. The individual or wayfarer is said to experience the ground, the path, and the wind as a form of gaining knowledge through the experience. The ground is described as a palimpsestic ecosystem that continues to add layers through decomposition, no matter human footprints or concrete interventions. The path is described as the path of life, it is winding and the experience in the journey is more important than the destination (Ingold 2010, 126). The wind lastly is a sensory experience; the ground and the path affect mood. Holistically, it is the knowledge of the three, tracks becoming trails, the more your walk on these paths, the more the wayfarer grows (Ingold 2010, 136). For the purposes of this thesis, I see the stepwell artifact as a palimpsestic ecosystem that will continue to be used, reused, and weathered from my intervention and into the future.

Motif ("Patan Patola and the History of the Cloth of Kings" 2017)

Motif recontextualization as tiles: design experiment (Oleson 2020)
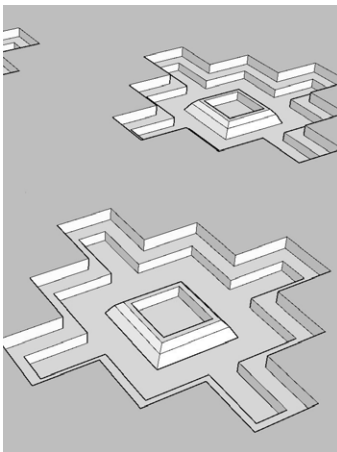
Motif recontextualization as pools: design experiment (Molitor-Dyer 2020)

I see the winding path Ingold describes as the proposed programs that send the wayfarer on a journey through the building. Lastly, I see the wind, a sensory experience as the interaction with light and water in the design.

6.2 Recontextualize

6.2.1 Recontextualize Memory

Adalaj ni Vav and many stepwells are inscribed with relief motifs that often have spiritual significance. To create new architecture in a spiritually captivated monument such as Adalaj ni Vav without diminishing the sanctity it holds, all interventions must become a vessel of embodiment of history and memory. I explored how I could take a particular motif and reuse it's character to engage as new architectural form. I asked two undergraduate students at Dalhousie University to take a motif (top left) and to create something new. Though I did not use this particular experiment in my proposed design, the act of making created a way of thinking about motifs within the monument. It wasn't until this experiment that I realized the meaning behind the motif can inform how it is used within the architecture. To explain, I use the Ashoka leaf as a way to construct the dome, folding each leaf to allow for water to catch and move along the midrib. Initially, I was going to use the lotus flower for the dome construction as that is also a recurring motif and is a symbol of purity and femininity. However, the Ashoka tree is known for it's healing properties and what Adalaj ni Vav needs to become is a place of reconciliation for women and the community. It was this rational that I chose to use the Ashoka leaf as a palimpsest within the architecture.

6.2.2 Recontextualize Program

A space that was predominantly used by women out of necessity becomes recontextualized into a space where women feel empowered and seen. Reclaiming the stepwell adds a layer of palimpsest to the site by reusing the monument in a new way. The architecture will:

•   Create a beacon to have an above ground

        presence of renewed space for women and people

        who are not seen in the community.

•   Create spaces to gather, teach, learn and reflect

Building analysis has shown lack of accessibility to the different platforms. The architecture will introduce bridging elements to :

•   Create an elevator within the well shaft

•   Create access to bridge between or to platforms

6.2.3 Recontextualize Water

Mohsen Mostafavi and David Leatherbarrow argue weathering is a subtraction from a built form causing the edges to remove and stone or material to decay. Adolf Loos believed the house grows with its residents, highlighting beauty in the staining of a surface, or the growth of moss and the creation of textures of the place (Mostafavi and Leatherbarrow 1993, 25). As the stepwells continue to weather the monument, the proposed is designed to weather alongside the monument. This concept aligns with Mostafavi and Leatherbarrow's method in allowing the additions to weather with the existing and to embrace it. A poetic relationship forms between the new and old as the design introduces light wells, for the subterranean spaces

(Corridor and Offset spaces at Levels -2 and -3). These subterranean spaces, as they weather can become open to the elements above. Over time, if the glass at the surface of these light wells were to erode or break, water can enter through the light wells, similar to the monument. The design allows for trough to catch water and lead it towards the center of the well as described in Section 5.1.1.

6.3 Design Approach: Juxtaposition

Analyzing juxtaposing methods on the adaptive reuse of the urban artifact highlights opposing interpretations between material and form. The analysis shows how use of material and form create a perception of preciousness or secularity. Each method creates design opportunities for drastically different programme. The two opposing methods in dealing with the urban artifact are Peter Zumthor's Shelter for Roman Archeological Site and David Chipperfield's Neues Museum.
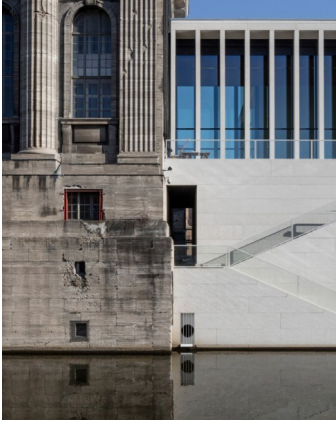
6.3.1 Case Studies

Roman Archeological Site

Peter Zumthor's intervention to enclose the ruins in its entirety to create a place to commemorate for solitude. Suppose a similar intervention were to occur with the stepwell, it would become a super-charged, precious object in its entirety similar to the ruins. It would feel closed and separated from the community. This approach might work in the context of the roman ruins, where they are put on display, circulating on a light metal stair and platform above the objects. However, this thesis strives to find a balance between the sacredness and secularity of historic buildings. It endeavors to take an approach similar to Tadao Ando, OMA, and Carlo Scarpa

When a delicate metal and wood intervention such as this safeguards the ruin, it develops into a sacred monument. A ruin becomes heightened in its memory and value ("Peter Zumthor, Shelter for Roman Ruins" 2018)

where historic buildings find the next chapter in its ever-changing story in time. This concept is manifested deep in Aldo Rossi's theory of the urban artifact and is the premise of architectural mediation with the stepwell.

Neuess Museum

David Chipperfield's addition to the Neues Museum is as monolithic as the museum itself. The tectonics are stone adjoining stone; one is bright, white, and new and the older is shades of weathered browns. A contemporary take to stone that shows two different periods of time. The addition introduces a contemporary take on the iconic colonnade as a design approach. In the context of the stepwell, this approach could work well as a statement piece in moments I want to highlight as permanence and robust.

A monument is equally heightened in historic value as the new architecture does not shy away from budding up next to a monument. The difference between old and new is clear ("David Chipperfield Architects, James-Simon-Galerie" 2019)

An early vignette showing how platforms can be reused within the stepwell
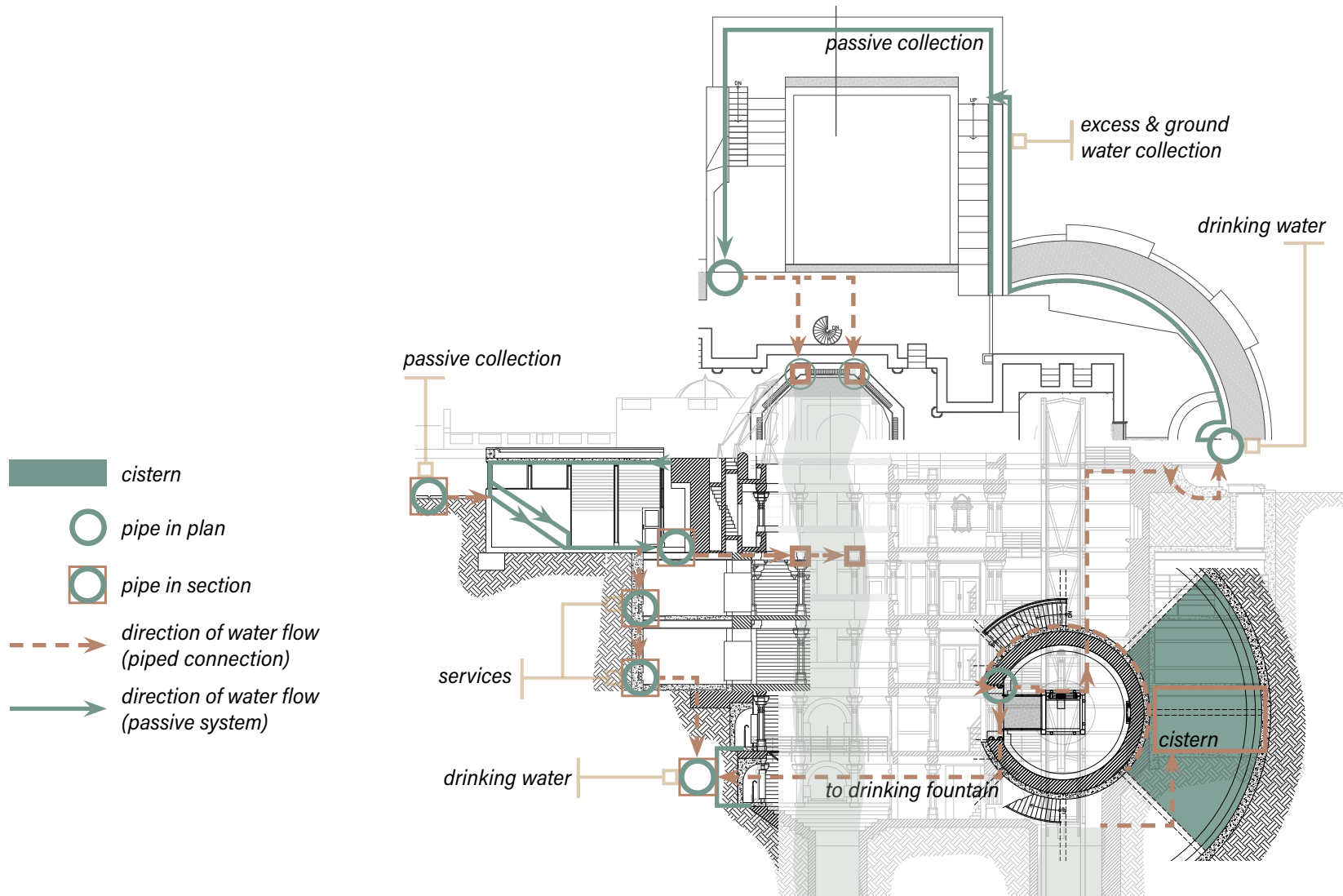
Diagram showing water remediation within Adalaj ni Vav. Water is used in a is cyclical manner with the use of hydraulic and passive water systems as described in Section 5.1.1.

Legend:
- cistern
- pipe in plan
- pipe in section
- direction of water flow (piped connection)
- direction of water flow (passive system)

passive collection

excess & ground water collection

drinking water

passive collection

services

drinking water

to drinking fountain

cistern

The following series of collages explore how architectural ideas can combine with cultural practices to create spaces that are rooted in collective memory within a locus. Left: Collage investigates how bridging walkways can use geometric pattern from local textiles to create a perforated platform or screen. Middle: Collage investigates how empowering spaces for women can be created through testimonials of sexual harassment projected on the floor. Right: Collage investigates how the use of geometric pattern from textiles or motifs can inform an above ground space that acts as a beacon for civic identity and renewed space for women.

Chapter 6: The Architecture

6.1 The Elements of Intervention

> Transcending time and space, it has rendered itself timeless, essentially though its spatial attributes and the experience of moving through the same. These experiences are shared trans-culturally by all, at a basic human plane, without any familiarity with the context or any knowledge of the history. This also makes it universal, where communication between the subject and the perceiver is inherently decipherable. It is the journey, the process of moving through the space, which in itself becomes the event. (Pandya 2005, 46)

What I hope to achieve from all four elements of architectural intervention is similar to what the existing building achieves. To explain:

> The clues for movement, inherent in the space, are revealed sequentially. This gradual unfolding of spaces creates a sense of curiosity within the perceivers and involves them in the process. A dialogue is established between the subject and the perceiver through the mutual process of encoding and decoding of messages, thus making the entire process interactive as well as the discovery very personal and intuitive. (Pandya 2005, 46)

6.1.1 Finishing Element

The emblem of motifs and reliefs within the architecture at the Adalaj ni Vav is rooted in the fusion of different cultural influences in the making of this water monument. This cultural amalgamation is the reason why this specific site is chosen to test out a public program that is not only inclusive of all people, regardless of their religious, gender or socioeconomic background, but provides opportunity and a voice to those that are disenfranchised. People such as women who aim to reclaim public spaces through movements such as *Blank Noise*, children who do not have modern day facilities, and people's desire to learn, make, and show are all billeted around water and within this sacred monument. In Section *3.1 The History*, the tale of Adalaj

ni Vav is conversed. When Mahmud Begada conveyed to Rudabai that the stepwell was complete which lead to her self martyrdom, he lied. The dome pavilion at the entryway was never complete. In efforts to complete this dome, is an element of architectural intervention. The three entryway corridors from the east, west and the south to a square platform landing is your first experience of decent into the earth. This platform is your first moment of pause which would have been the base of a dome has four elaborate shrines portrayed in Section 3.1 The History. These windows were meant to be home to religious Hindu deities prior to the Mughal takeover. On all the balconies there is a relief of the ashoka that are known as healing leaves part of a sacred tree in Hindu and Buddhist tradition. The ashoka flowers are a repeating motif throughout the stepwell. The Ashoka tree has associations folkloric, religious, and literary associations recurring in Indian art, sculpture and sacred places. The saraca asoca (ashoka tree) is also used for traditional medicinal use. Using the leaf motif, and its natural abilities to hold and move water along its folded midrib, is the way in which the proposed dome is composed and now, finished. Two smaller versions of this dome are replicated at the other entryways, the spiral staircases, on the east and west sides of the octagonal shaft. It is uncertain if these pavilions were also unfinished, or whether they decayed and broke over time. The narrative in where these domes were to have been at a given time, is completed or reintroduced, marking the Finishing Element.

The dome provides an above-ground presence and solidifies the Adalaj ni Vav, a sacred monument as a celebration of civic space by providing a renewed civic identity. It becomes a symbol within the community for a space to reclaim as

Bridge at Level -4 to access water fountain.

Elevator in well shaft bridging at each floor.

Stairs within the Offset that bridge between all floors.

their own. The dome acts as a shelter, a roof for the multiuse performance space below on the square platform. Above at ground level, it acts as a shelter from the sun and rain for the adjacent food areas in the west plaza. It also it becomes as a circulation thoroughfare for people coming from the temple plaza to the east to the proposed food plaza to the west.

Procession is split into two elements, one of activation and one of bridging.

6.1.2 Bridging Element

The bridging element is the implementation of new procession for the entirely of the monument both horizontally and vertically. The vertical procession includes the elevator that bridges accessibility to all 5 floors below grade and stairs that bridges between existing platforms within the stepwell.

6.1.3 Activating Element

The activating elements are corridors that connect existing platforms without intruding on the natural light; to not compromise within the existing spatial qualities within the central corridor. There are two instances of this element, one be the corridors at storeys -2 and -3 that host services and where one can find access to washrooms. The other are the incisions in the ground on both east and west sides of the octagonal shaft that activates the shaft platform on level -1 below grade as an atrium. The incision on the west provides a multi-purpose room for the community, and the east provides a digital space for people, especially school children who lack accessibility to a computer lab.

Activating Element and Water

The activating element behaves very differently at levels -4 to -5. Rather than activating platforms for activity, there is an activation of water. The anatomy of the existing building through the analysis changes at these levels. The central corridor descends from 4 rectilinear sides into the central of the well. There is a fish motif at the bottom of the well shaft that speaks to Hindu mythology of the Water World during the Samatra Manthan, and transforms interaction with water as a form of ablution. The proposed intervention at these levels keeps the relationship to water. There are fountains for drinking water at this level that allows for the same qualities for ablution but in a contemporary way. At level -4 there is a water reservoir that stores ground water run off, and water from the aquifer. Since this is now a contemporary building, there must be measures to ensure that the building not overflow with water completely, though unlikely because of the diminishing water table. The water currently floods only one level, level -5 during the monsoon. In the event that water exceeds level-5 and rises, it will overflow into a reservoir. The water from the reservoir which located within the Offset Element at level -4, allows for water to be carried the surface. This is important in reintroducing water at the surface once where there was once a basin for water as it was pulled up by women. This water at the surface was traditionally used by farmers, animals, and people. The proposed recontextualization of this narrative is to reintroduce water by using a hydraulic pump, the water is moved through the Elevator structure and to the surface as the elevator moves up and down.

6.1.4 Offsetting Element

The offsetting element is new spaces provided to allow for new program opportunities such as a library, makerspace and exhibition. The form is a result from offsetting into the earth from the well shaft in the north end of the site.

ROUTE 3

ROUTE 2

ROUTE 1

Site plan
1:1000
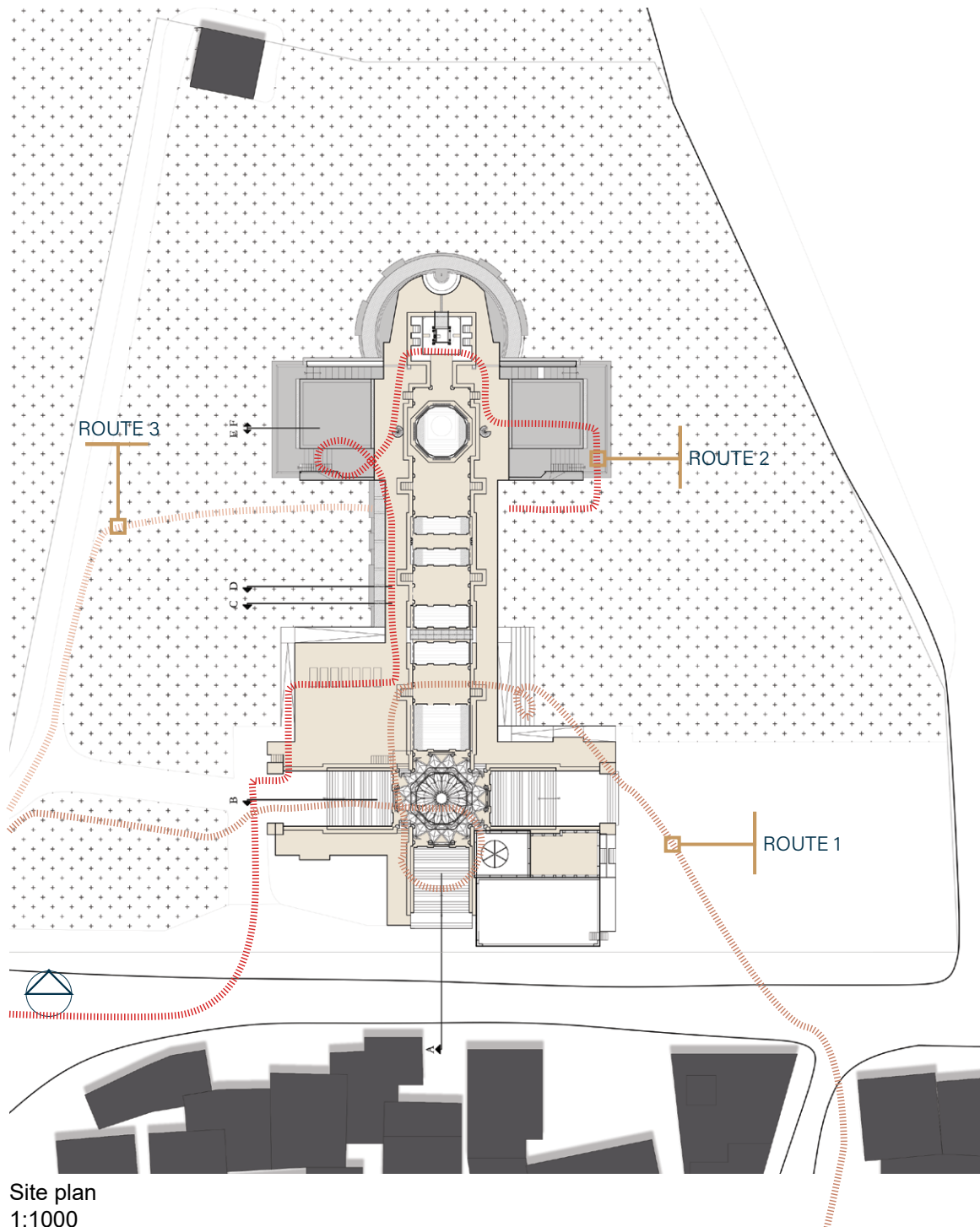
Drawing showing all above ground architectural interventions such as: the dome, bridge, computer lab, multi-use space, elevator that takes one into the subterranean spaces, and the water fountain

SEATING

F
E

COMPUTER
LAB

MULTI-USE

SEATING

D

C

RAMPS

BRIDGE

RAMPS AND STEPS

GATHERING

B
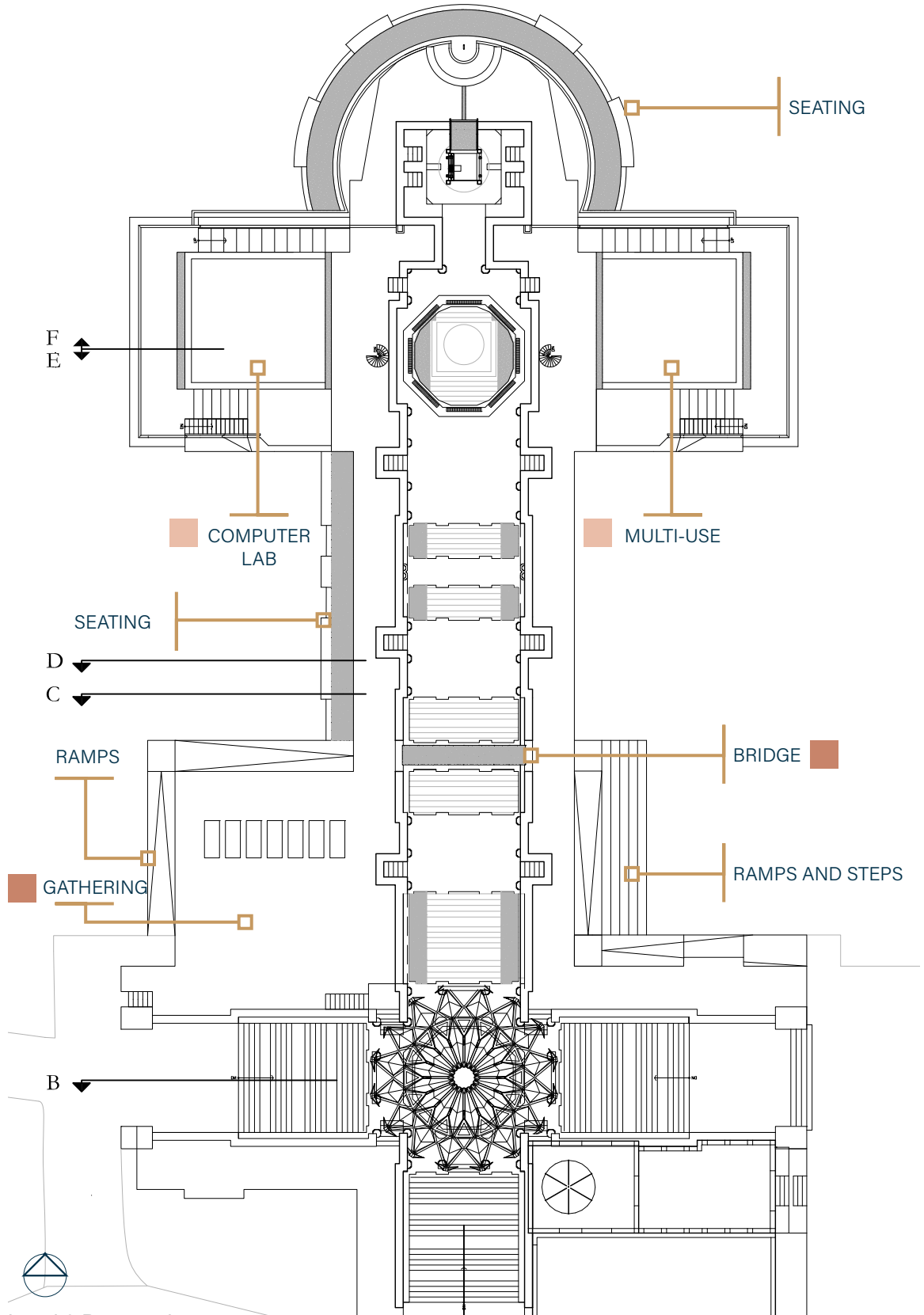
Level 0 Proposed
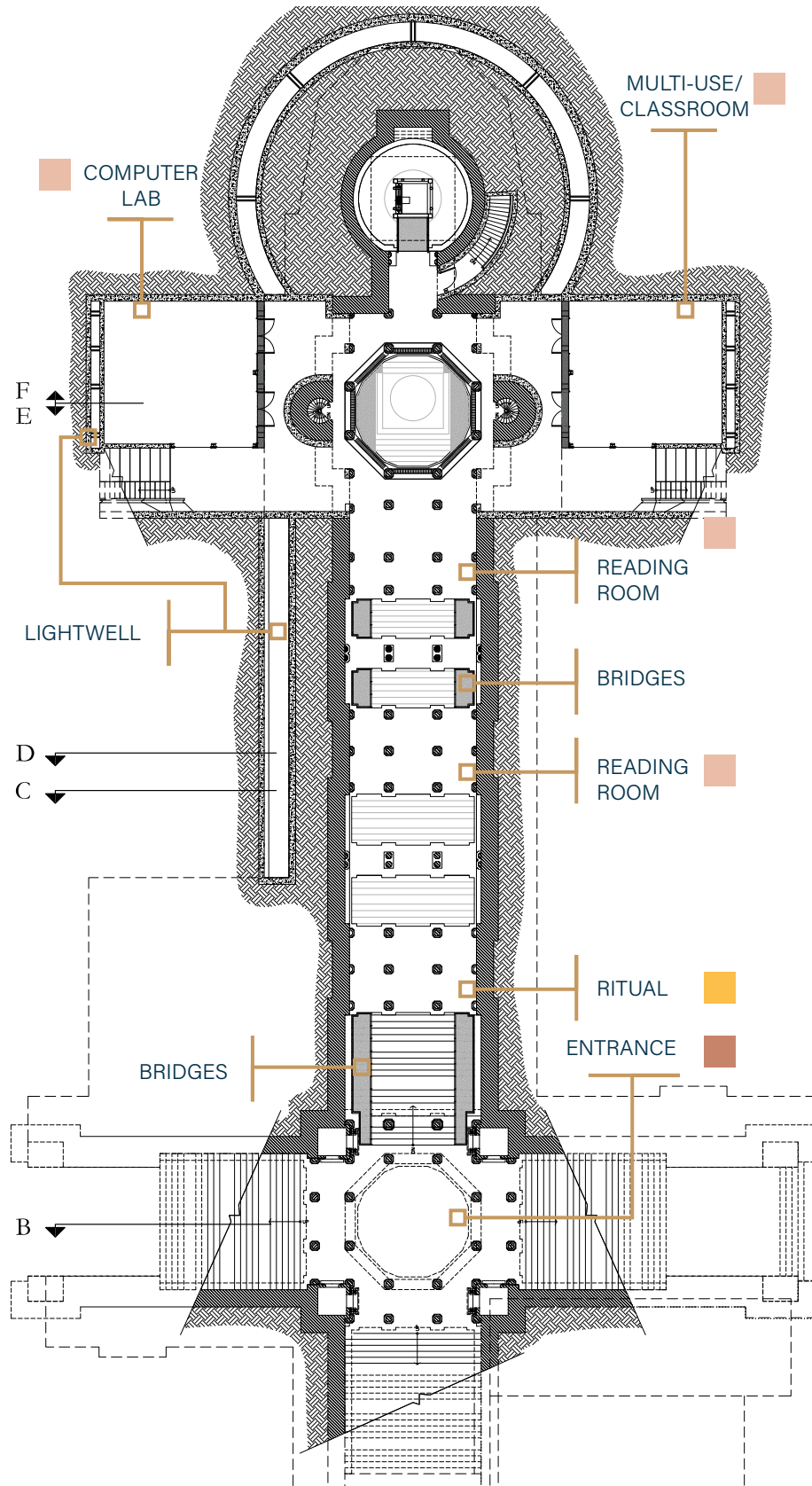1:400

Exterior view facing south.

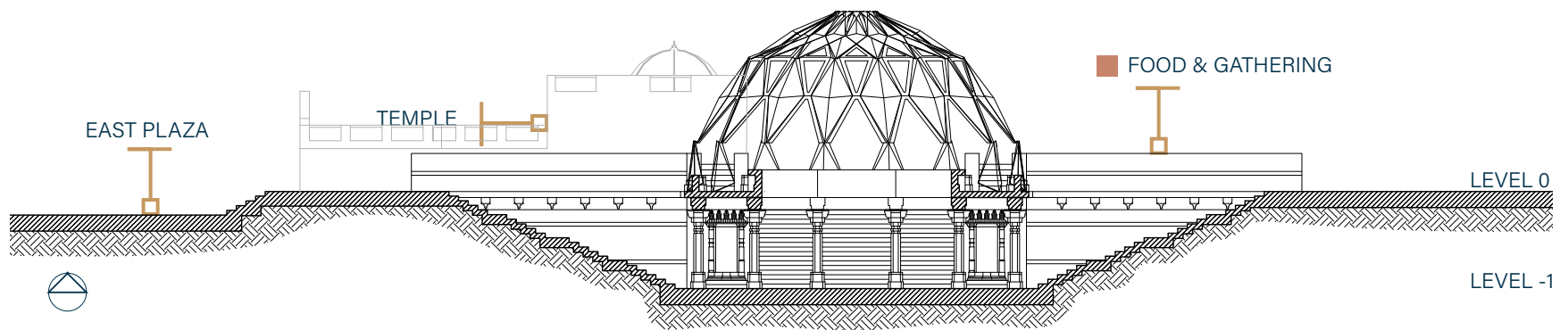View into Dome at ground platform facing north.

The finishing element provides a dome for the structure as was originally intended for the water structure but which was never completed. It provides an above ground presence to an otherwise hidden building and acts as a beacon for a renewed civic identity.

Entry condition leading under the dome has three stepping corridors that have pockets for formal seating, a delicate intervention onto the existing staircases. The square platform under the dome becomes a space for performance in the night, a place of rest and idleness in the day.

MULTI-USE/
CLASSROOM

COMPUTER
LAB

F
E

READING
ROOM

LIGHTWELL

BRIDGES

D

C

READING
ROOM

RITUAL

ENTRANCE

BRIDGES

B

Level -1 Proposed
1:400

EAST PLAZA

TEMPLE

FOOD & GATHERING

LEVEL 0

LEVEL -1

Cross section B
1:300
Finishing Element: the dome design recontextualizes the Ashoka leaves that appear in the motifs of the shrines below. The original entrances remain uninterrupted but now allows for a sheltered performance space.

BRIDGING TO
RITUAL PLATFORM

SUBTERRANEAN
CORRIDORS
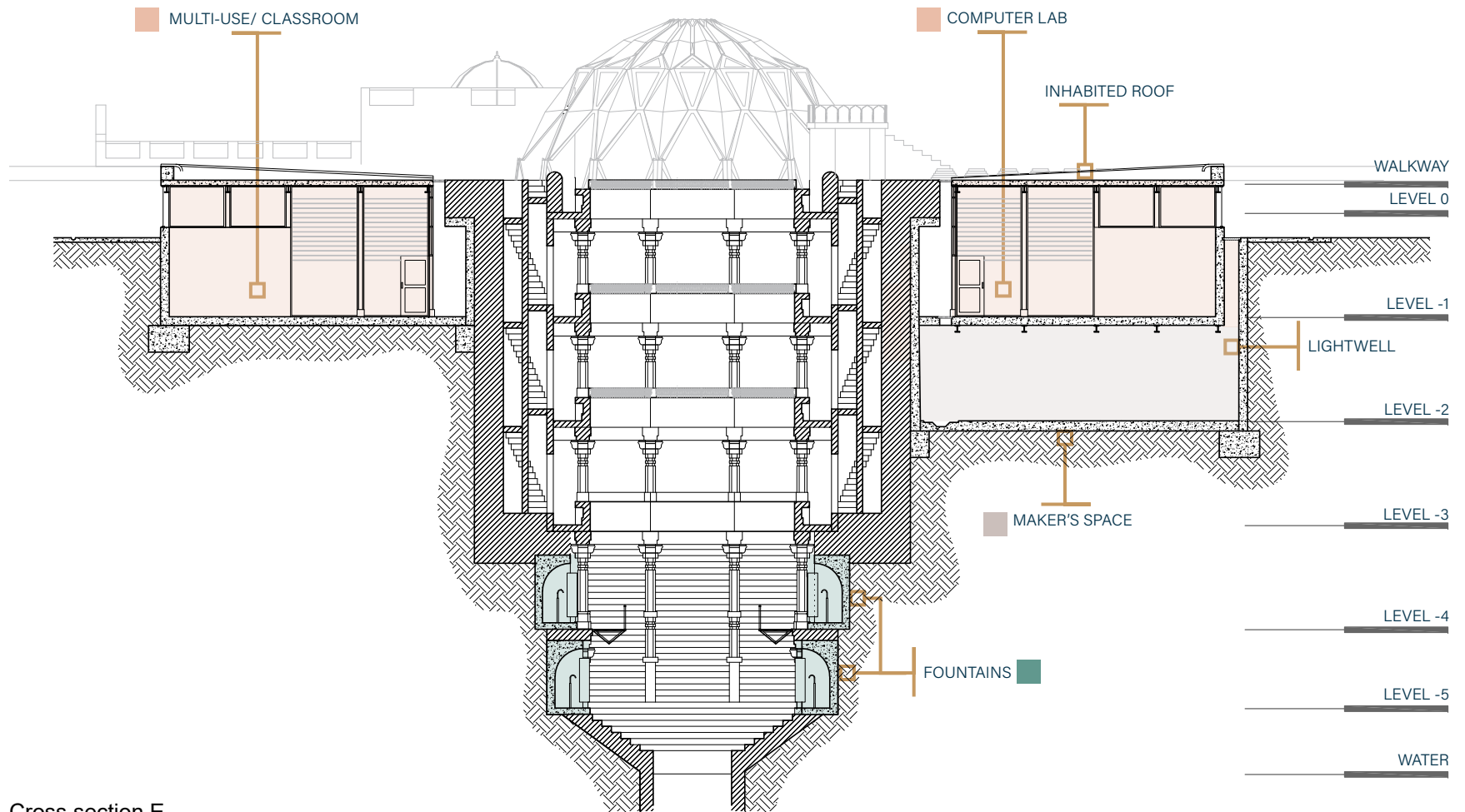
WALKWAY

LEVEL 0

LEVEL -1

LEVEL -2
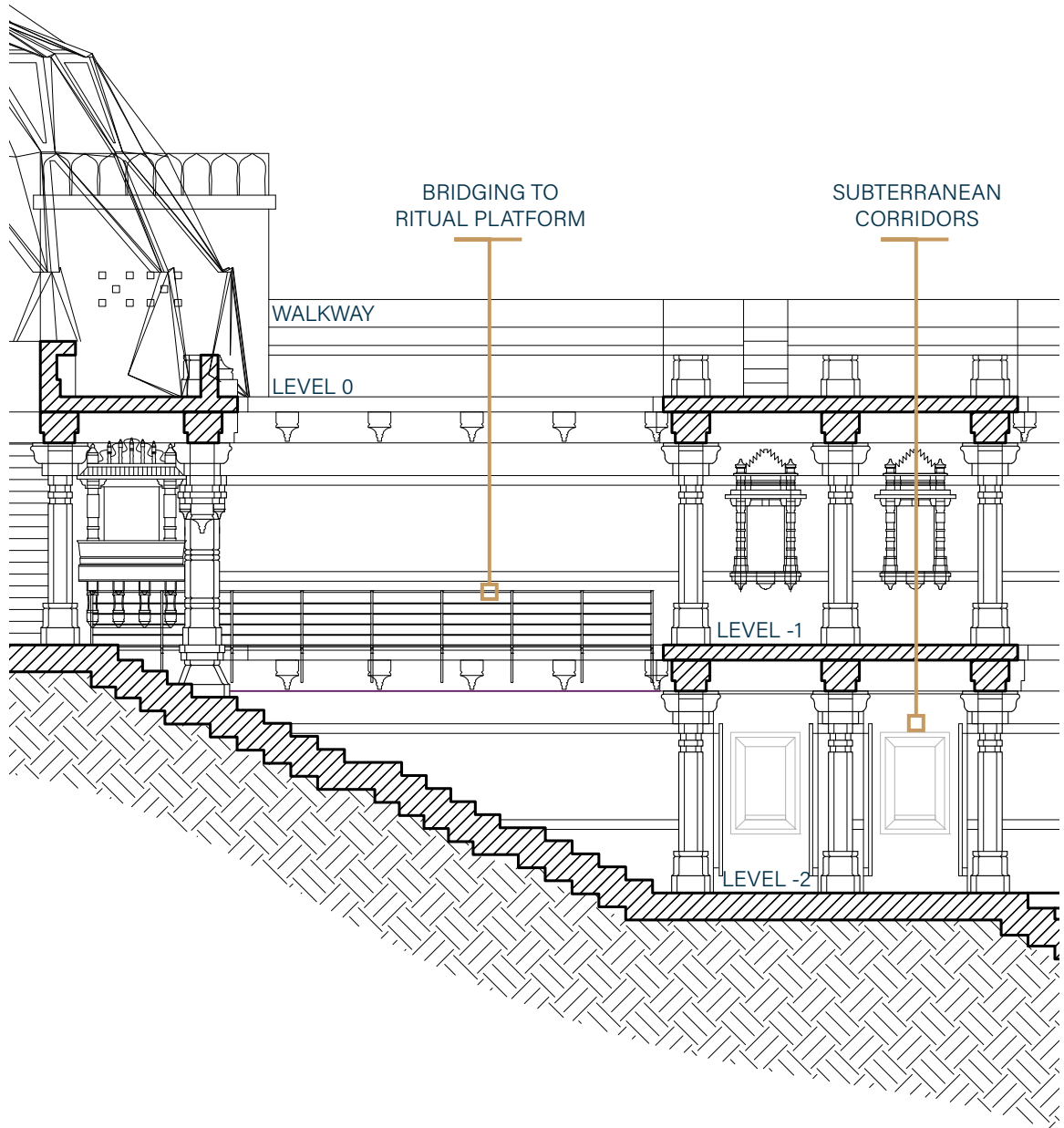
Cross section A
1:100
Bridging and activating elements

The entrance platform transformed into a performance space in the evenings. The three entrance stairs become areas for seating. Current view from the Ritual platform.

View from entrance platform looking into the stepwell. The Ritual space can be transformed as performance space from increased accessibility.

MULTI-USE/ CLASSROOM

COMPUTER LAB

INHABITED ROOF

WALKWAY

LEVEL 0

LEVEL -1

LIGHTWELL

LEVEL -2

MAKER'S SPACE

LEVEL -3

LEVEL -4

FOUNTAINS

LEVEL -5

WATER

Cross section E
1:250
Bridging and Activating Elements

66

People often sit on the ledges that make up the central octagonal shaft. Left: (Noel 2017) Right: ("Architectural Buildings in India" n.d.)
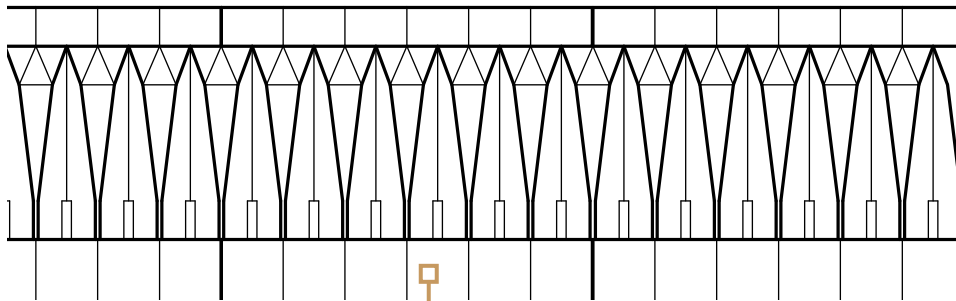
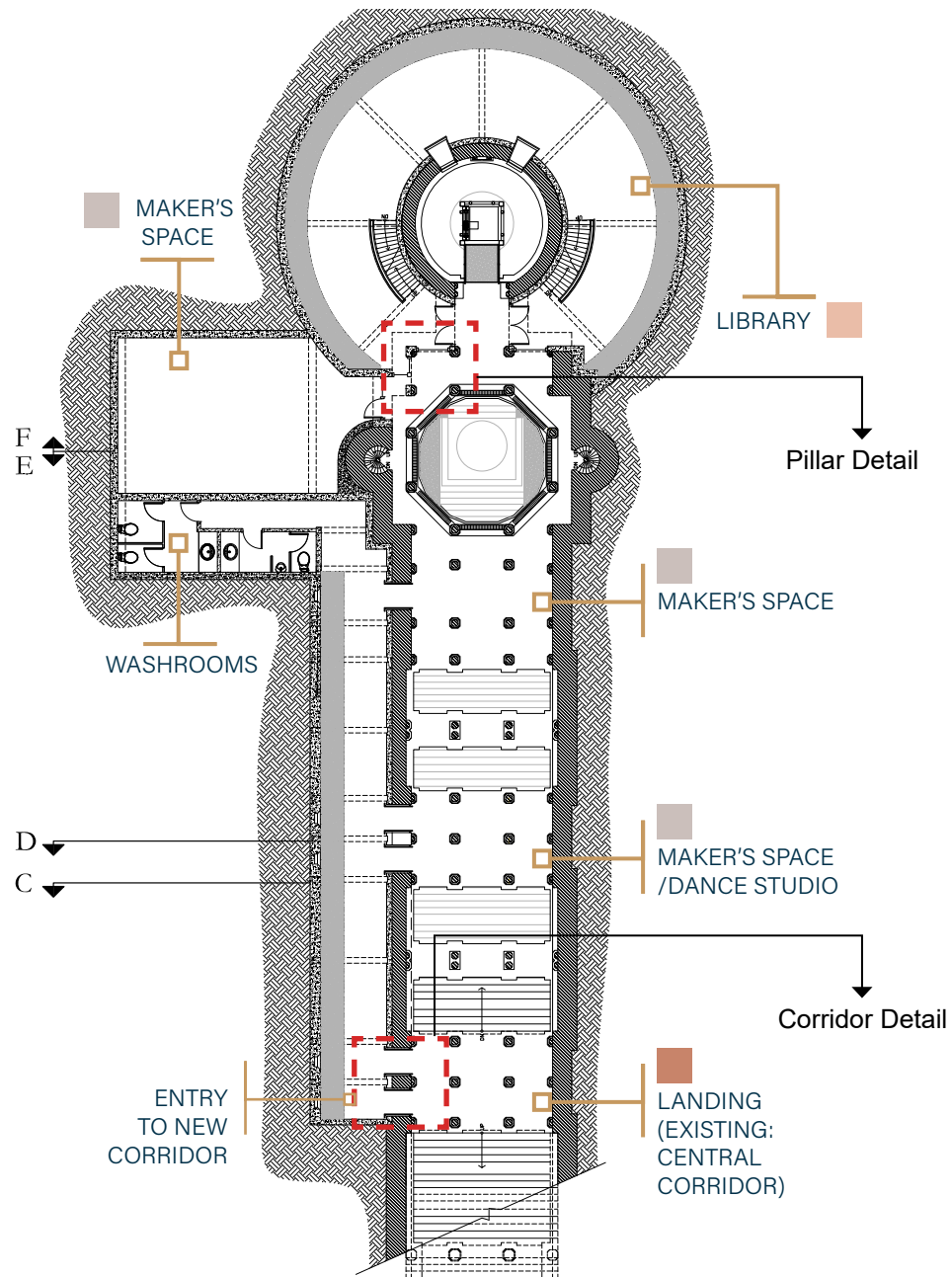ASHOKA LEAFS: REINTRODUCED FINISHING RAILING
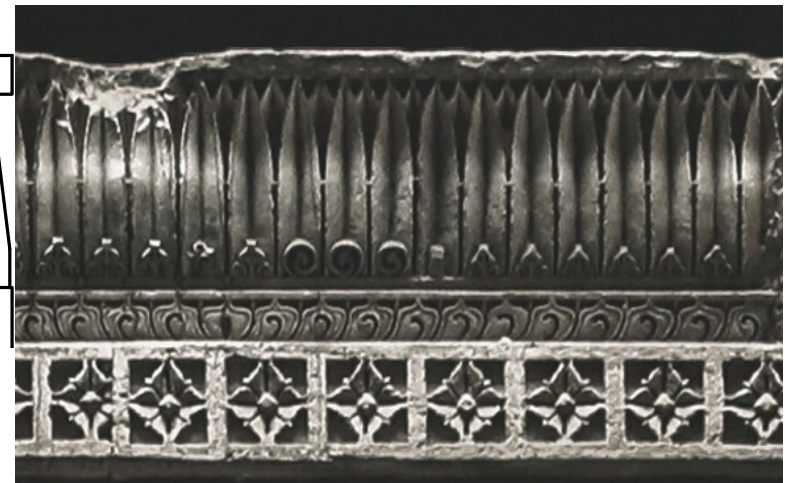
The original railings are a relief of the sacred Ashoka leaves that I have reintroduced through a metal finishing railing

The octagonal shaft is the heart of the existing stepwell. My intention is for it to function as the central atrium. Around the edges of the octagonal shaft where people often sit, I've reintroduced a finishing railing element inspired by the stone rail that has mostly disintegrated.

The introduction of two new entrance's to the building on either side of the octagonal shaft. Along with these entrances, the provided spaces are for a computer lab and a multi-use space. Throughout my interventions I've introduced details like this railing that is intended to direct water towards to central well.

MAKER'S
SPACE

LIBRARY

Pillar Detail

F
E

MAKER'S SPACE

WASHROOMS

D
C

MAKER'S SPACE
/DANCE STUDIO

Corridor Detail

ENTRY
TO NEW
CORRIDOR

LANDING
(EXISTING:
CENTRAL
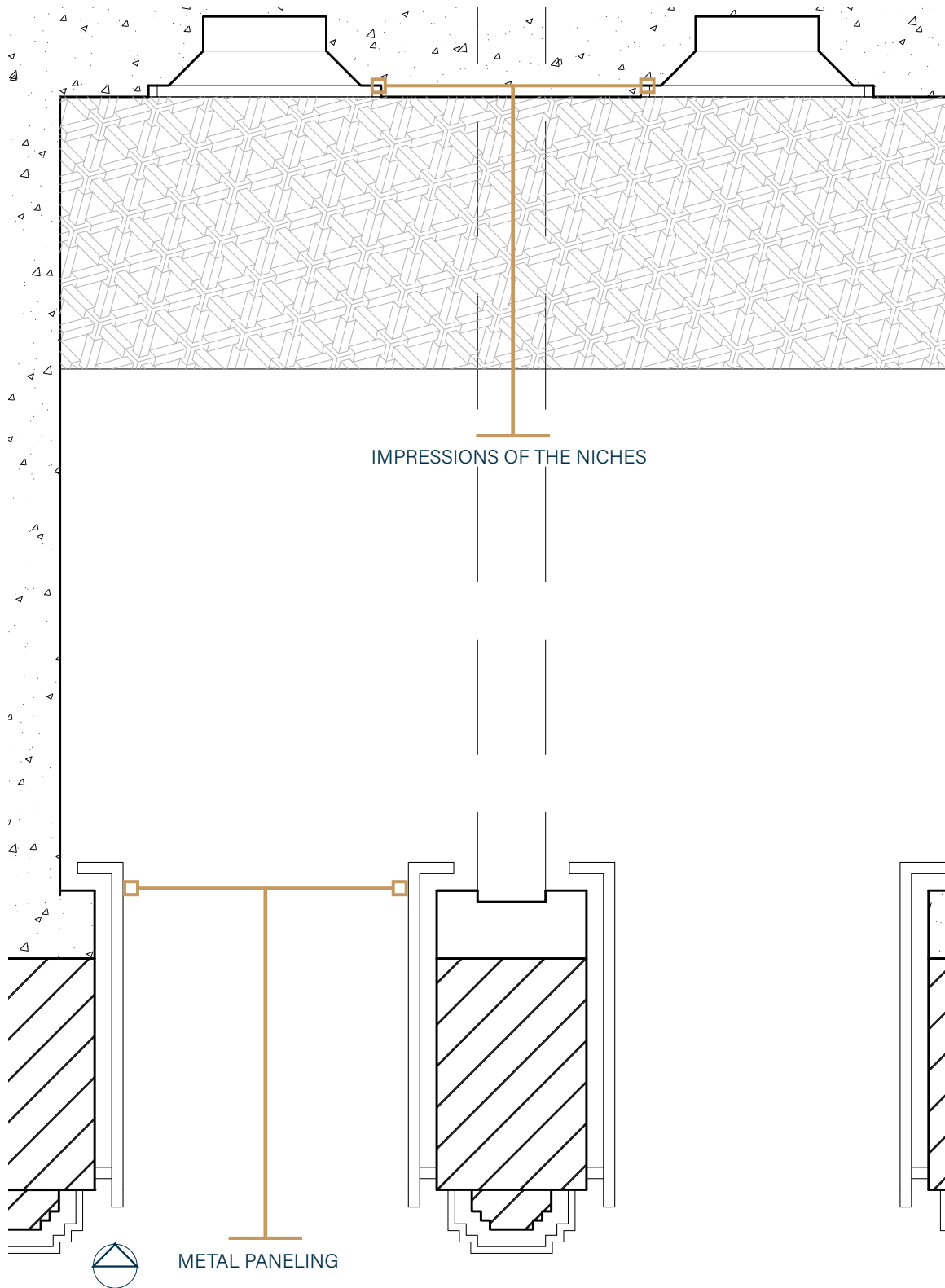CORRIDOR)

Level -2 Proposed
1:400

The offset element introduces new circulation into the building through stairs leading down from level -1 to the bottom well. This circulation is complemented by the introduction of a central elevator shaft.

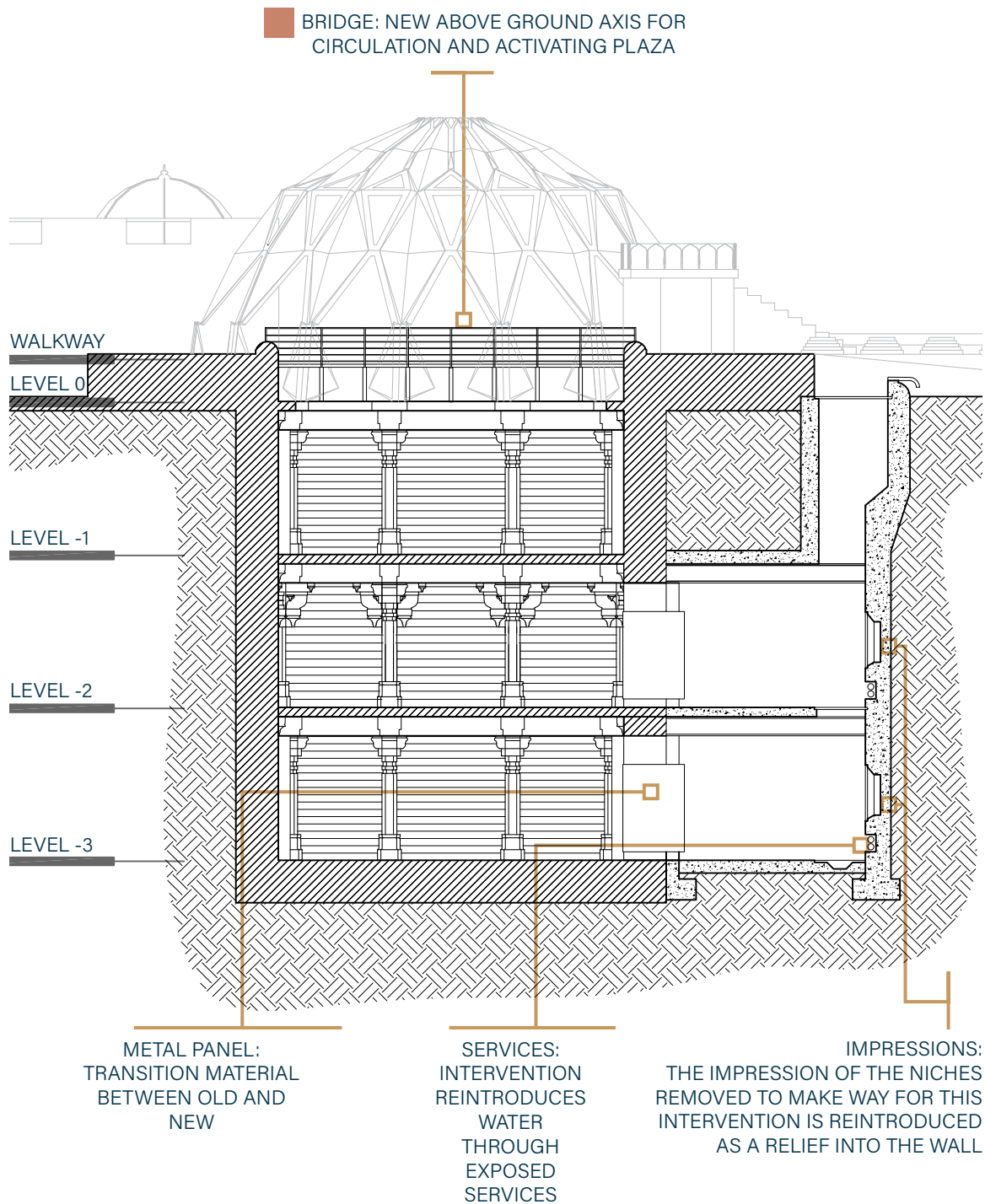PROPOSED COMPLETION AND TRANSITION INTO PILLAR
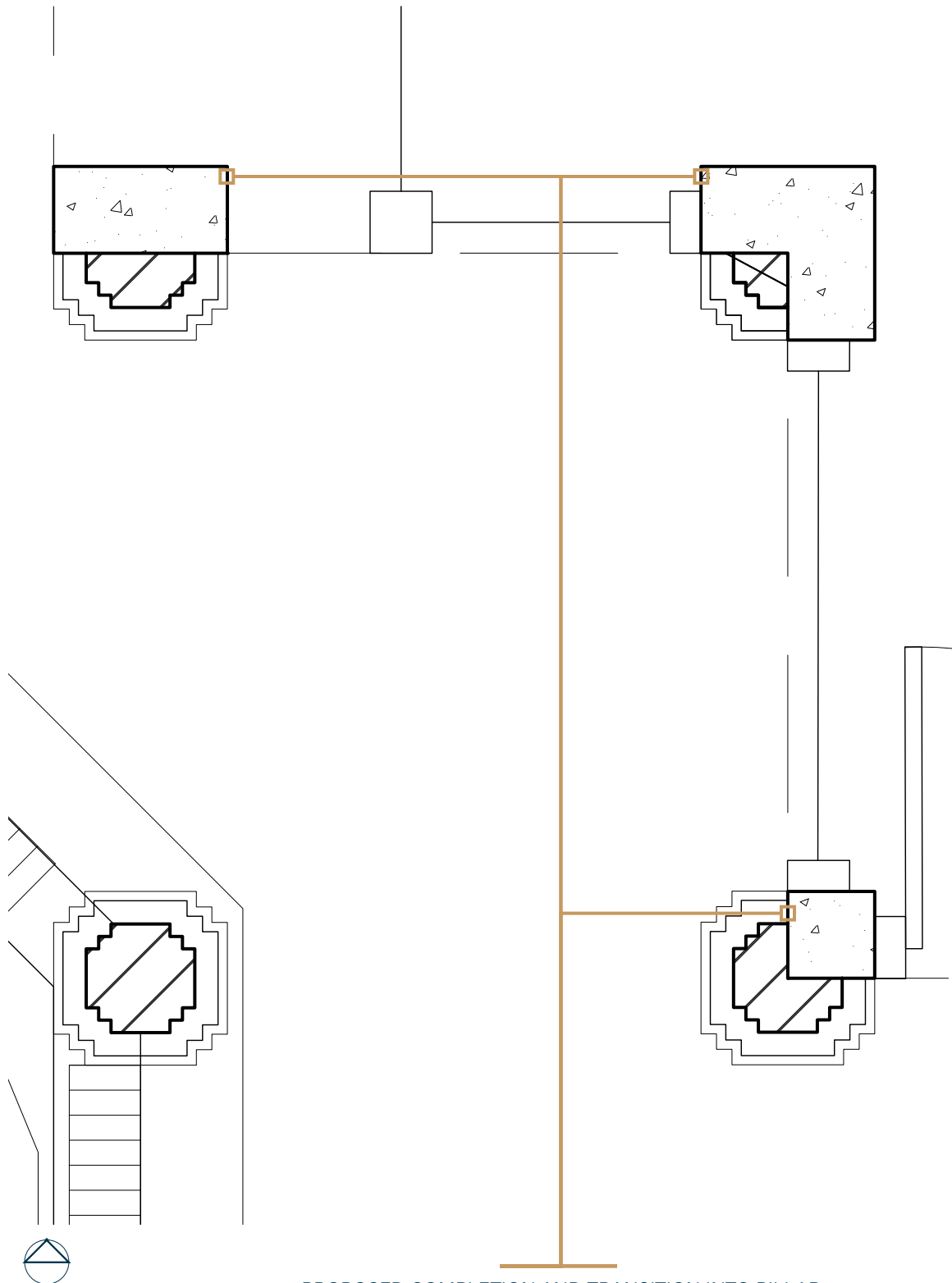
Level -2 Pillar detail
1:20

To make way for the multi-purpose rooms and new entrances on Level -2, the existing walls
are to be removed. Pilasters are transformed into pillars as a solid concrete form completes the
missing parts of the pillar.

IMPRESSIONS OF THE NICHES

METAL PANELING

Level -2 Corridor detail
1:20
The niches that were removed to make space for this corridor, are then reintroduced as impressions of the old as reliefs into the new wall. Metal paneling at entryway transitions between the existing and the proposed intervention.

BRIDGE: NEW ABOVE GROUND AXIS FOR
CIRCULATION AND ACTIVATING PLAZA

WALKWAY

LEVEL 0

LEVEL -1

LEVEL -2

LEVEL -3

METAL PANEL:
TRANSITION MATERIAL
BETWEEN OLD AND
NEW

SERVICES:
INTERVENTION
REINTRODUCES
WATER
THROUGH
EXPOSED
SERVICES

IMPRESSIONS:
THE IMPRESSION OF THE NICHES
REMOVED TO MAKE WAY FOR THIS
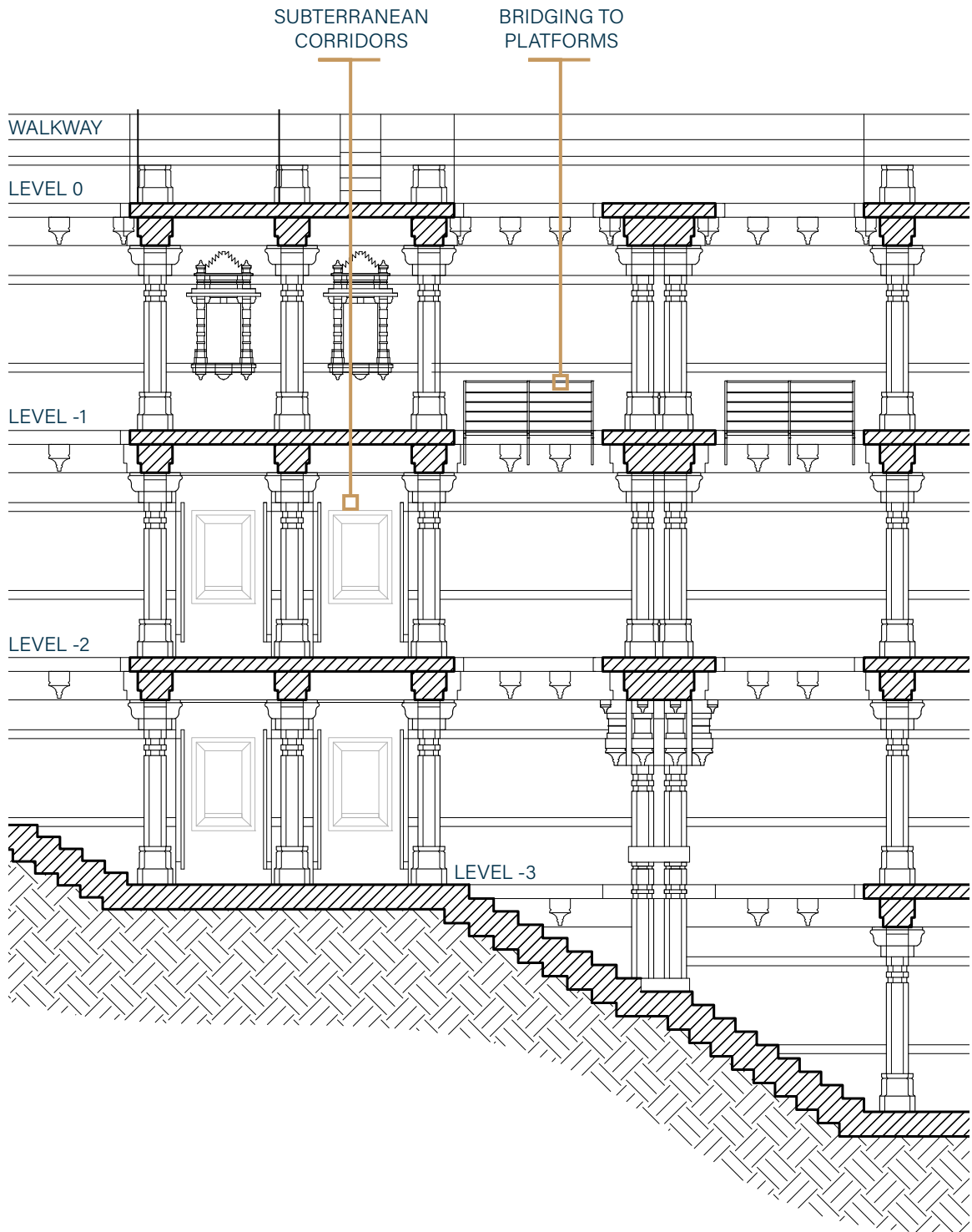INTERVENTION IS REINTRODUCED
AS A RELIEF INTO THE WALL

Cross section D
1:150
Activating element: corridor at level -2 connects to learning platforms and corridor at level -3 to
the makerspace platforms

Platforms can be used for spaces for learning on Level -1

SUBTERRANEAN
CORRIDORS

BRIDGING TO
PLATFORMS

WALKWAY

LEVEL 0

LEVEL -1

LEVEL -2

LEVEL -3

Long section A
1:100
Bridging and activating elements

Subterranean corridors at levels -2 and -3 are inserted around the existing monument connects to the existing platforms in order to activate them. These corridors also carry building services which I made a point of revealing.

Niche window that is removed to make way for the Corridor. ("Vavs of Gujarat - Adalaj ni Vav" 2016)

The approach I have taken to transition from the old to new is to bridge the two parts of the building with the use of delicate metal panels.

The existing platforms become dynamic spaces for activity as a result of the Activating Element interventions.

The Offset Element carves spaces for a library at Level -2.

EXHIBITION

EXHIBITION

WASHROOMS

F

E

D

C

LANDING
(EXISTING:
CENTRAL
CORRIDOR)
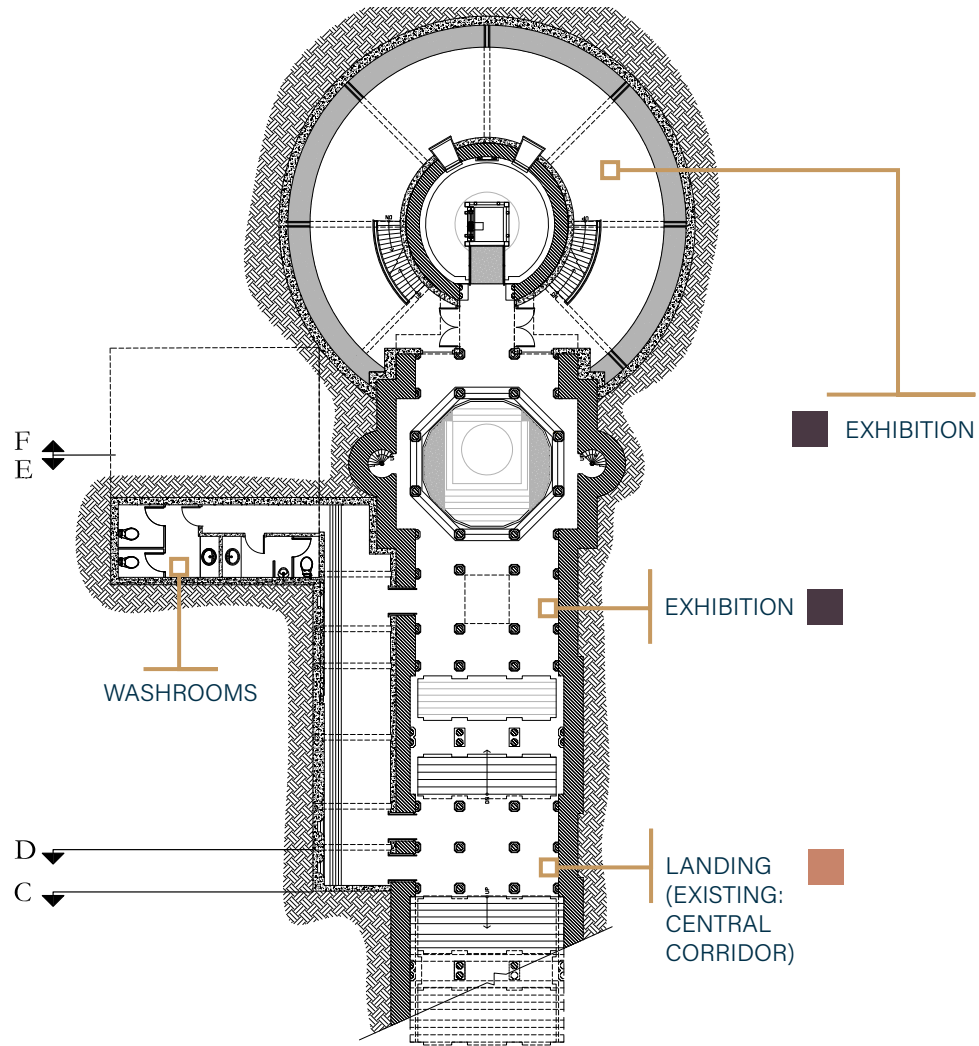
Level -3 Proposed
1:400
At the level below, Level -3 which is the proposed exhibition floor, the offset serves as a gallery
space.
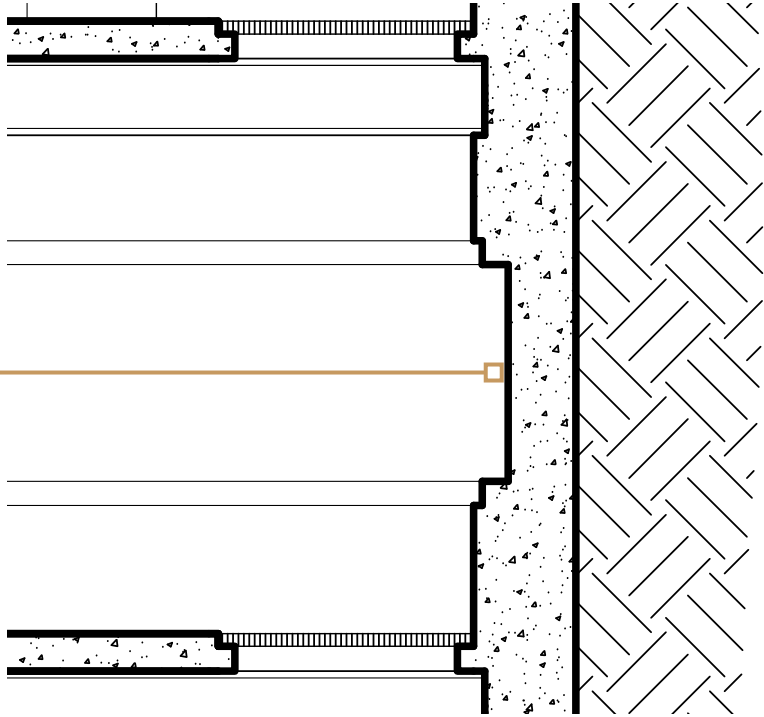
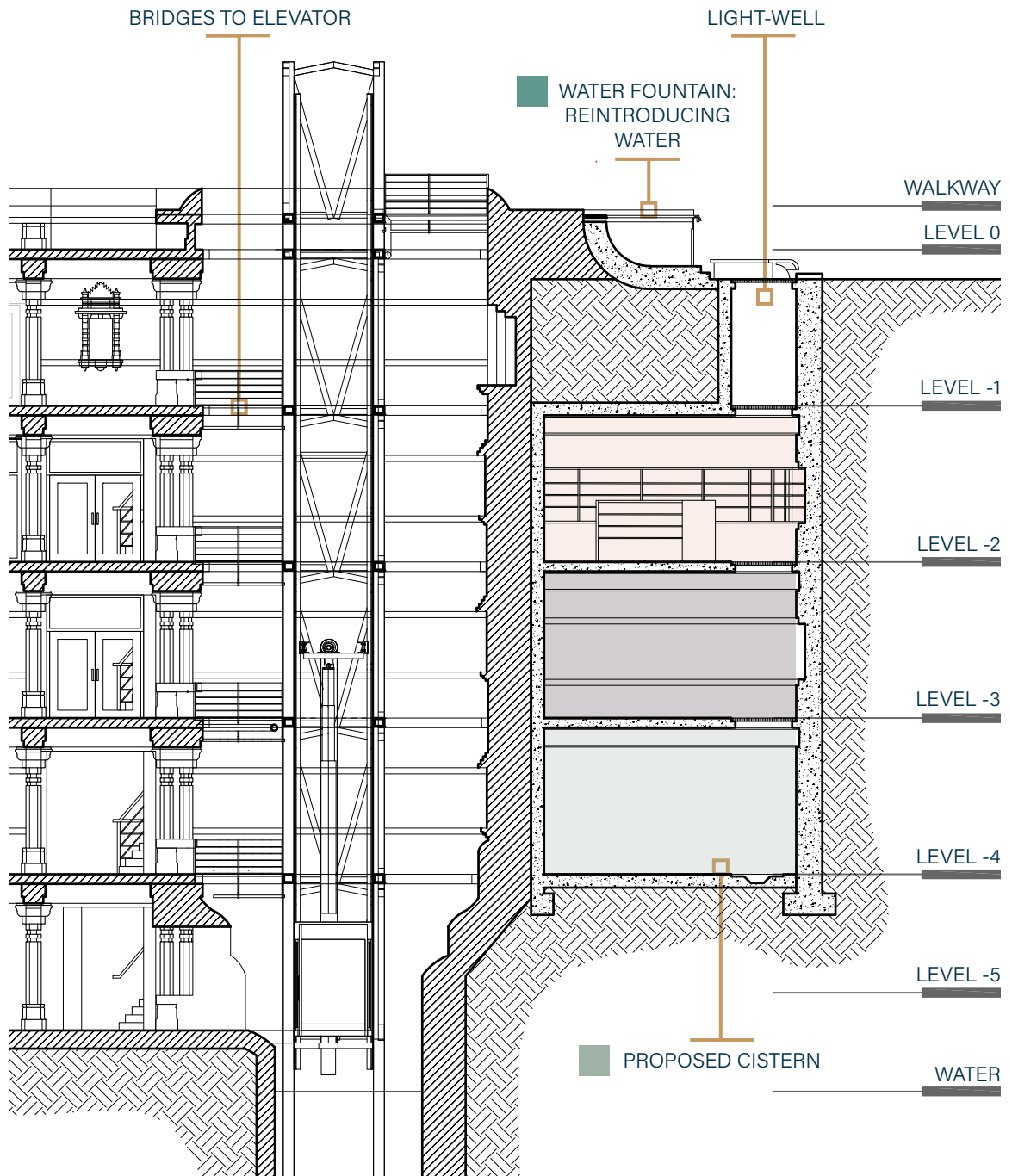The Offset Element carves spaces for exhibition space at Level -3.

Notice the horizontal motifs along the wall. This geometry runs along the entirety of the stepwell at the exact place at each level. (Parth3681 2016)


RELIEF OF
HORIZONTAL
MOTIF

The Offset serves as a library (level -2) and exhibition space (level -3), the horizontal motifs are echoed as reliefs within the proposed walls. The reliefs hold books and exhibits art on their relative floors.

BRIDGES TO ELEVATOR

LIGHT-WELL

WATER FOUNTAIN:
REINTRODUCING
WATER

WALKWAY

LEVEL 0

LEVEL -1

LEVEL -2

LEVEL -3

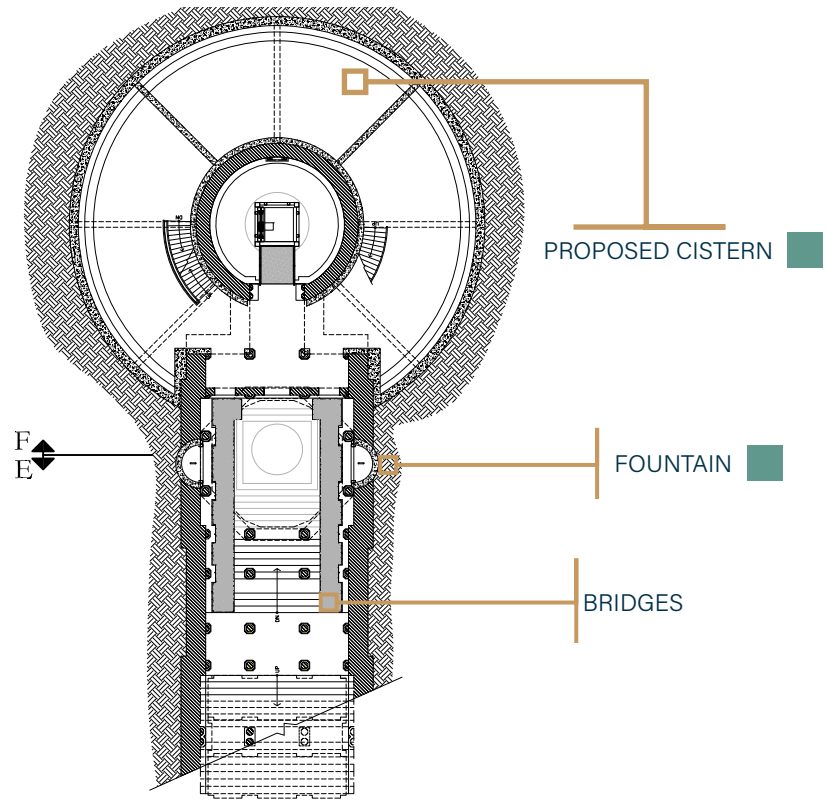LEVEL -4

LEVEL -5

PROPOSED CISTERN

WATER

Long section A
1:150
Bridging and Offset Elements: there was once a water basin at the surface. I have reintroduced
a fountain at the surface. I have recontextualized the movement of water with the movement of
people, bridging at all 5 floors.
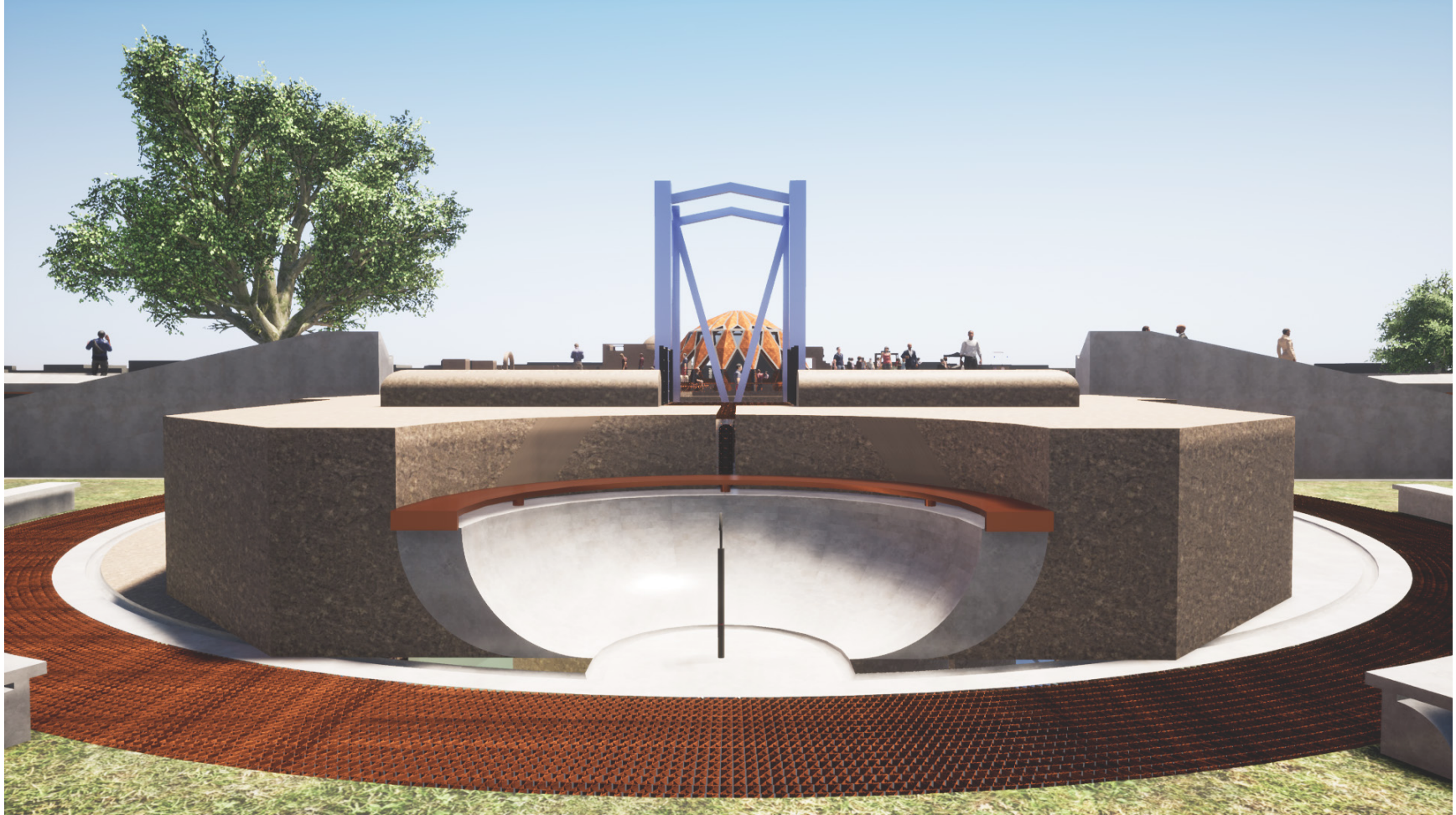
Reintroduced water basin at ground level

PROPOSED CISTERN

F
E

FOUNTAIN

BRIDGES

Level -4 Proposed
1:400
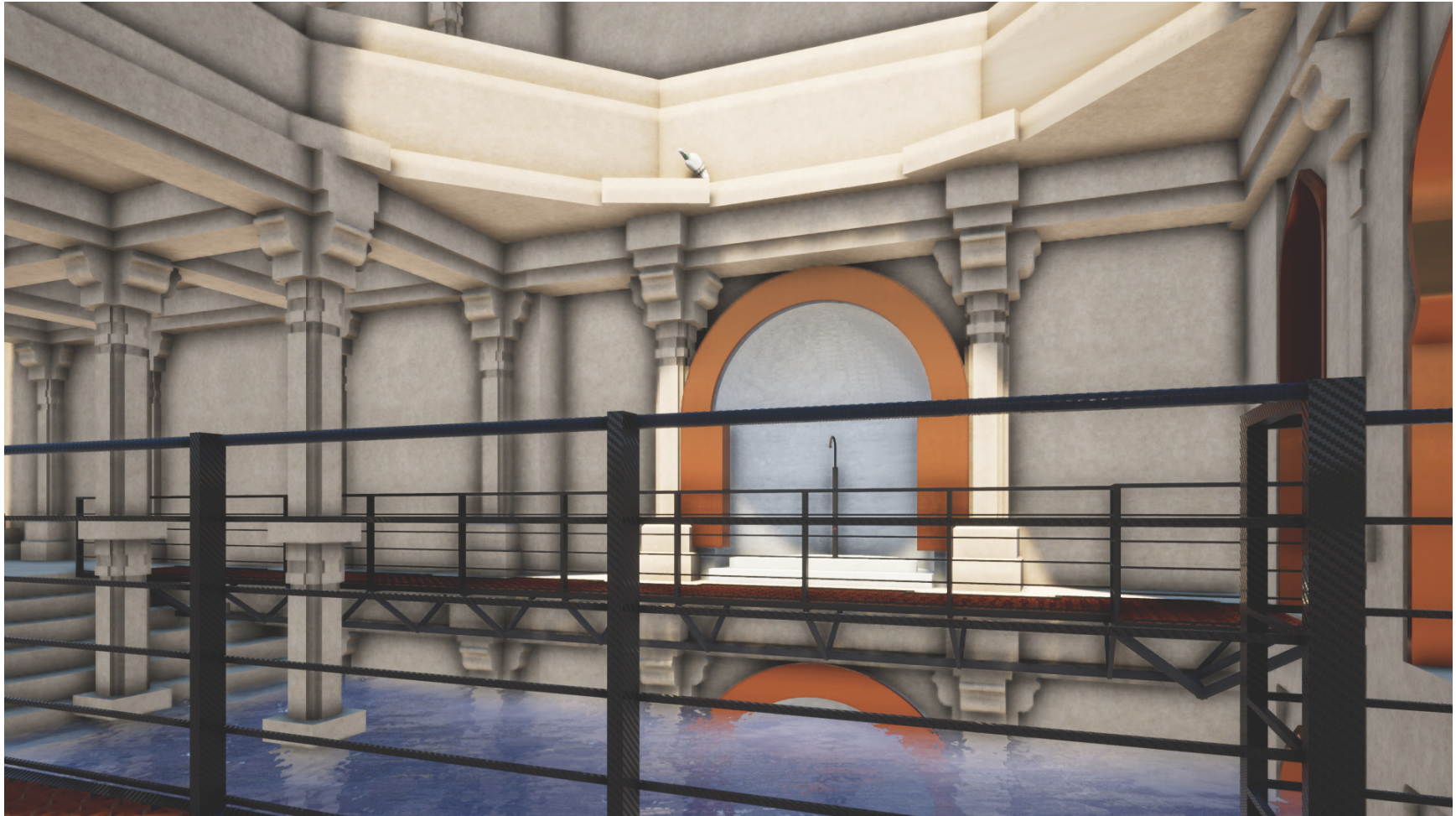
The introduction of bridging elements on level -4 is a response to flooding that happens occasionally during monsoon season.

The collage attempts to show the mending of a women's perception of public space within the heart of the stepwell. The sacred relationship of the lotus flower that is a symbol of purity and rebirth enables a woman to purify their mind, body and soul.

F
E

NEW CIRCULATION

FOUNTAIN
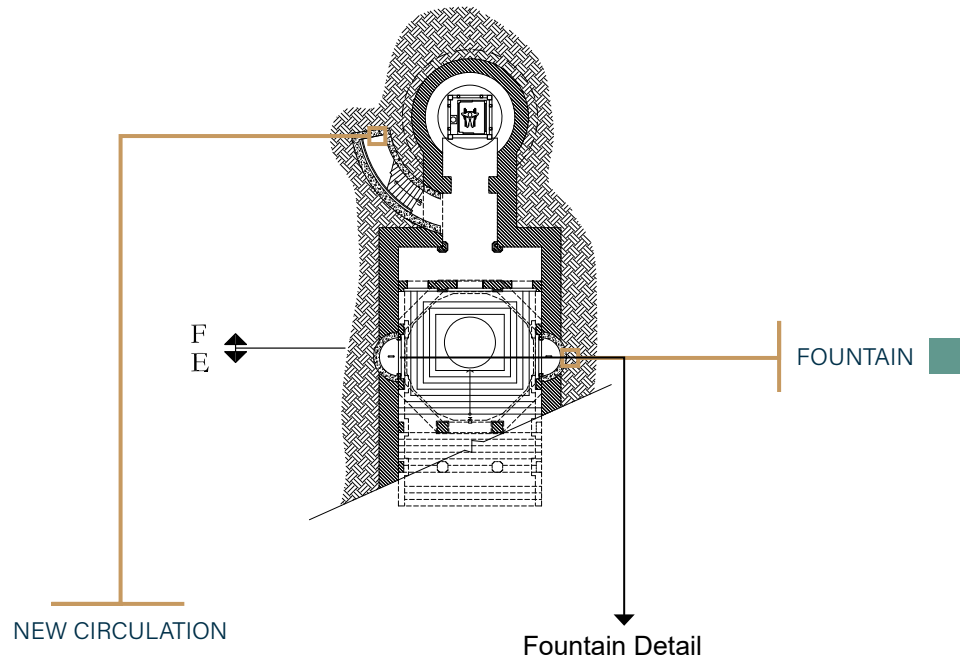
Fountain Detail

Level -5 Proposed
1:400

METAL PANEL
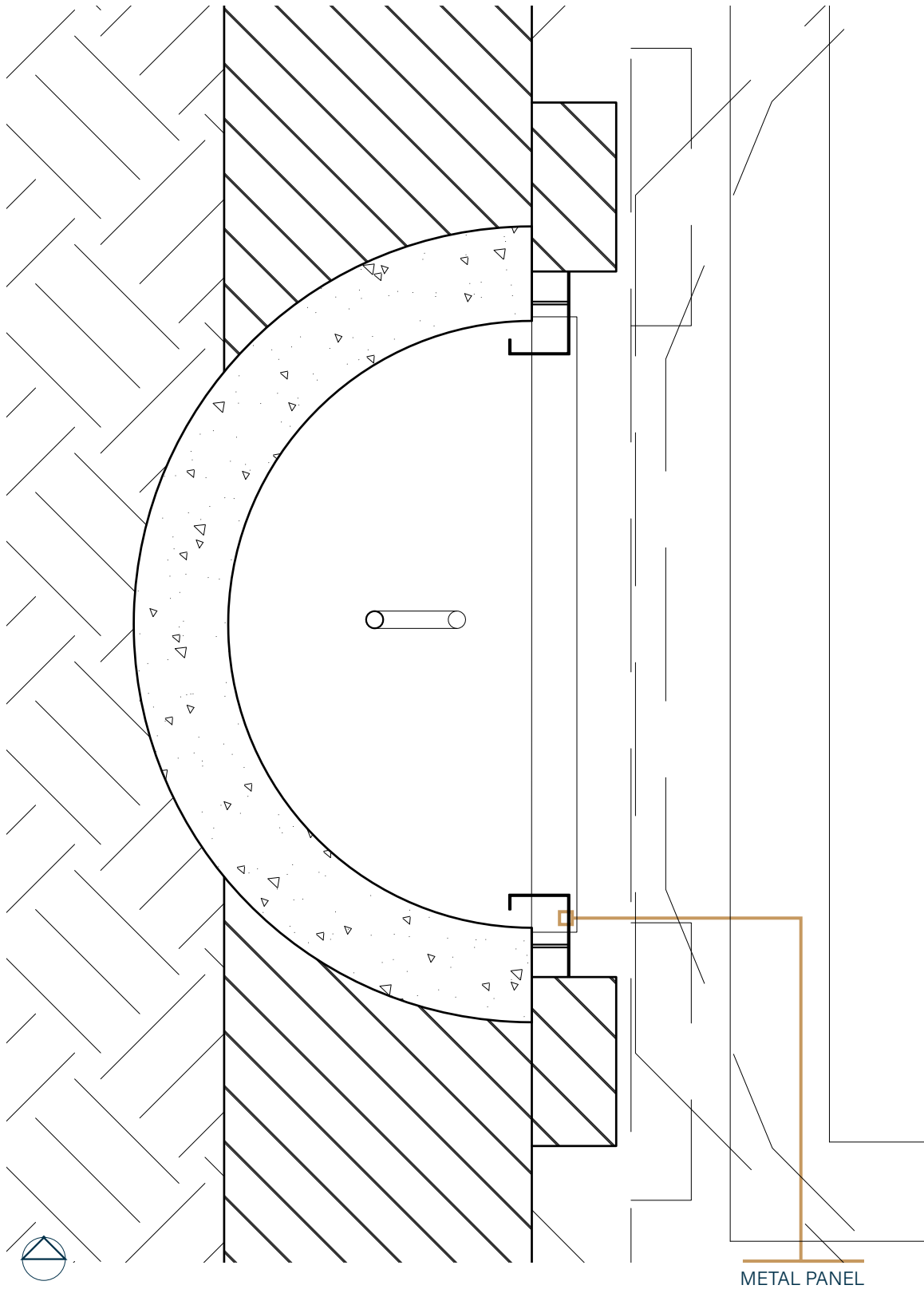
Level -5 Fountain detail
1:20
Metal plates are used as an approach to transition between the existing and proposed intervention.

At the end of the procession down the stairs to level -5, the original purpose of the well is retained and renewed by intervening with water fountains. The introduction fountains on both level -5 and -4. At level -4 access to these fountains is provided by the introduction of new bridging elements. The perforated bridges take on an ephemeral approach that reintroduces a motif that is recurring throughout the monument.

REINTRODUCING RAILINGS

WALKWAY

LEVEL -1

LEVEL -2

LEVEL -3

LEVEL -4

BRIDGING ELEMENT

LEVEL -5

FLOOD CONDITION

WATER

Cross section A
1:100

The photograph is of one of the intricate columns that stand on the north side of the Entrance Platform. Highlighted is the sepals which are four in number that repeat throughout the walls, columns and beams of the monument. ("Vavs of Gujarat - Adalaj ni Vav" 2016)
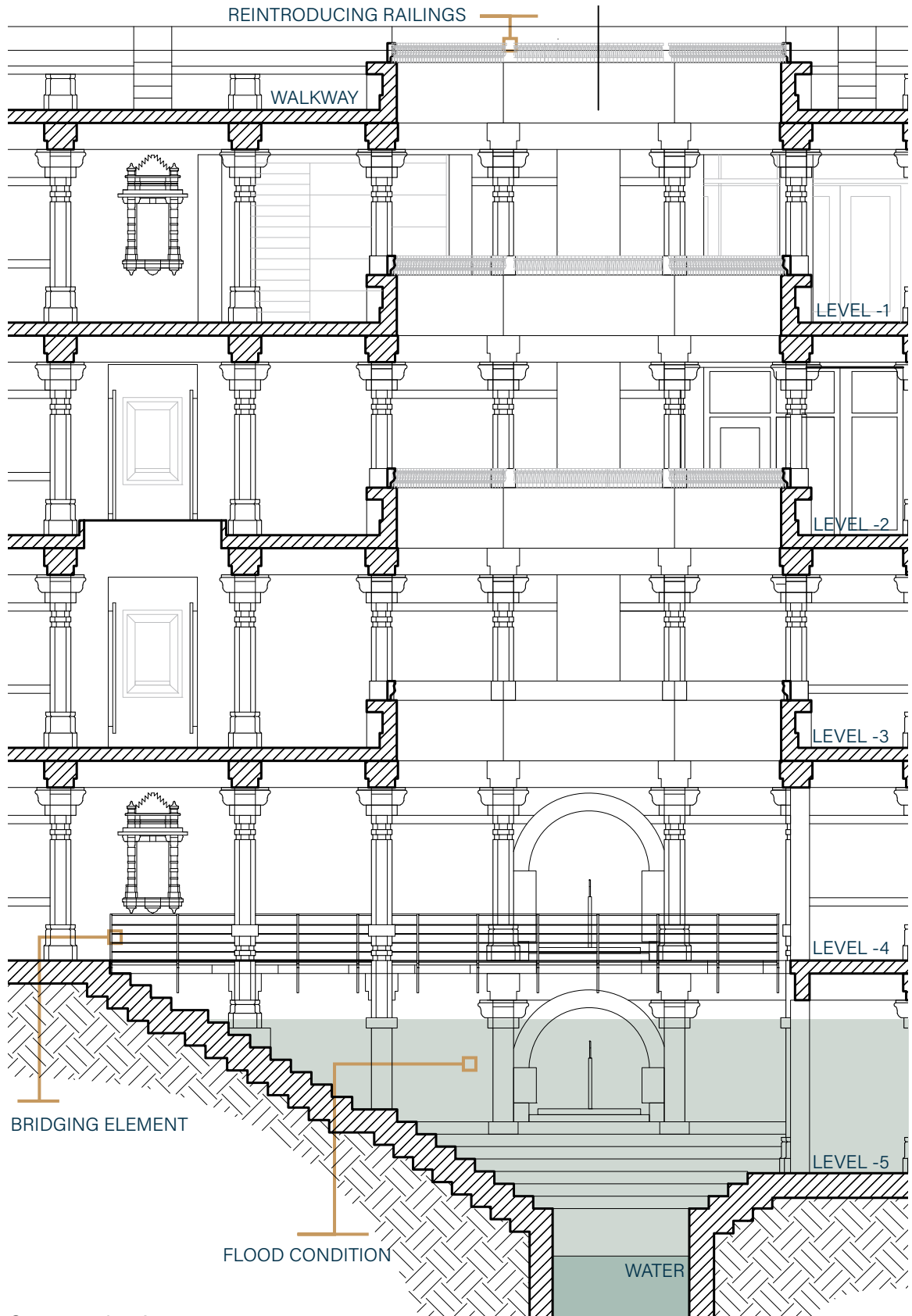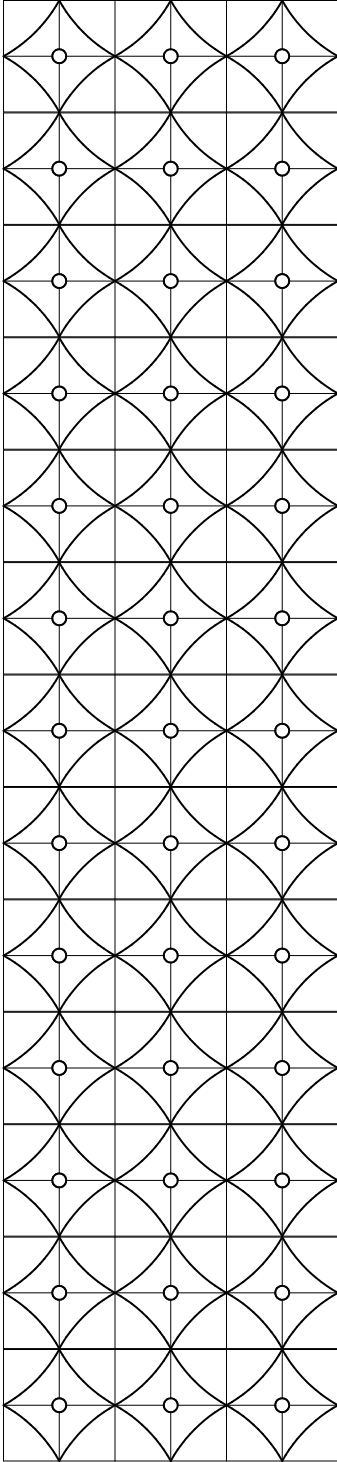
Design rendition of the Ashoka flower within the grate design.

The Ashoka flower always occurs in clusters, and is shown as such within the grate design. ("The Sacred Ashoka Tree Uses & Stories" n.d.)
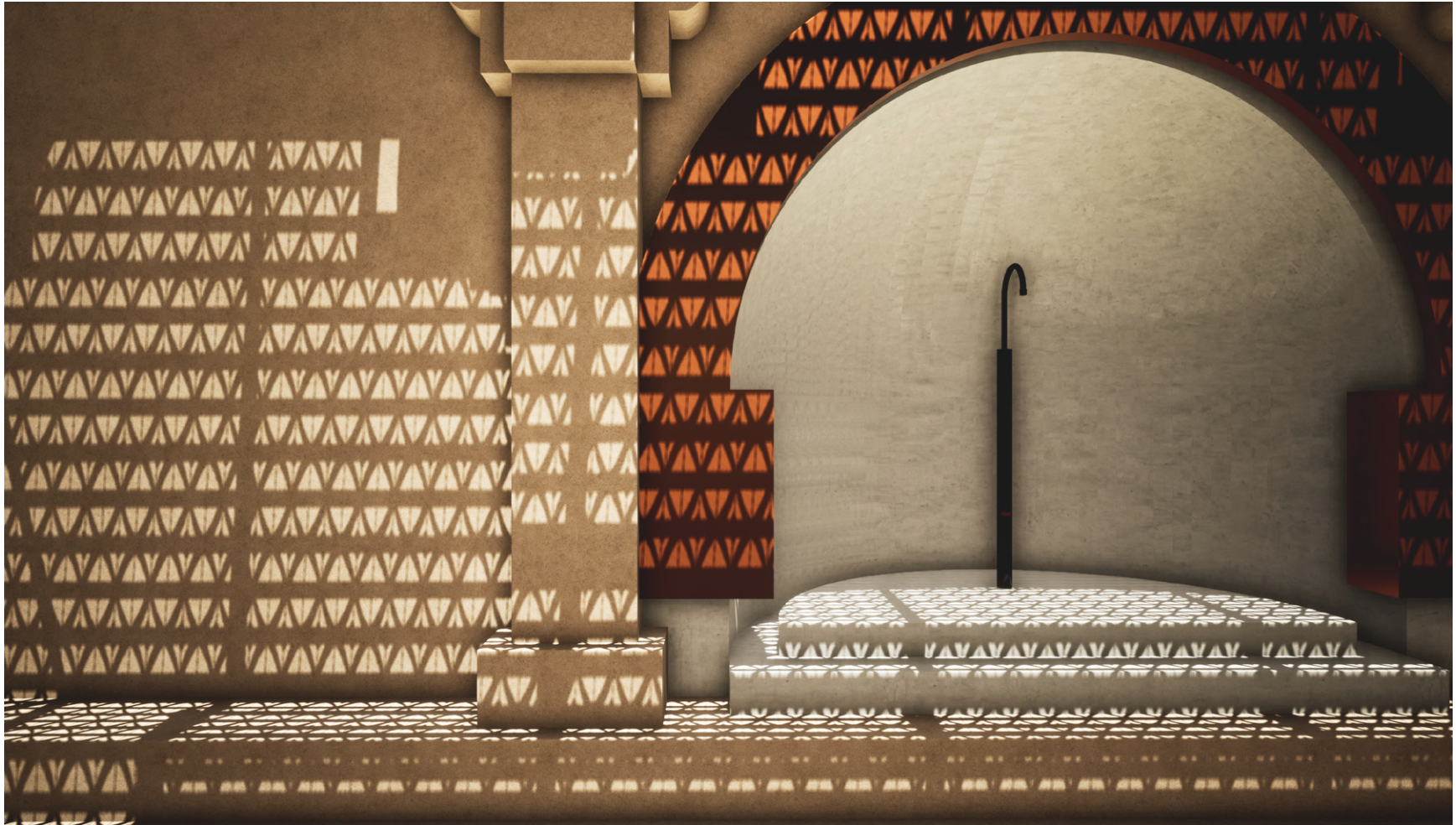
The grate design is recontextualized from a motif recurring throughout the monument. At certain times of the day, the familiar motif appears anew and ephemeral on the walls and steps of the stepwell.

Chapter 7: Conclusion

This thesis approached the question of how underutilized sacred monuments like the stepwell could be reprogrammed to serve local contemporary needs while retaining its inherent sacred architectural qualities?

This thesis proposed that sacred spaces can be trans-programed and re-contextualized as public infrastructure that not only contributes to the synchronous needs of the community, but does so in a way to balance the preservation of the old with the revitalization of the new.

The architectural interventions revitalizes the qualities of the historic monument through rooting ideas in the collective memory of the building by tracing cultural folklore and building tectonics. These added physical and metaphorical layers on the Adalaj ni Vav creates a renewed relation between the place, the building and the activities that defines it. This urban artifact is then allowed change, grow and be reprogrammed.

The interventions at Adalaj explored in this thesis were developed as part of a wider thinking in which the methodology of intervention could be reapplied to the preservation and revitalization of other stepwells throughout India. This includes the methodology for identifying the needs of the surrounding community, the methodology of monument analysis, and the methodology of palimpsest that reintroduces activity through trans-programming, and recontextualization. The specifics of the architectural intervention however, would be site specific and thus program, size, form, and materiality would vary in response to regional context.

The collective memory of historic sacred spaces is such that their is an inherit cultural need to preserve them. This collective memory however should not stand as justification for allowing them to go unused. Instead, their collective memory should serve as justification for why it is important to intervene to ensure that they continue to be used as centerpieces of public life.

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