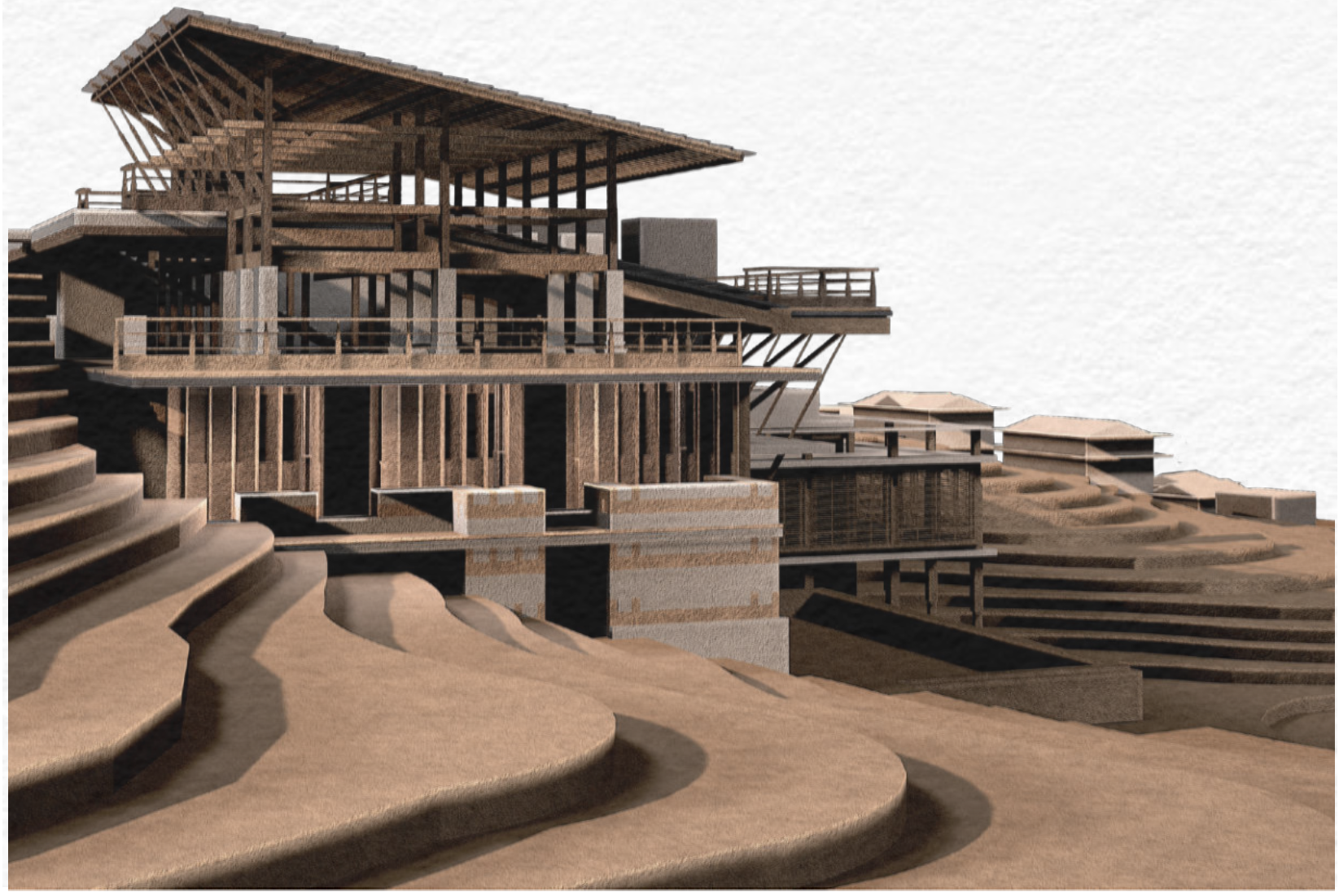
2024

PORTFOLIO

Academic Arguments, Inquiries I **Professional Works**



RACHITA VISWANATH B.ARCH I M.S.AAD

CURRICULUM VITAE

FAQ | CONTACT

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Mumbai, Maharashtra, India

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Broadway, 10025
New York, NY, USA

1 (929) 613-4049

EDUCATION

SCHOOL
Hiranandani Foundation School Thane ;
ICSE Indian Certificate of Secondary Education

JUNIOR COLLEGE
Hiranandani Foundation School Thane ;
ISC Indian school certificate

GRADUATE DEGREE
Academy of Architecture Mumbai University;
B. Arch Bachelor of Architecture

POSTGRADUATE DEGREE
Graduate School of Architecture, Planning & Preservation; Columbia University;
M.S.A.A.D Masters of Science in Advance Architectural Design

SKILLS

PROFESSIONAL	SOFTWARE
Design research	AUTOCAD
Space planning & optimisation	PHOTOSHOP
Mood & Decor conceptualisation	ILLUSTRATOR
Graphic Design	INESIGN
Art & Artefact curation	SKETCHUP
MEP and Structural-coordination	RHINO
Detailing & Documentation	REVIT
3D Modeling & Visualisation	AFTER EFFECTS
Site co-ordination	BLENDER
Execution management	ENSCAPE

WORK EXPERIENCE

At Studio for Environment & Architecture SE- ARCH (2016 to 2023)

INTERNSHIP
6 MONTHS - November 2016 to April 2017

Hospitality - Luxury Tea Resort- Architecture & Interiors
Taj Chia Kutir ; Completed in Jan 202

Institutional - Luxury Hotel-Tea Resort- Architecture
JDES Primary School ; Completed in August 2020

JUNIOR ARCHITECT
12 MONTHS - August 2018 to August 2019

Hospitality - Fine Dining - Interiors
Afraa - Restaurant & Lounge ; Completed in 2019

Hospitality - Urban Hotel - Planning & Interiors
Taj Vibhutikhand ; Ongoing

SENIOR ARCHITECT
12 MONTHS - August 2019 to August 2020

Experience Centre - Temporary Exhibit for Gangaghat Housing complex, Srijan Realty ; Completed in Jan 2021

Housing - Affordable Housing - Planning
Gangaghat Housing complex ; Completed in Jan 2021

Private Home - Penthouse in Mumbai
India Bulls Blu 47 ; Project ongoing

PROJECT LEAD
24 MONTHS - August 2020 to August 2022

Hospitality - Luxury Urban Hotel - Retrofit
Taj New Town ; Completed in Jan 2021

Housing - Luxury Housing - Architecture Planning
Tangra Housing complex; Completed in Jan 2021

Real Estate Proposal - Villa by the Ganges
Gangaghat, Srijan Realty, Completed in July 2021

ABOUT ME

I Rachita Viswanath am an Architect, Researcher & Design strategist, with over five years of experience in the design and construction industry.
I'm currently enrolled in a Masters program at Columbia University Graduate School of Architecture, Planning & Preservation; M.S Advance Architectural Design 2024'.

As a project lead in my firm Studio for Environment and Architecture (se-arch.com), I had the opportunity of ideating and executing several projects in hospitality and housing. This tenure has refined my skills and cultivated a passion for crafting spaces that seamlessly blend comfort, brand sensitivity, and conceptual depth. I aspire to design environments that transcend mere functionality, offering holistic experiences that respond to both the inhabitants and their contextual eccentricities.

As a student and researcher, I have always sought cues from the natural, cultural and economical context of a place, before theorising transformative interventions. My work aspires solutions that are purposeful, sensitive, aesthetic & responsible. My designs are committed to seeking a balance that prioritises sustainability, economic viability and social equity. Architecture enables my pursuits, it helps me approach these idealistic intersections with awareness and responsibility.

I believe that good design is simple in its form and rooted to its philosophy. In my body of work, you will see a clear commitment and reverence for nature. If my values meet yours, please do get in touch with me.

RACHITA VISWANATH

B.ARCH I M.S.A.A.D

HONORS ACCOLADES

2010-2011	Indian Certificate of Secondary Education, ICSE : 90.56% Aggregate of Primary Five : 93.2%
2011-2012	Indian School Certificate, ISC : 83.00% , Aggregate of Primary four : 86.5%
2013	AIEEE (PAPER II) Entrance Examination for Graduate program, B.Arch Maharashtra - All India Rank 4;
2016-2017	" Most Promising Intern " Award
2017	Design Dissertation SEM XI B.Arch Final Year Rank I ; GPA 9.11
2018	Design Dissertation SEM X B.Arch Final Year Rank III ; GPA 8.91
2019	" Employee Achievement " Award
2020	Published project : HD (Hospitality design) magazine New York Afraa Bar & Lounge
2021	CWAB Re-Act Awards 2021 Taj Chia Kutir resort & Spa, Kurseong Noteworthy project in hospitality category
2021-2022	Project lead, managing five teams & concurrent works under Principal architect
2023	Columbia - GSAPP - M.S.A.A.D program Summer Semester : Architecture Studio, Grade HP (High Pass) Fall Semester : Architecture Studio Grade HP (High Pass)
2024	Columbia - GSAPP : Graduate Degree Masters of Science in Advanced Architectural Design

SELECTED WORKS I CONTENT

01 02 Undergraduate Program : 2013 - 2018
B. Arch Program : Academy of Architecture Mumbai,

03 04 Professional Practice : 2016 - 2022
At Studio for Environment & Architecture SE- ARCH
http://www.se-arch.com/

05 06 Graduate Program: 2023 - 2024
At Columbia GSAPP : MSAAD

01

AN AMICABLE FACADE

Spectrum of sensitivity

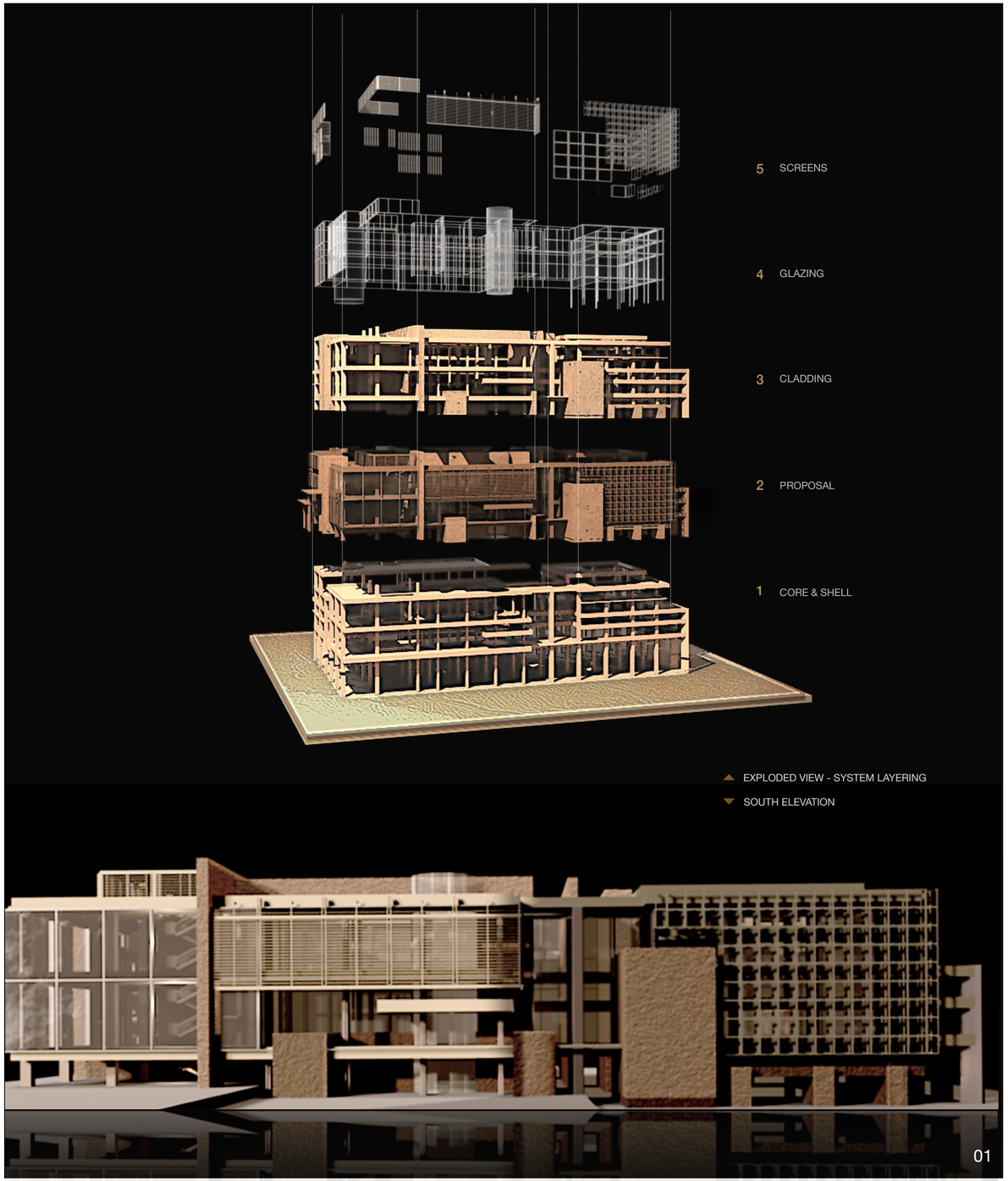
PROJECT TYPE Academic : Interpretative & Speculative
STUDIO Design & Details, B. Arch Semester IX
SITE Abandoned bare-shell construction
DATE Fall, 2017

To exhibit a heterogeneous mix of facade systems, that test sustainability parameters & performances. Attempting to create a spectrum of climate sensitivity, simulated in an abandoned bare-shell construction site in Mumbai, the exercise speculates the architectural Dos & Don'ts of environmental responsiveness.

Exploring volumes & proportions that drape floor plates, with intervening facade proposals, hypothesising architectural sensitivity. Understanding the approach & deliberations that drive facade design, taking three key parameters of sustainability into considerations while arriving at form. Exhibition of systems that range from - One that is **sensitive**, to one that is **indifferent**, to one that **disregards** climate responsiveness. These must come together & unify to form one coherent architectural statement.

KEY OBJECTIVES

- Green parameters : To study the role of passive & active design strategies, that help reduce the load on the building's energy requirements & consumption patterns.
- Volumetric study : Facades with varying degrees of performance, integrated into constructible systems that are aesthetically compatible, yet differently layered.
- Systemic order : To make sense of the sequential order in which facade systems are layered, in engineered cohesion with the structural members that support it.



DISREGARD

No Design device or strategy employed to mitigate heat. Double glazed skin to cut the UV intake; Furthermore, 40% of unrenewable energy consumed for air-conditioning & maintaining the architecture. Highly functional for various user groups & environmentally unresponsive.

INDIFFERENCE

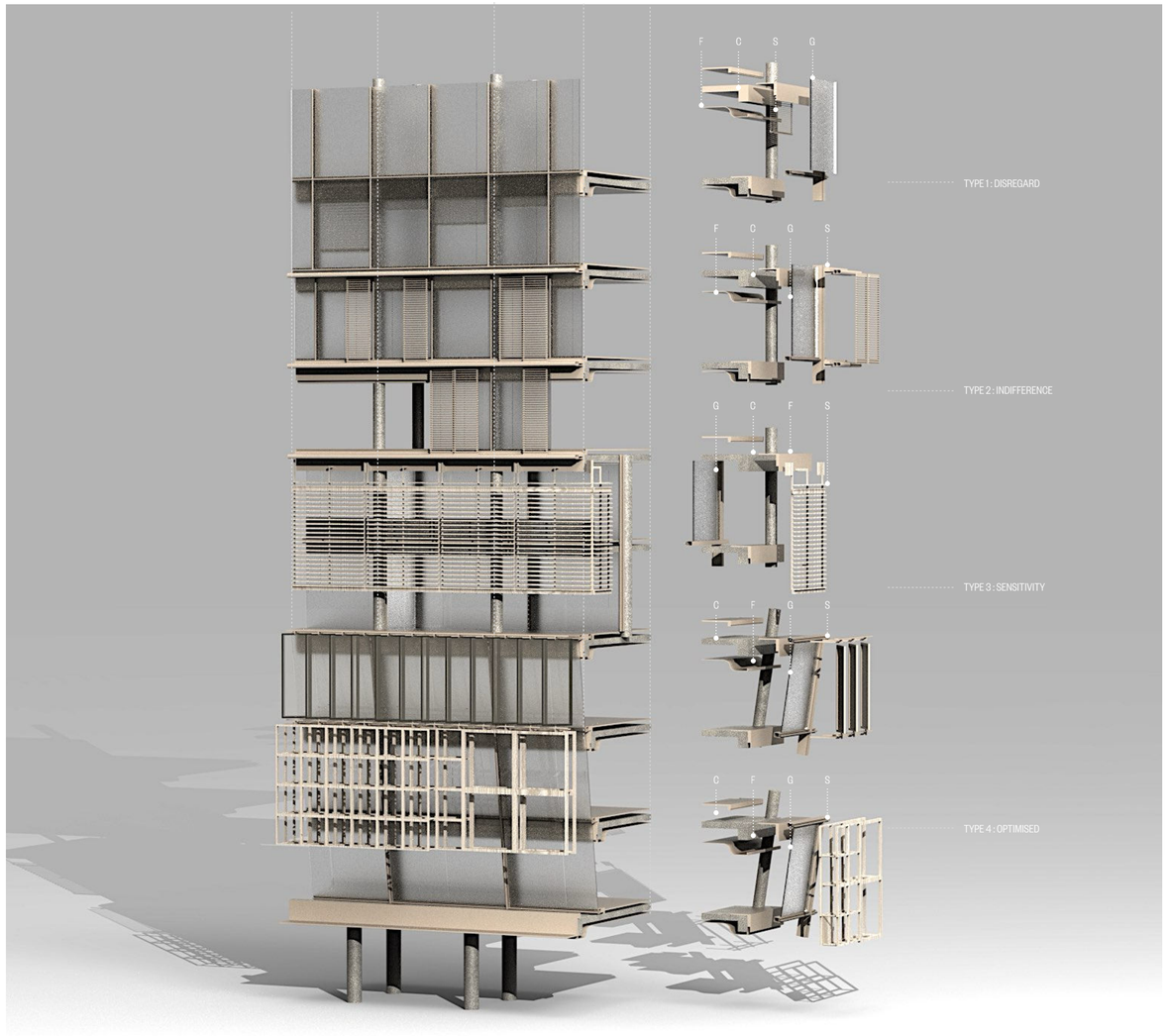
Some Passive Techniques employed to cut the southern sun; Wind towers introduced to circulate air paths, cooling the glazed skin of the facade. However, no renewable source of energy consumed.
Moderately functional for various user groups & environmentally responsive.

SENSITIVITY

All Passive Techniques employed to reduce the load on overall energy consumption. Ventilation channels introduced, with passively screened terracotta fins cooling the semi-open & indoor spaces. Moderately functional for various user groups & environmentally responsive.

OPTIMISED

Passive & Active Devices employed to combat the tropical sun, with photovoltaic facade panels and fins, draping the entire mass. With maximum dependability on renewable energy, this optimised approach is Highly functional for various user groups & environmentally responsive.



F : Internal junctions : False ceiling & Flooring components	TYPE 1 : DISREGARD	**F - C - S - G**
C : The Core : structural skeleton, Beams & Columns	TYPE2 : INDIFFERENCE	**F - C - G - S**
G : The Glazing : Transoms, Mullions & Glass junctions	TYPE 3 : SENSITIVITY	**G - C - F - S**
S : The Screen : Passive & Active screening devices	TYPE 4 : OPTIMISED	**C - F - G - S**

Glass box : An extremely prevalent practice in urban cityscapes, linked with low initial Investments & high running costs.

The Passive mitigators : A balanced use of strategies that manipulate wind & sun paths. Loads reduce by 20%.

The Peripheral screens : An aesthetic formula, using both strategies and devices. Airconditioning loads reduced by 40%.

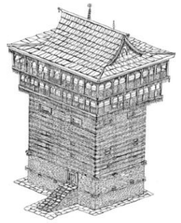
The Self-reliant : A balanced use of strategies & energy harvests. High initial investment, little to no running costs.

02

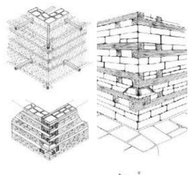
VERNACULAR RESILIENCE

Revival of Wisdoms

PROJECT TYPE Academic : Architectural Intervention
STUDIO Architectural Design, B. Arch Semester IX
SITE Jubbal Village, Himachal pradesh, India
DATE Spring, 2018



Book: "PRATHA" : Kath - Khuni architecture of Himachal Pradesh.



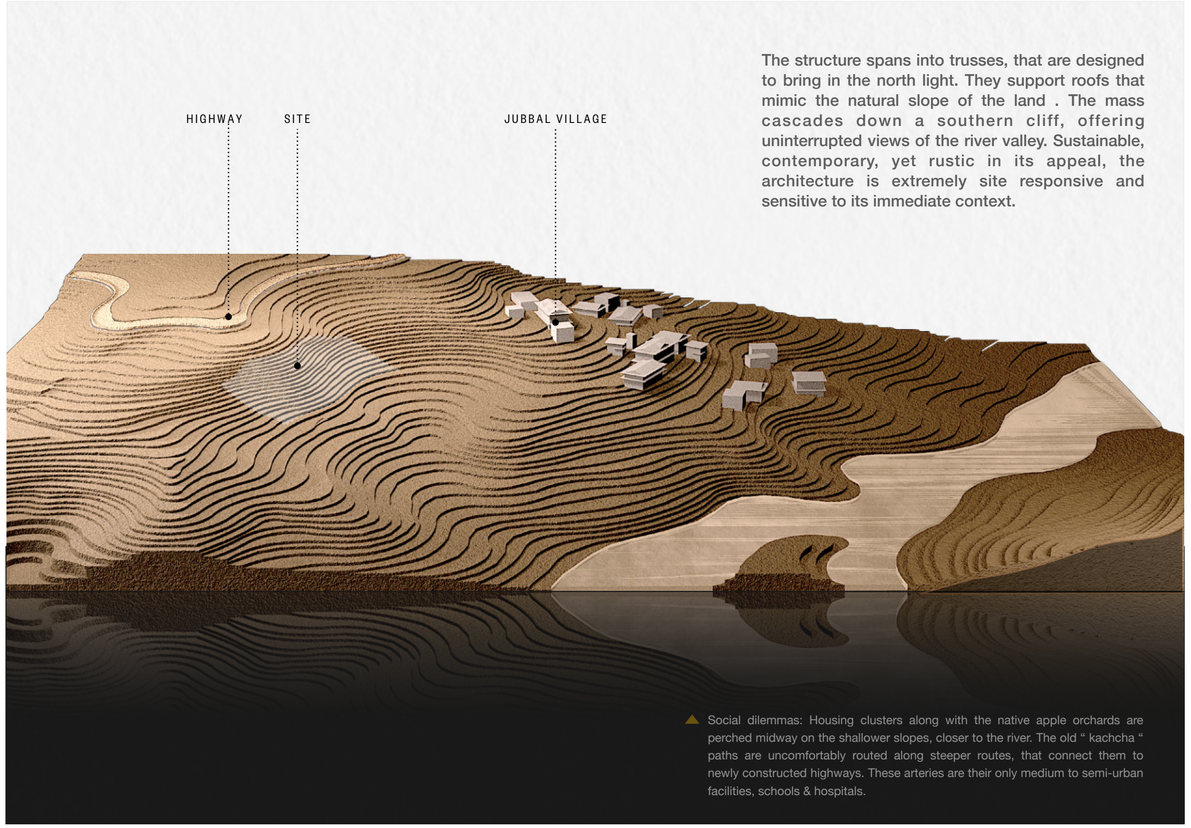
On a site that has rapidly replaced sustainable practices with concrete & cement construction, traditional building methods must be revived to create a contemporary aesthetic appeal. Attempt to create an architectural intervention that explores vernacular wisdom - as a medium to conceptualise healthy modernisation and cultural revival.

Local materials, engineered to provide earthquake resistance - *Kath khuni* is a legacy of distinctive traditional building practices in the Himalayan hills of India. *Kath* (wooden) *Kona* (corner) - is a hand built assembly of wood & stone, interlocked to form junctions that facilitate load bearing flexibility. Rural development is mindlessly advancing towards unwanted urban practices & trends that lead to uncharacteristic development patterns. A collective effort towards policy development, aimed at building an architectural conscience.

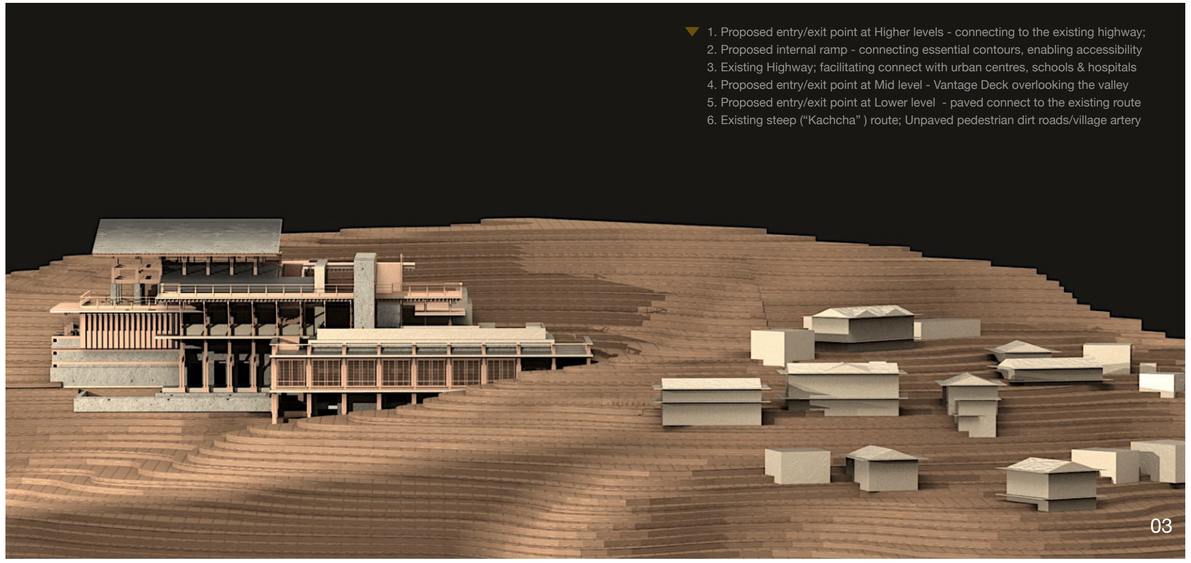
KEY OBJECTIVES

- **Recognising Vernacular acumen** : sensitivity to context & ancestral wisdom, that make construction techniques sustainable & rooted in culture.
- **Providing design remedies** : enabling modern architecture solutions to address tangible problems faced by rural societies, in a sustainable manner.
- **Response to contour** : facilitating accessibility & comfortable navigation through steep terrains, with minimum excavation to avoid impact on the biosphere.

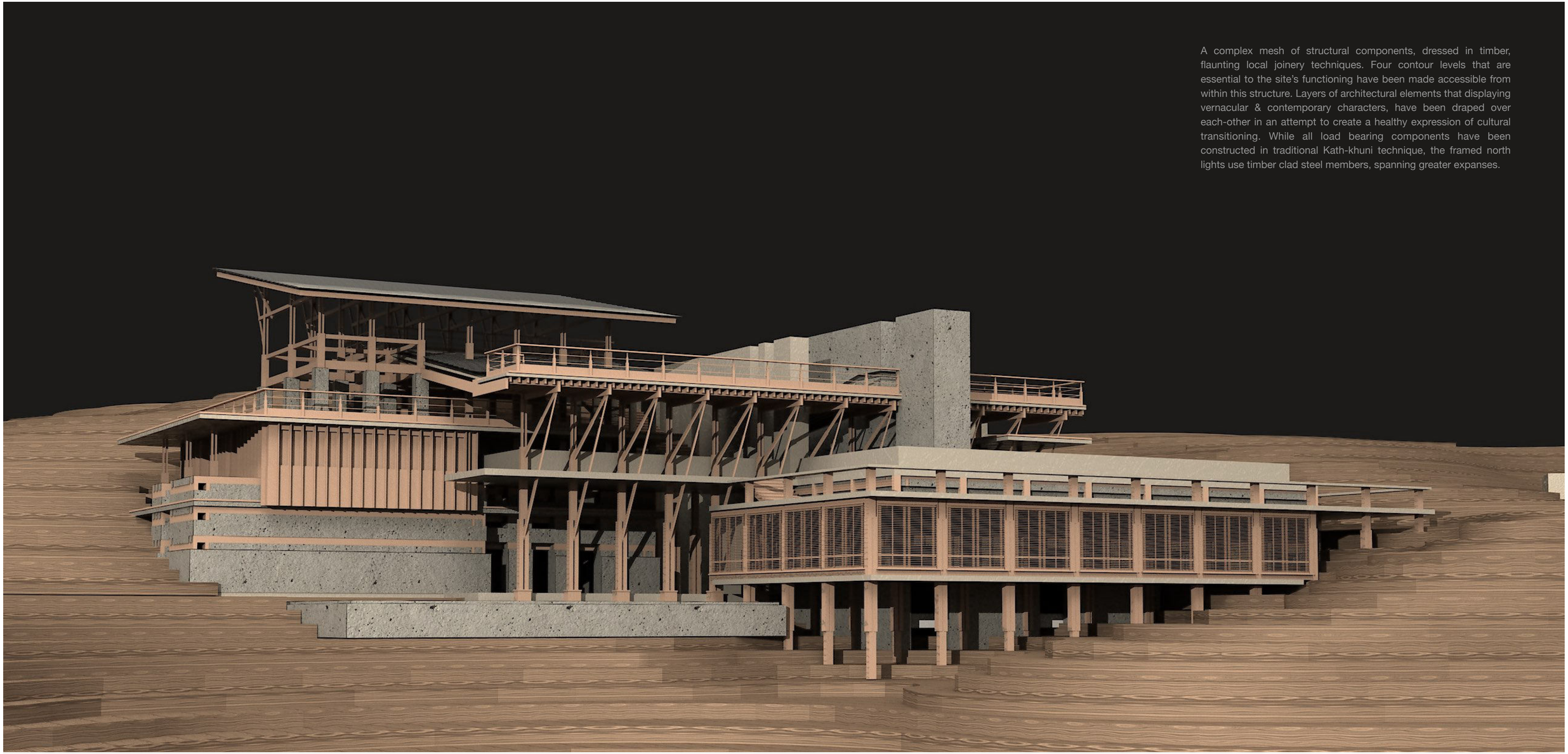
The structure spans into trusses, that are designed to bring in the north light. They support roofs that mimic the natural slope of the land . The mass cascades down a southern cliff, offering uninterrupted views of the river valley. Sustainable, contemporary, yet rustic in its appeal, the architecture is extremely site responsive and sensitive to its immediate context.



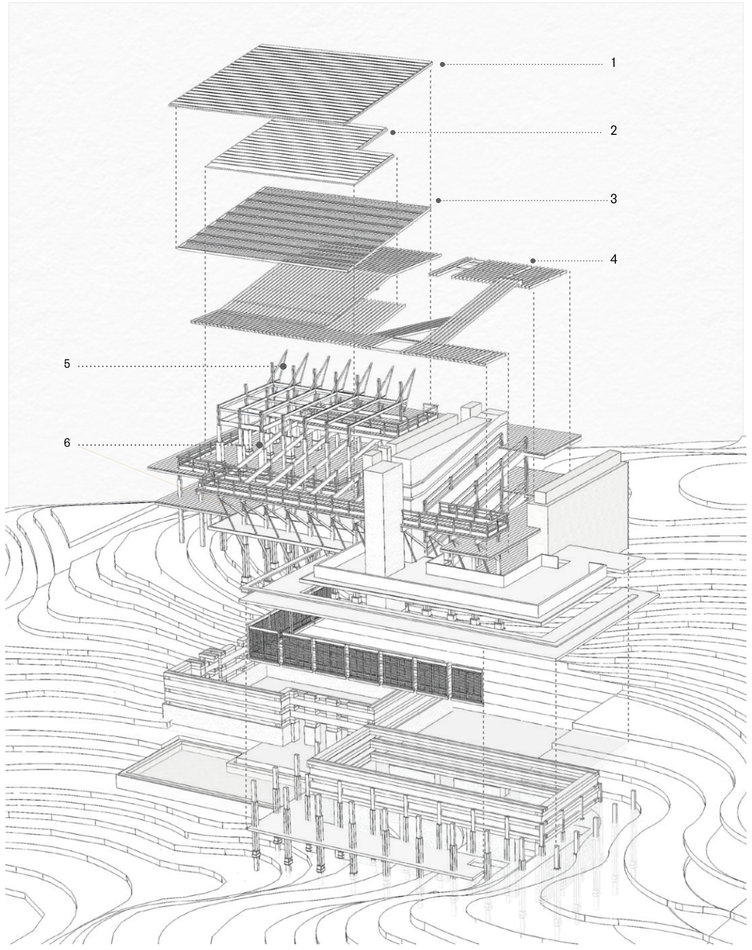
▲ Social dilemmas: Housing clusters along with the native apple orchards are perched midway on the shallower slopes, closer to the river. The old " kachcha " paths are uncomfortably routed along steeper routes, that connect them to newly constructed highways. These arteries are their only medium to semi-urban facilities, schools & hospitals.



▼
1. Proposed entry/exit point at Higher levels - connecting to the existing highway;
2. Proposed internal ramp - connecting essential contours, enabling accessibility
3. Existing Highway; facilitating connect with urban centres, schools & hospitals
4. Proposed entry/exit point at Mid level - Vantage Deck overlooking the valley
5. Proposed entry/exit point at Lower level - paved connect to the existing route
6. Existing steep ("Kachcha") route; Unpaved pedestrian dirt roads/village artery



A complex mesh of structural components, dressed in timber, flaunting local joinery techniques. Four contour levels that are essential to the site's functioning have been made accessible from within this structure. Layers of architectural elements that displaying vernacular & contemporary characters, have been draped over each-other in an attempt to create a healthy expression of cultural transitioning. While all load bearing components have been constructed in traditional Kath-khuni technique, the framed north lights use timber clad steel members, spanning greater expanses.



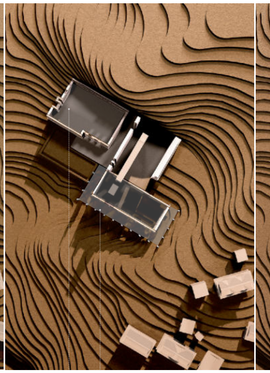
1. Secondary Roof cladding & **2.** Primary Roof cladding - Slate tiles that are traditionally hand-cut, interlocked & overlapped in familiar vernacular techniques; Fire proof, durable & inherently insulating, slate is local material, available in abundance.

3. Secondary Roof rafter & **4.** Primary Roof rafter - Timber sections supporting the roof; seamlessly transition into beams that support cantilevering slabs at intermittent levels. These rafters can bear the load of a slate roof & remain light-weight.

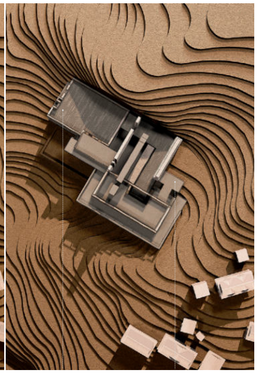
5. Secondary Roof truss & **6.** Primary Roof truss - Steel sections, clad in timber; Large spanning trusses, help achieve architectural transparency. Pre-fabricated members assembled on site, reduce the risks of hazardous in-situ construction.

CUT & FILL : Excavation; The steepest section of the site with the least amount of vegetation, is most susceptible to erosion during monsoons. This helps reduce the footprint of the excavated area, thus minimising the ecological disturbance.

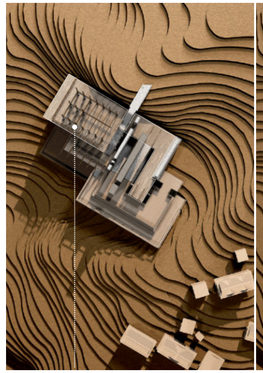
CUT & **FILL** : Renewed contours; The excavated land is locally re-filled along existing contours. This helps give the village visual privacy from the proposed newer development, and re-arranges the topography into navigable slopes.



G + 0 : Lower level; Class rooms & Congregation halls lay in close proximity to the village, making it easier and safer for children that depend on the highway bus-routes. The nearest bus station is a gruelling twenty five minute climb from the village.



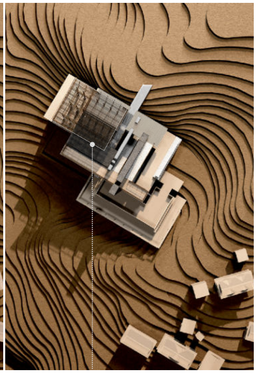
G + 1 : Intermediate Level; Commercial Hall & Market, that encourages pop-up store culture, farmers can display & sell produce. accessible internally through ramps, this level connects with the farmed and cultivated contours.



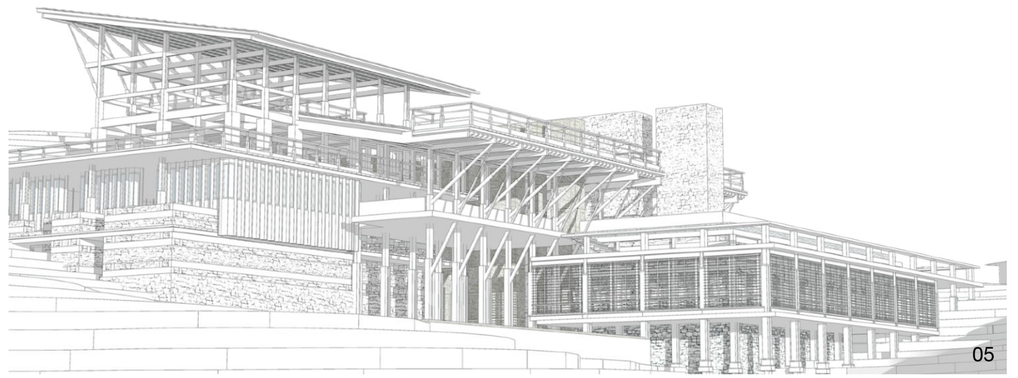
G + 2 : Higher Level; Locally run restaurants/cafe/ community kitchens are perched up here, in closer proximity to the highway, encouraging a healthy interaction between locals and tourists.

PRIMARY ROOF : Vantage deck; Th roof shelters the G+2 structure, cantilevering from the trusses into a deck that reaches deep into the valley offers an uninhibited view of the serene landscapes.

G + 3 : Highway dock; A proximal connect with the bus station, the highway dock is a structural extension of the primary roof & deck. It cloaks the colossal structure into un-assumed invisibility.



SECONDARY ROOF : Propped on the top most level, colonnades & trusses hold up the secondary roof. The only architectural cue that peeks from the valley, intriguing & inviting the passers by.



03.10

A SCHOOL IN YAVATMAL

PROJECT TYPE Institutional : Primary School
SITE Yavatmal, Maharashtra, India
DURATION November 2016 - 2019
TEAM Principal Architect - Ar. Kapil Bhalla,
TEAM ROLE Intern 2016 - Senior Architect 2019
CLIENT Jawaharlal Darda Education Society

In a region that experiences one of the most oppressive climatic conditions in the country , We envisioned a school for impressionable minds. An un-jaded approach at massing & architecture conceptualised by us as interns, led to a vision that was arduously executed by the Team in the next three years.

The school has emerged as a precise manifestation of the Vastu principles and response to climatic conditions. The spaces formed are therefore carefully crafted with abundant light ventilation and visual connectivity. Climate-responsive elements like weather-screen, courtyards, volumetric composition, and various other strategies that are sensitive to immediate context, shaping the architecture into an enticing experience.

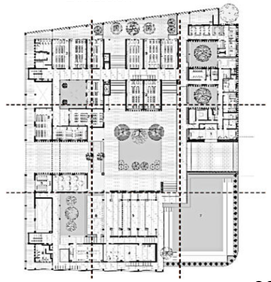
Building material & technology form are integral to the design. Compressed & stabilised earth blocks are made out of excavated soil, they are four times less polluting than conventional bricks. Apart from its aesthetically pleasing vernacular appearance, it is also a cost and energy effective material. Use of exposed concrete & earth blocks made of site soil attains the harmony between built form and its arid surroundings. Furthermore, the structure has been placed along the natural site contour, so as to minimise cut and fill.

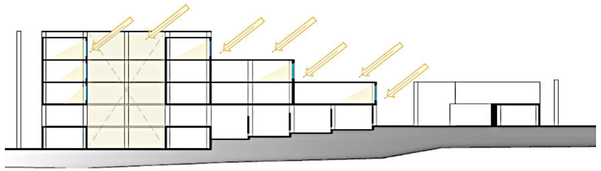
The school has been designed incorporating our ancestral concept of sustainability - Mandala. Our traditional practices believed that four elements, - Earth, Water, Fire & Air must remain united in a specific proportions, within a structure for spiritual harmony.

TRADITION

INTERPRETATION

EXPRESSION

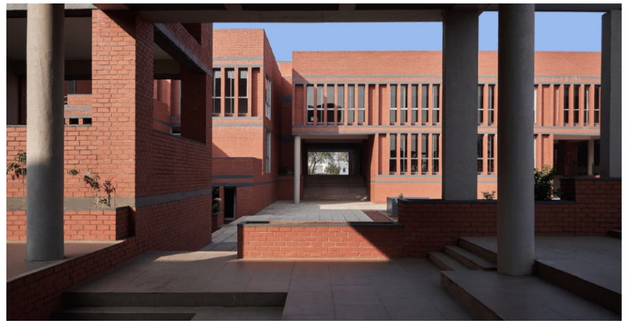


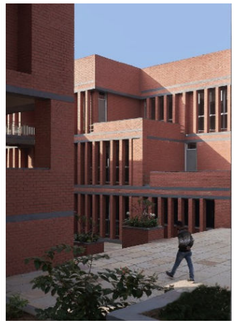


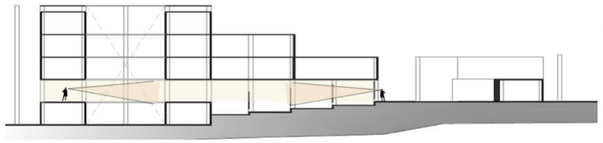
1

NORTH LIGHT OPTIMISATION

Optimising north light helps incorporate daylight into the Architecture . The building is staggered on the north, maximising the north faces to fully draw in reflected light. It passively Induces cool and controlled pressure shifts that propagate ventilation.





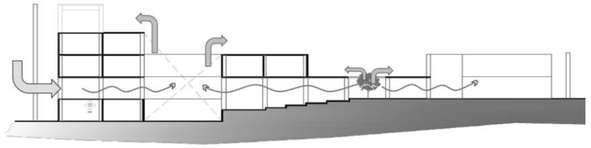


2

VISUAL MAPPING & SECURITY

A sprawling stilt ground level and inward-looking classrooms create a strong visual connect between the spaces. Singly loaded corridors and effective placement of fenestrations helps in establishing a high level of visual security in a child's mind.

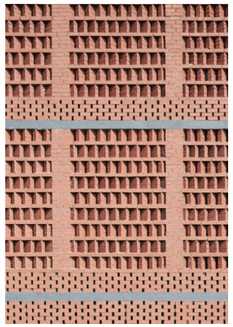
All Architectural photographs shot in 2020 : By Ashish Bhonde

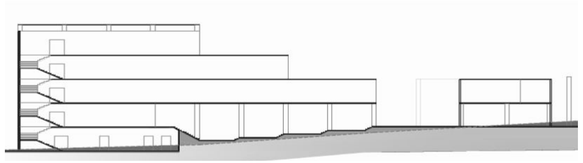


3

VENTILATION & PASSIVE COOLING

Compressed & stabilised earth blocks are made out of excavated soil, they are four times less polluting than conventional bricks. Apart from its aesthetically pleasing vernacular appearance, it is also a cost and energy effective material. Courtyards and screens enable effective cross ventilation throughout the structure.





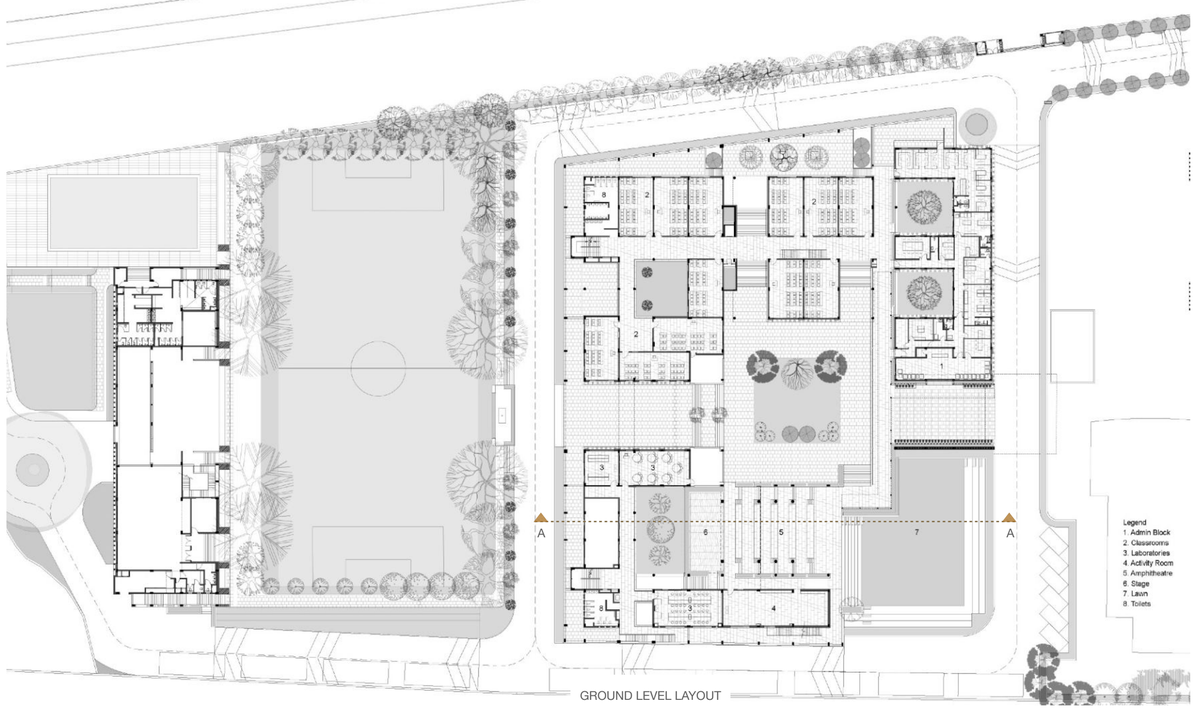
4

CONTOUR SENSITIVITY

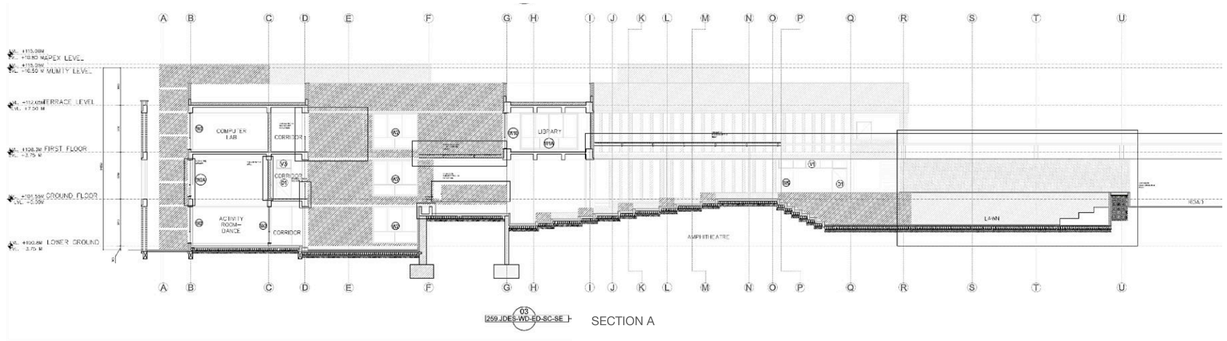
Building material & technology form are integral to the design. Use of earth blocks made of site soil attains the harmony between built form and its arid surroundings. Furthermore, the structure has been placed along the natural site contour, so as to minimise cut and fill.

All Architectural photographs shot in 2020 : By Ashish Bhonde

Use of earth blocks made of site soil attains the harmony between built form and its arid surroundings.



GROUND LEVEL LAYOUT



SECTION A

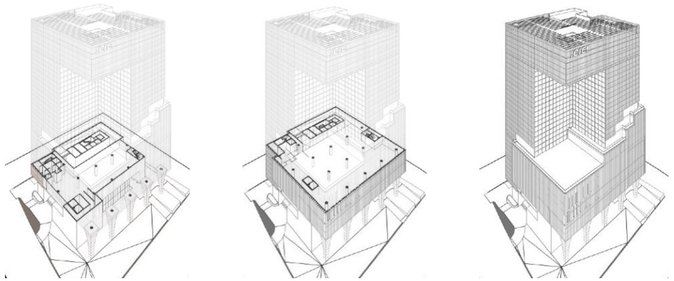
03.20

A BANK IN MUMBAI

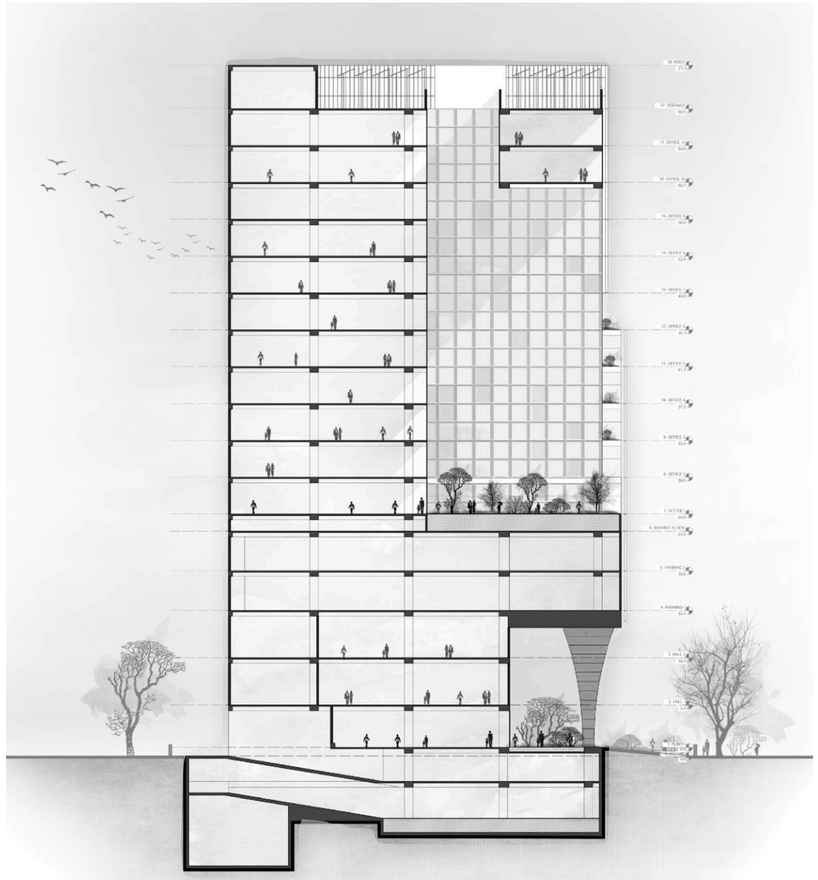
PROJECT TYPE Design Competition : Proposal
SITE Prabhadevi, Mumbai, Maharashtra, India
DURATION October 2018
TEAM Principal Architect - Ar. Kapil Bhalla,
TEAM ROLE Senior Architect ; Proposal curator
CLIENT ICICI (Industrial Credit & Investment Corporation of India)

Set in a city that is saturated with rampant modernisations, where land is precious, expensive and insufficient. Is there an opportunity to connect our corporate culture with nature & its hues?

In one of the most challenging urban environments - Mumbai, where all commercial requirements are packed into dense glass boxes, built up to soaring heights, cutting the natural light reaching its streetscape. In a world where we loose contact with the ground below for 9 hours a day, can we re-establish a conscious connect with greenery? In materiality & in space planning, what we arrived at - is an expression that adheres to sustainable design philosophies, abides by the stringent local by-laws & meets all client requirements in terms of functional & economic viability.



An open work environment with increased glazed facade surface area to north, shielded to the south. Whilst planning all ancillary functions & service cores have been oriented to the south & south-west. With all parking requirements accommodated in the car parks, the ground, podium and typical floors above are in constant connect with the northeast courtyard.



The sectional elevation, represents the density of function and people, that require to be housed in this structure.

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04.10

A TEA RESORT IN DARJEELING

PROJECT TYPE Luxury Hospitality, Interior Design & fit out.
SITE Kurseong, Darjeeling, West Bengal, India
DURATION December 2016 - 2020
TEAM Principal Architect - Ar. Kapil Bhalla,
TEAM ROLE Lead - Look & Feel visualiser 2016 - 2017,
CLIENT Taj Hotels & Resorts, Ambuja realty

The Taj Chia Kutir resort in Darjeeling, achieves rustic simplicity in a context well endowed with nature's wonders. Presenting its Architecture is like telling a story. The protagonist is Nature. It is at the centre of the story making the key decisions towards creating a celebratory tale of Art, Architecture and Landscape.

Guest Block B
All Day Dining
Banquet & Conference

Guest Block A
Reception Lobby
Spa, Gym & Pool

Guest Block C
Guest rooms
Suites

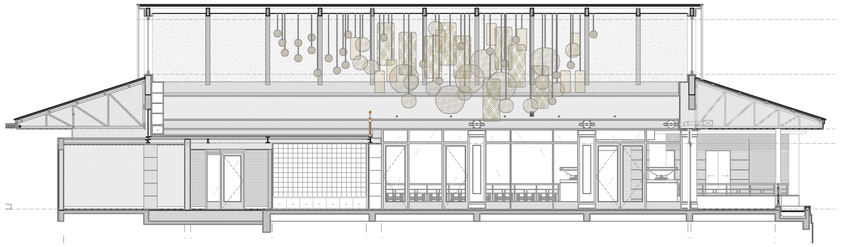
Everything that has been built here has been built in reverence of Nature. The meandering tea terraces inspired the design. The buildings adjust with slopes and the orientation towards the sun and sky. A precise contour plan and a large scaled model of the site navigated the design process. We maintained natural contours and regulated water to flow around the established gradient. The size of the building mass was curtailed primarily to regulate the flow of water and to reduce the impact of building mass on the area.

The architecture can be be best understood in a Tri-zonal mapping form - three block developments, each housing a spirit of hospitality for our guests .

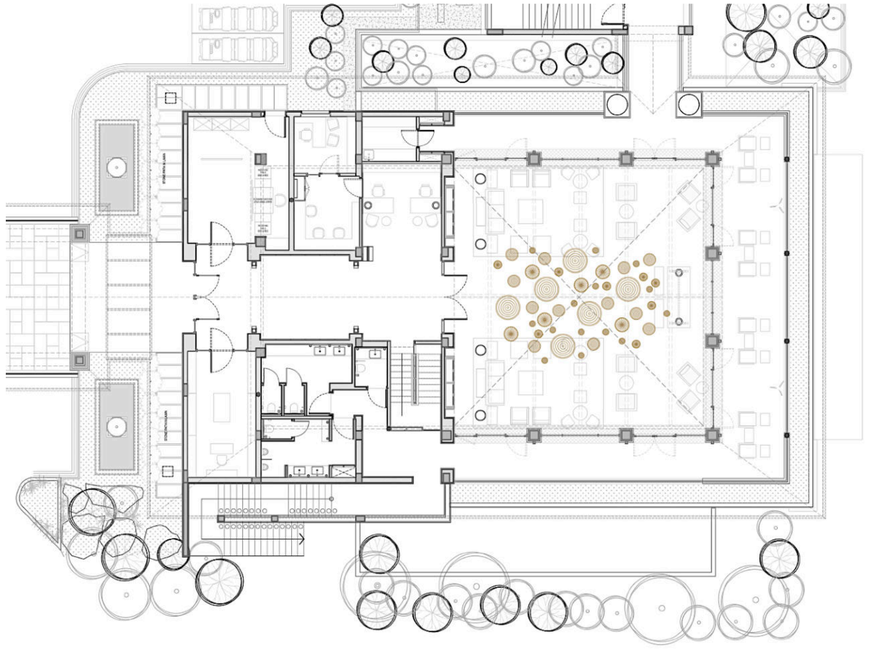
▲ **Guest Block A :** Reception Lobby & Lounge

▶ **Guest Block B :** All Day Dining

Architectural photographs shot in 2021 : By Bharat Ramanujan
Architectural renders Created in 2017 : Maitri Uka & Rachita Viswanath;
Production by Mayabious art



NORTH-SOUTH SECTION : RECEPTION LOBBY



BLOCK A LAYOUT : RECEPTION LOBBY

Guest Block A : Reception Lobby & Lounge

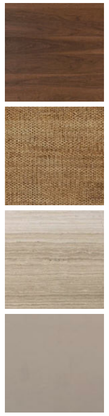
N

Architectural photograph shot in 2021 : By Rachita Viswanath

Guest Block C : Estate Rooms

Architectural renders Created in 2017 : Maitri Uka & Rachita Viswanath; Production by Mayabious art

LOOK&FEEL I MOODBOARD



Walnut Veneer Finish

Fabric

Travertine

Paint

Inspired by the hues and tones of brewing tea, we conceptualised a mood for each of the spaces.

Architectural photograph shot in 2021 : By Bharat Ramanujan

LOOK&FEEL I MOODBOARD

Walnut Veneer Finish

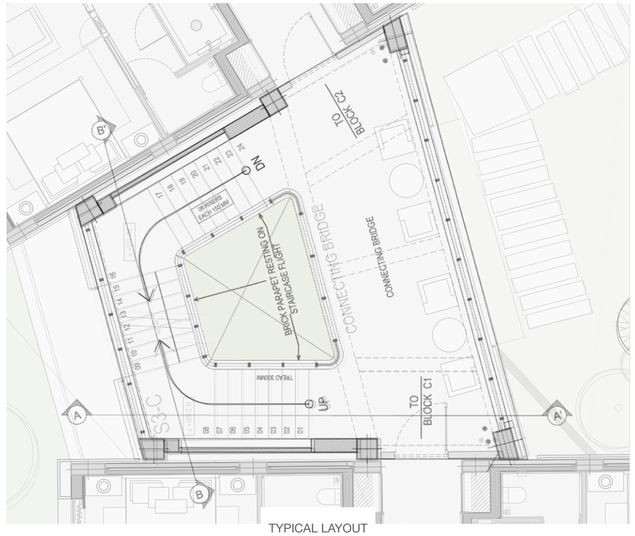
Fabric

Terracotta

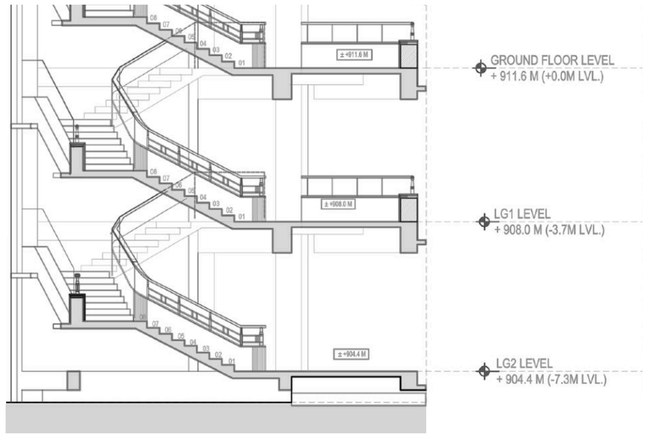
Paint

Inspired by the hues and tones of brewing tea, we conceptualised a mood for each of the spaces.

Architectural photograph shot in 2021 : By Bharat Ramanujan



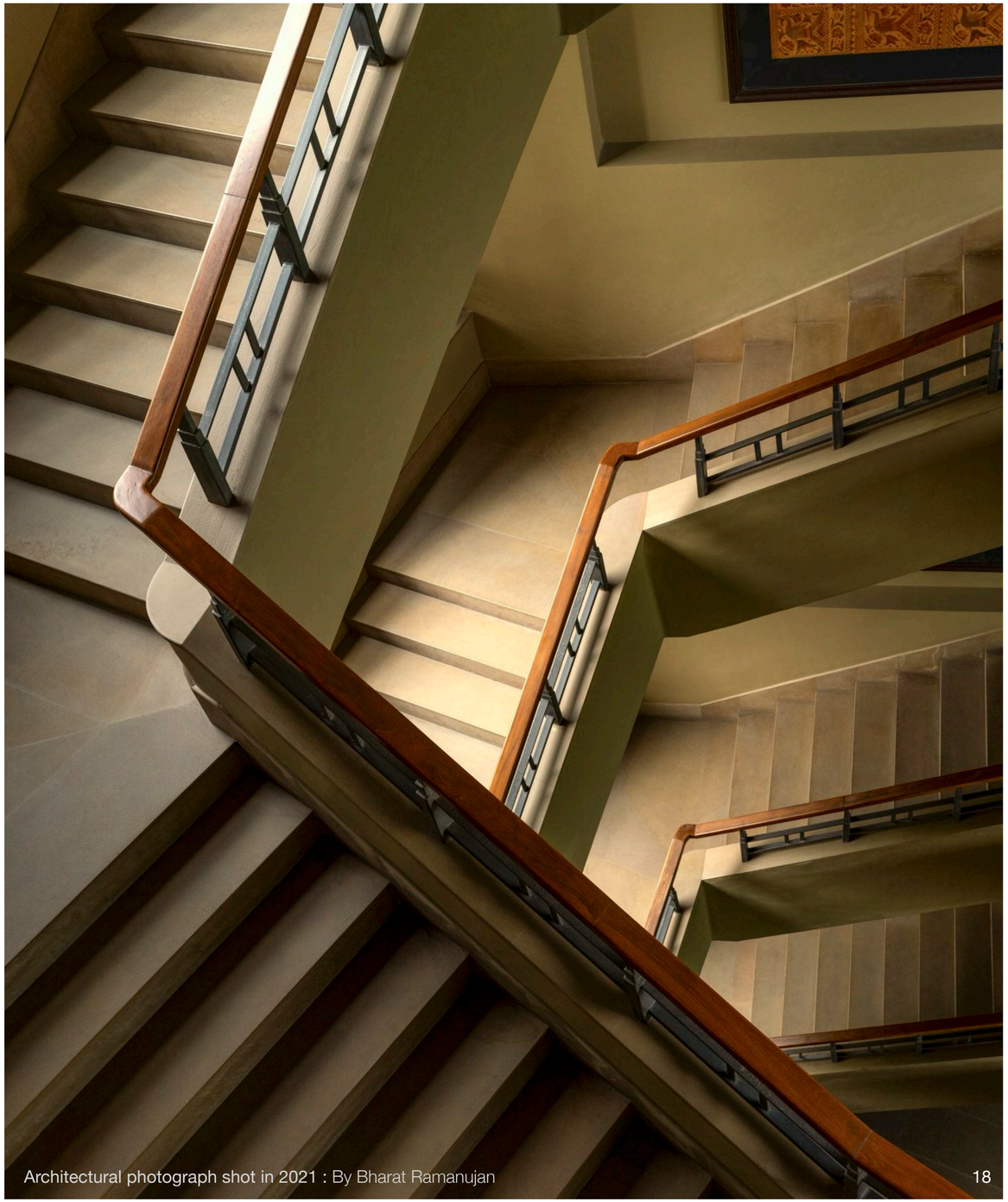
TYPICAL LAYOUT



SECTIONAL ELEVATION A

Guest Block C : Staircase

N



Architectural photograph shot in 2021 : By Bharat Ramanujan

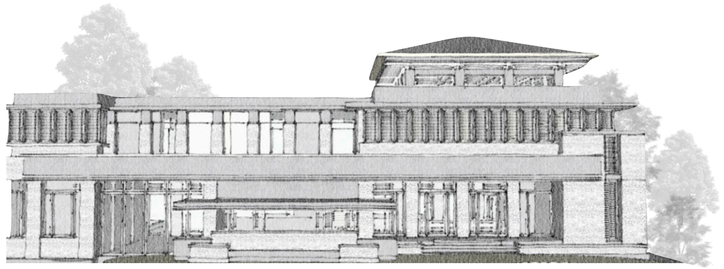
04.20

A VILLA BY THE GANGES

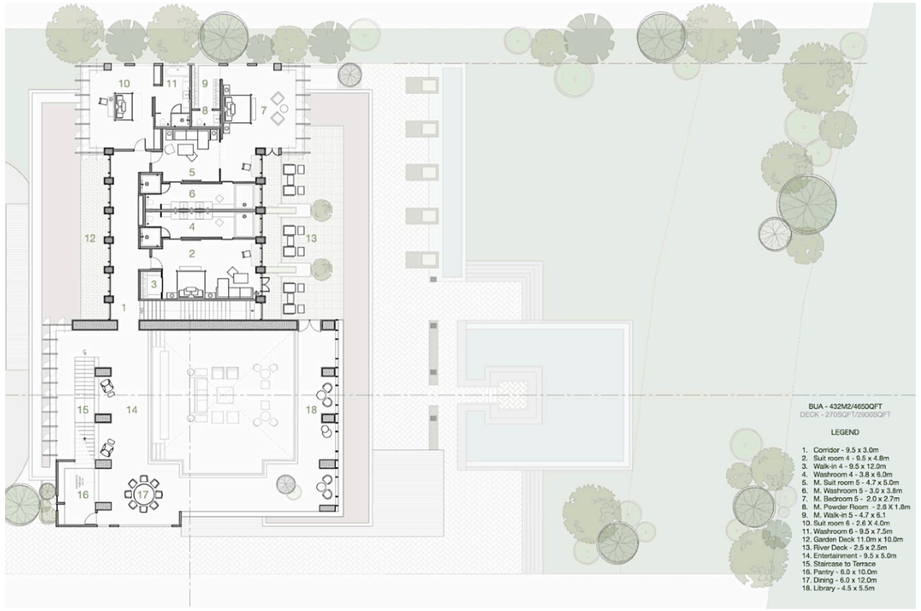
PROJECT TYPE Plotted development : Real Estate Proposal
SITE Gangaghat, Kolkata, India
DURATION October 2022 - 23
TEAM Principal Architect - Ar. Kapil Bhalla,
TEAM ROLE Lead designer, Design Consultant
CLIENT Srijan Realty Private Limited.

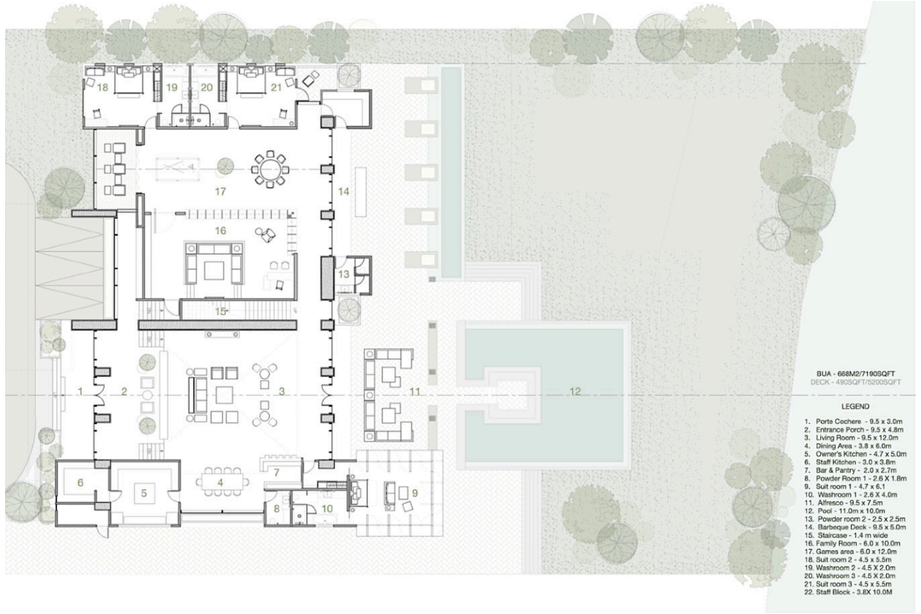
Along the riverfront, a sprawling 12000sqft luxury villa awaits it guests. A unique opportunity, to build in a landscape that has inspired reverence & admiration for generations.

The Ganges - have mused many great minds, poets, artists & philosophers of Bengal, through the ages. Our attempt at building a community that aspires luxury, is centred on values that show unwavering respect and regard to the river & its spectacularity. At a macro-level, these villas will give an Architectural identity to a new street, in the suburbs of Kolkata. A statement piece that boasts of its south-asian heritage & flavour.



A Leisurely south-asian retreat, a community conscience, inspired by hues of nature.



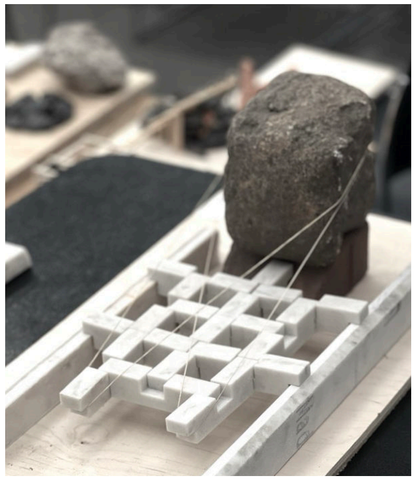


Architectural renders Credit : Viraj Shah & Rachita Viswanath

05

STONE MATTERS

PROJECT TYPE Academic : Biogenic Material Study
STUDIO AAD Studio, MSAAD, GSAPP
TEAM Abdullah Maddan, Foteini Kallikouni
DATE Summer, 2023



The **(Im)**perfect joint

Fascinated by stone and its different degree of refinements, we wished to device joineries that emerge from their interaction.

From the natural rough stone to the most refined piece of marble, each geometry brought with it a unique set of structural properties. Natural roughness has its limitations. without the introduction of stereotomic cuts or binding agents such as mortar, stone assemblies can't be contained within controlled forms.

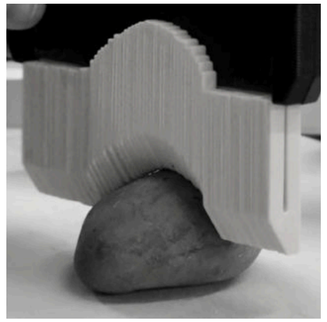
Devising **Low-tech strategies** that embrace the imperfections of stone & **irregularities of rough terrains.**

A
Roughness carved into the refined

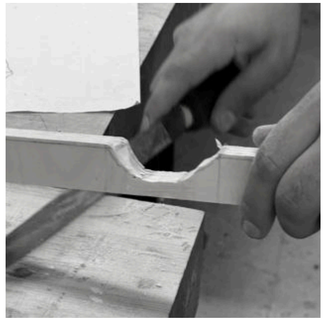
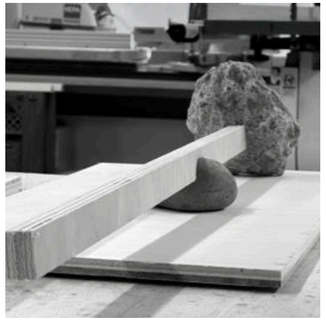
B
Roughness carved with the refined

C
Roughness cast at compression points

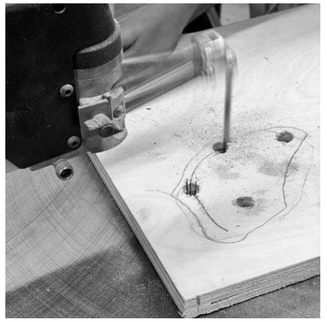
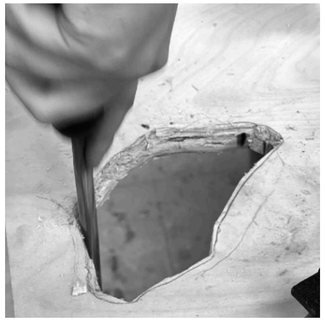
D
Hybrids

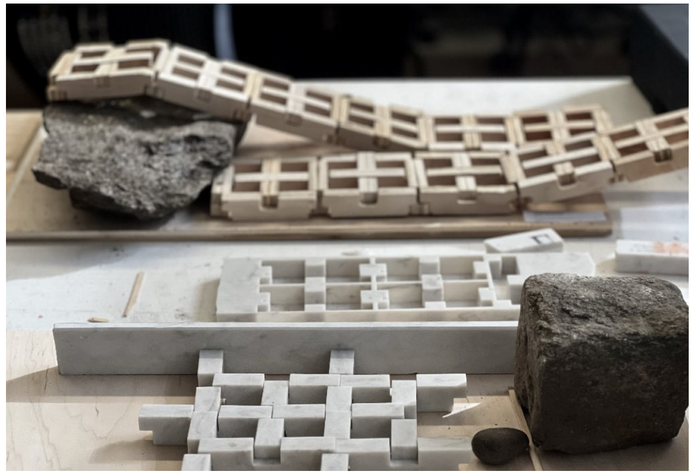


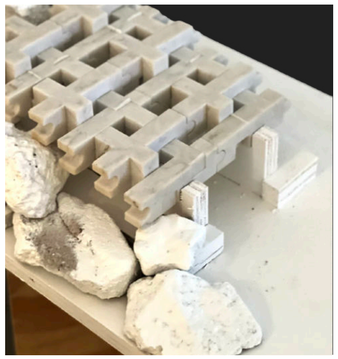




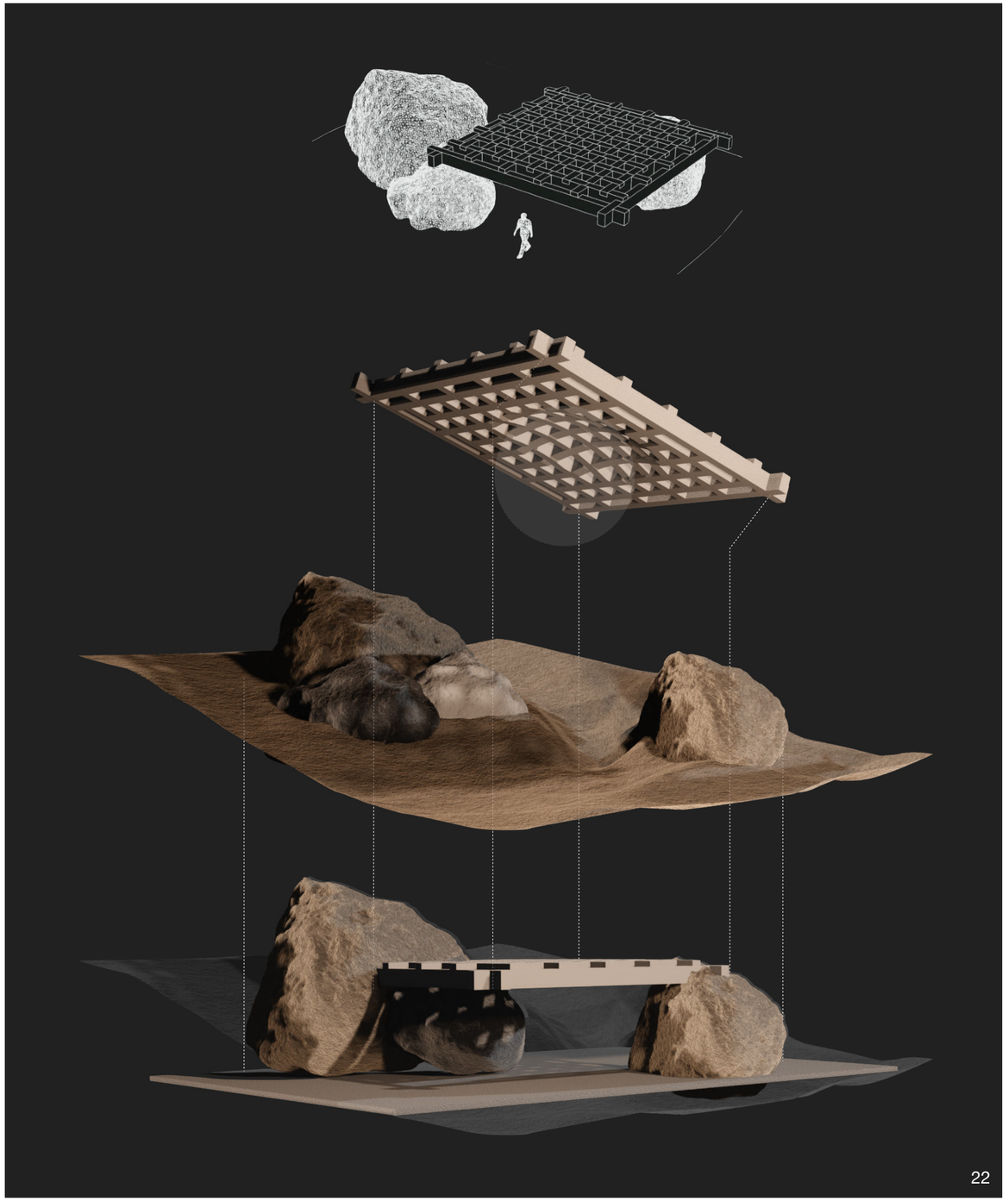



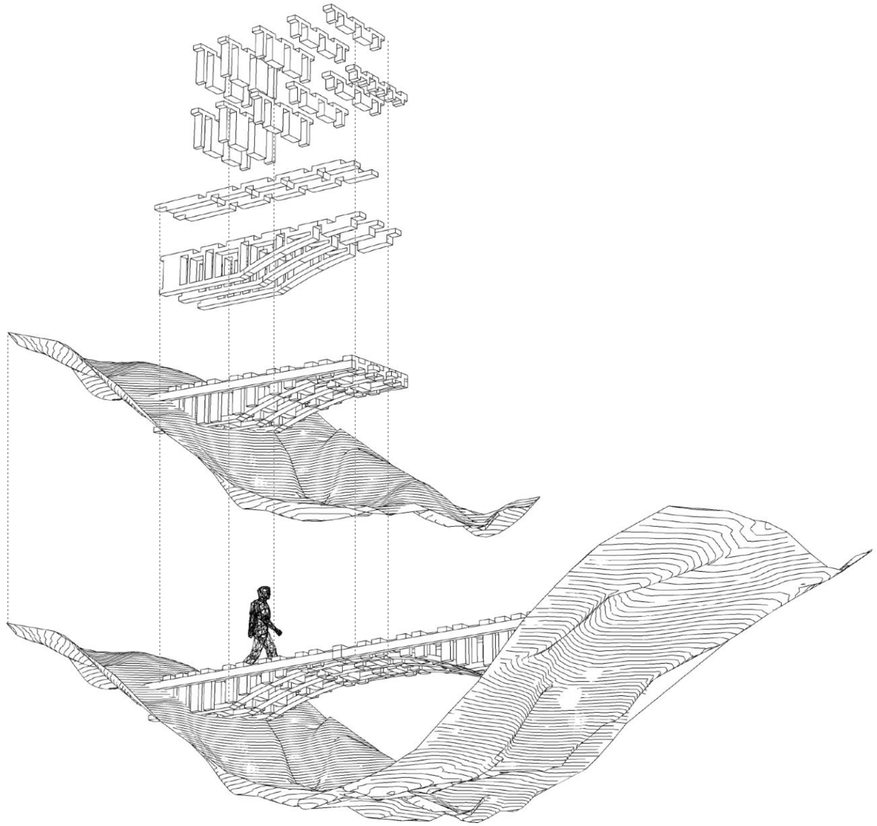





THE SLAB

A stereotomic reciprocal system devices modular geometries that help stones compressive strength perform in tension. A series of simple reciprocal members were two dimensionally cut in marble and tested. Different stereotomic cuts helped achieve different structural strategies.

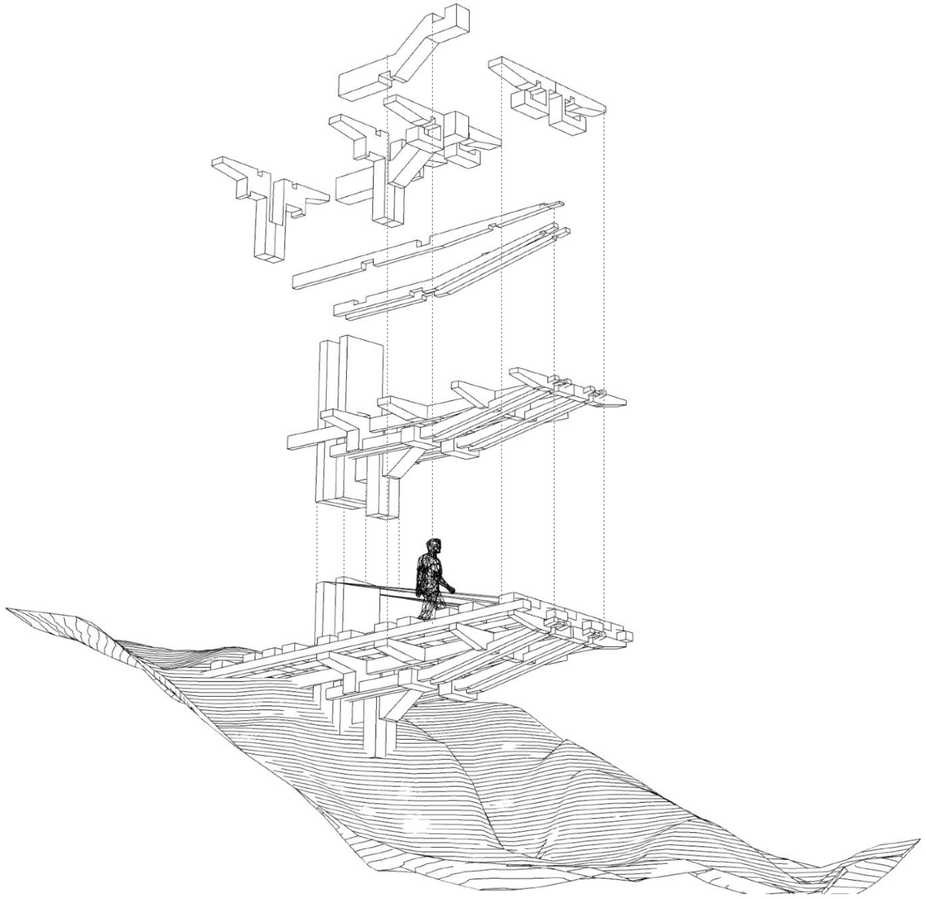




THE BRIDGE

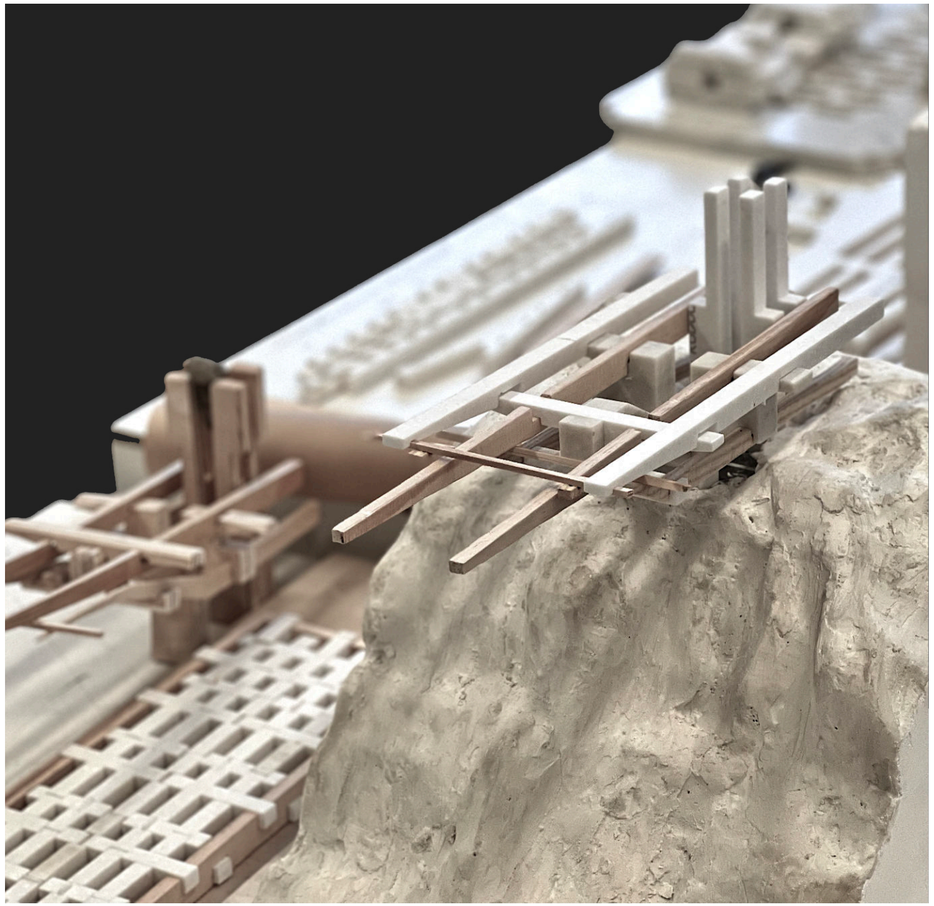
Pre-fabricated stone pieces are assembled to distribute load & tension efficiently along its length. The deeper, heavier Truss members taper in height towards its centre. The tolerances within the stereotomic joinery allow for some flexibility. This also makes the structure more to seismic forces.

This strategy can be deployed to bridge between a **8M to 10M wide ridge**. With locally available stone and low-tech cutting tools the material can be assembled and Disassembled like a lego.



THE CANTILEVER

Structural strategies & Modular assemblies that make stone construction simple, more accessible, easy to transport & optimally engineered. Inspired by the Da Vinci Arc, each member is designed to receive the load of two members & rest its load on two members. Each reciprocating system laterally distributes load along the cantilevered system.



06

MAISON SERRAGO

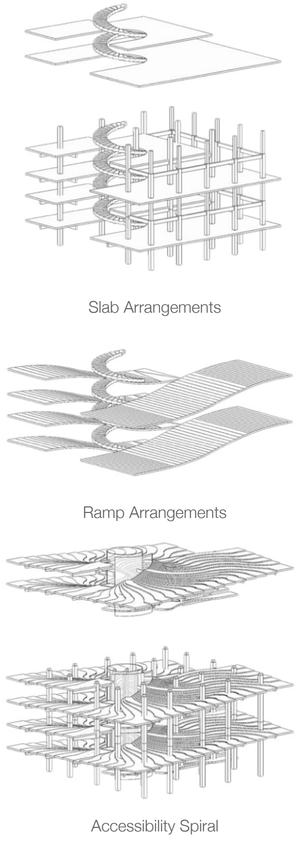
PROJECT TYPE Academic : Biogenic Material Study
STUDIO AAD Studio, MSAAD, GSAPP
TEAM Aashka Ajmera
DATE Fall, 2023

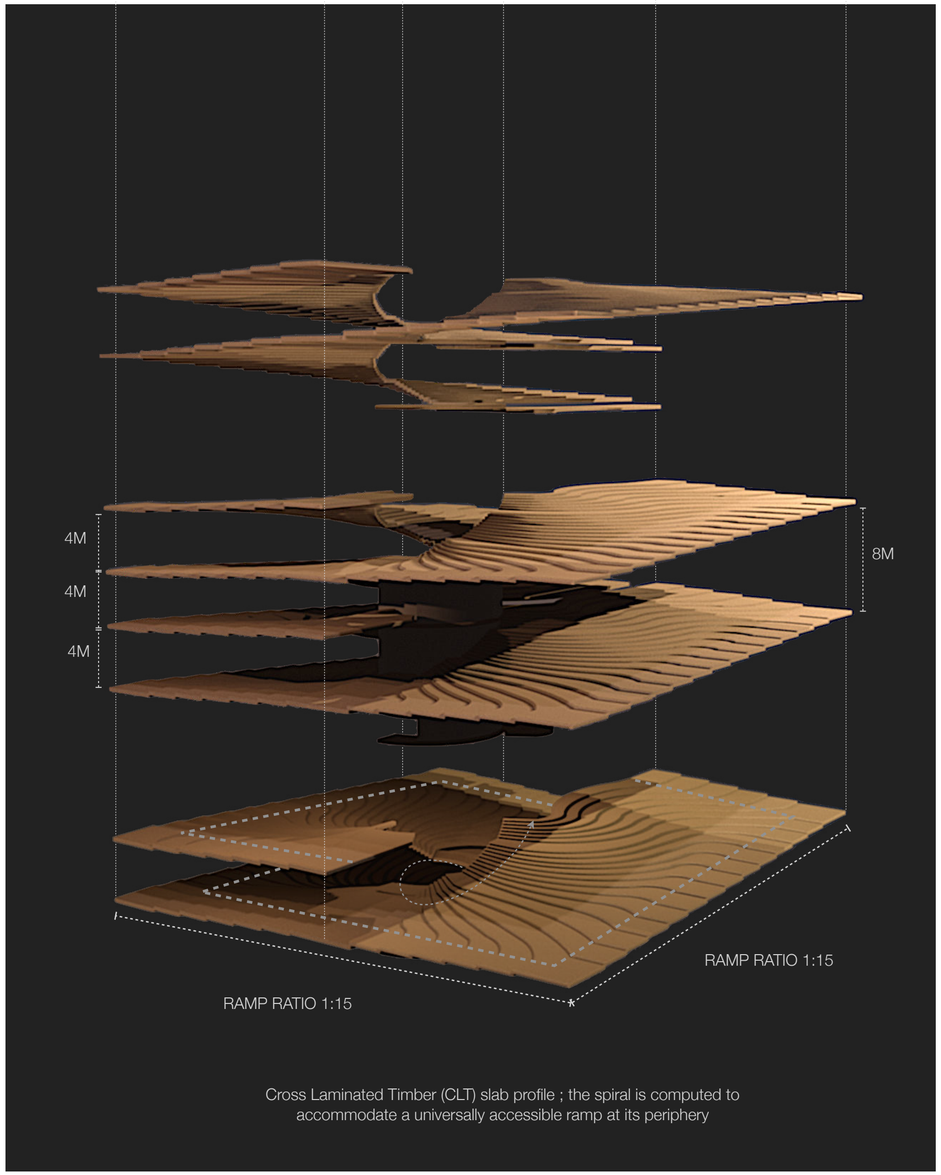
Design For Disassembly

A Mass timber interpretation of the Maison Domino

Mass timber sequesters more CO2 than it emits, making it the most carbon negative resource. Compared to concrete buildings which in their production process emit almost the inverted value of what timber sequesters.

This particular profile of the Maison domino inspired our initial module development. We observed that the Maison's structure & core does not account for universal accessibility, an essential concern that our module aspires to solve.

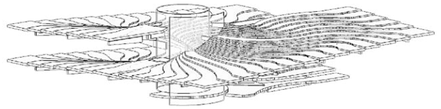




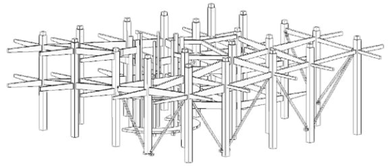
Cross Laminated Timber (CLT) slab profile ; the spiral is computed to accommodate a universally accessible ramp at its periphery

Form informed by Accessibility Principles : Taking accessibility into consideration, our spiral staircase core radially generates into a traversable, peripheral ramp - ratio of 1:15. Denser slab arrangements on the southwest creates a double-height volume on the northeast.

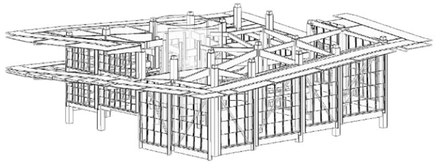
SPIRAL SLAB PROFILE



BEAM & COLUMN ARRANGEMENT

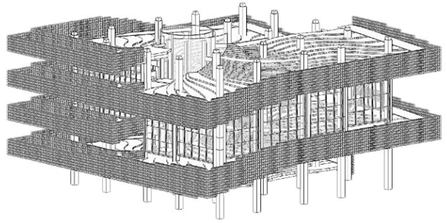


TIMBER FRAME WINDOWS

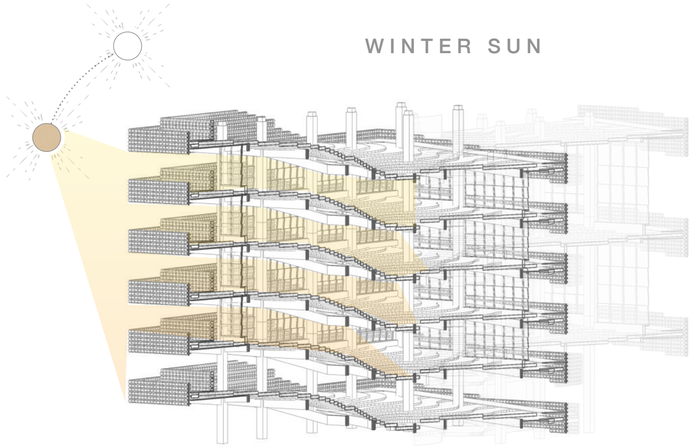


SERRAGO SKIN

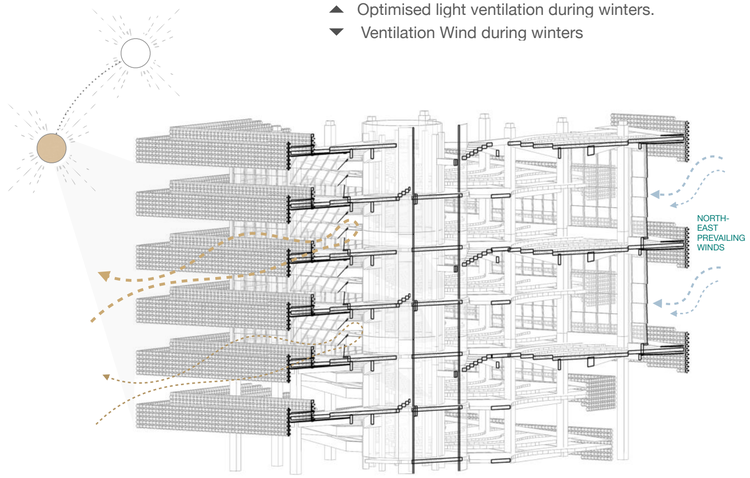
(3D Printed evaporative cooling screens)



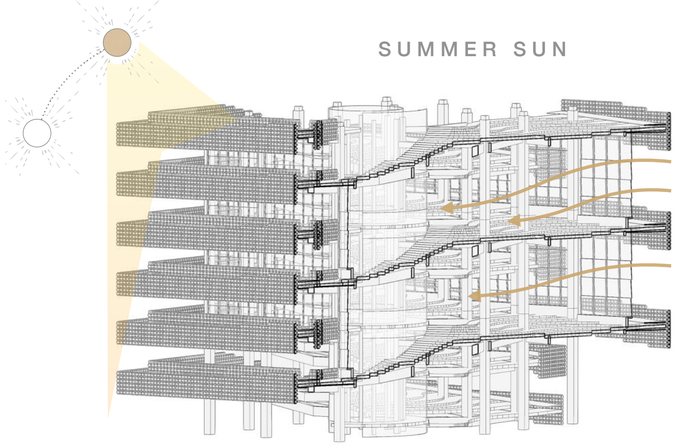
WINTER SUN



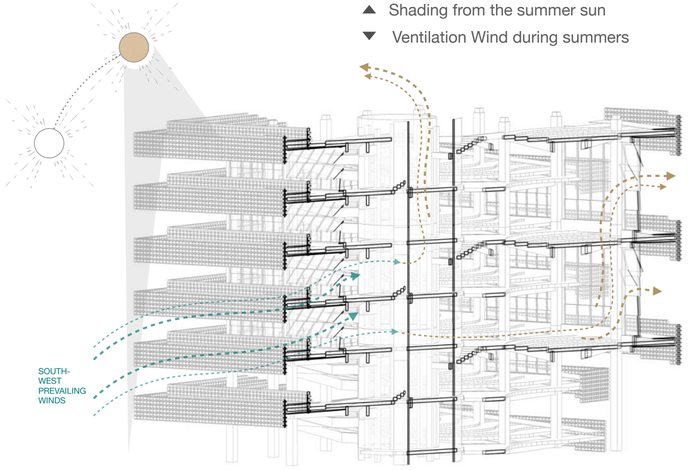
- Optimised light ventilation during winters.
- Ventilation Wind during winters



SUMMER SUN

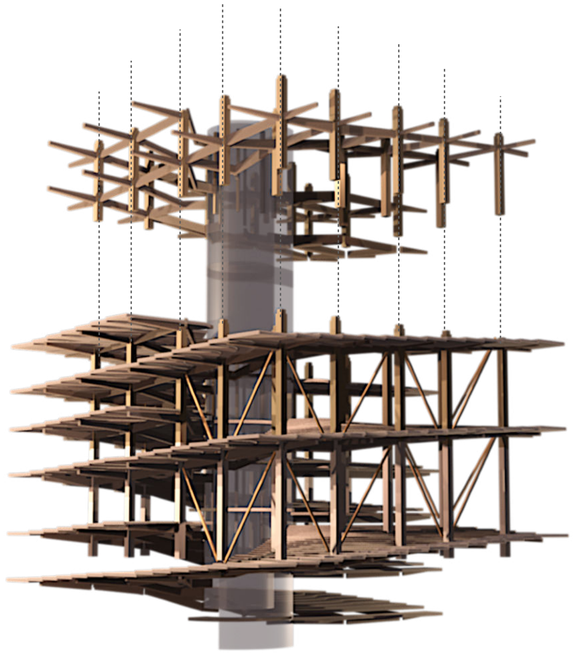


- Shading from the summer sun
- Ventilation Wind during summers



KEY PASSIVE STRATEGIES

The slope of the spiral slab on the south side helps to optimise the winter sun to penetrate in the structure.While in summers, the denser slab arrangement on the south side helps in providing shade. The double height slab arrangement helps receive the ambient light from north. Our module suggests to different ventilation strategies for both summers and winters. During the winters, the south west corridor acts as a thermal buffer, with the help of double layered sawdust composite screens. The porous nature of the 3d printed sawdust screens helps it hold more dry air, insulating the structure. Most of the ventilation during the winter is directed to the south and south west direction, while the windows in the north remain shut to protect from north east prevailing winds. During summer, the south west corridor facilitates evaporative cooling and cross ventilation. It receives the cool south west winds, which further expands to the larger volume of the structure. A central shaft helps in creating stack effect.



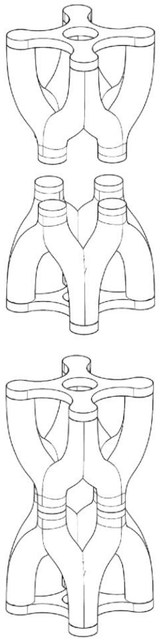
BEAM & COLUMN ARRANGEMENT

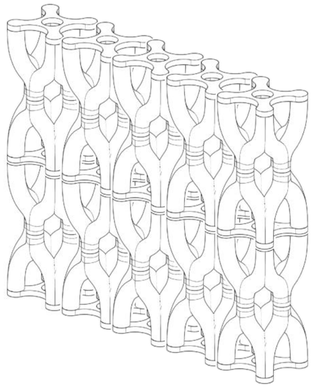
TIMBER FRAME WINDOWS

THE. MODULE

Static form informed by climate **flux**

The CLT columns and Glulam beams support the spiral profile of the Accessibility slab, Windows form the primary skin of the module. The secondary skin comprises of our fragment - a composite sawdust screen that aims to create thermal buffers within the architecture of the module.The screens facilitate evaporative cooling, insulation and other key passive strategies that respond to climatic flux.





FRAGMENT

3D Printed **Evaporative Cooling screens**

A parallel volumetric study also led to the development of the fragment - a form optimised to be mass printed and assembled to facilitate evaporative cooling.

The specific form and porosity of the material improve the potential pressure contrast between the screen and its surroundings, thereby expediting the cooling of air in summers and retaining dry air for insulation during winters.

2024

PORTFOLIO

Academic Arguments, Inquiries I **Professional Works**

My designs aspire simplicity, truth, and honesty. They commit to the promise of a sustainable & equitable future. With these aspirations, I intend to learn, contribute and grow. Thank you.

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