ANTI

[ARCHITECTURAL]

ANOMIE

MARTIN LEE

COLUMBIA UNIVERSITY - GRADUATE SCHOOL OF
ARCHITECTURE, PLANNING AND PRESERVATION

MASTER OF SCIENCE, ADVANCED ARCHITECTURAL DESIGN

[statement]

The following portfolio of architectural work is a final submission required for a Master of Science in Advanced Architectural Design from Columbia University's Graduate School of Architecture, Planning and Preservation.

[acknowledgments]

I would like to take this moment to acknowledge family, friends and mentors that have been instrumental in my career and growth as an architectural designer, writer and academic.

_ ryan
_ tony, jack
_ phyilicia
_ many more
_ scarlet, mckenzie, alexa
_ jerolim
_ chris
_ alison
_ marziah
_ states VI
_ lynn
_ states V
_ madison

anomie [noun]

an-o-mie \ ‘a-në-me’

: social instability resulting from a breakdown of standards and values

also : personal unrest, alienation, and uncertainty that comes from a lack of purpose or ideals

_ normlessness

_ social disconnection

_ increased individualism

_ risk or deviance

Anomie occurs when the norms that usually regulate behavior become unclear, weak, or absent.

Anomie leads to a breakdown in social cohesion.

Anomie can cause an increase in individuals feeling disconnected or adrift.

Anomie can occur on different scales : from a broader societal level during times of rapid social change _ to economic upheaval _ to a more personal level where individuals experience a loss of direction or purpose due to shifting social norms or life circumstances.

anti [architectural] anomie [approach]

an·ti ar·chi·tec·tur·al an-mo-ie \ an-tï är-ke-’tek-che-rel a-në-me

: a state or strategy implemented via architectural mediums
that aims to counter or prevent anomie within a society

: a condition or approach referring to a state of societal
or individual stability characterized by clear and
resilient societal norms and strong social cohesion

_ social cohesion & integration

_ social cohesion & integration

_ institutional resilience

_ collective purpose and meaning

_ adaptive societal structures

Anti architectural anomie serves as a protective (built) framework

Anti architectural anomie aims to destabilize disingenuous and exploitative socio-political forces

Anti architectural anomie helps to prevent societal rigidity leading to greater divides in various social factions

An anti-anomie condition of architecture represents a state of societal equilibrium characterized by strong norms, social integration, collective purpose, and adaptive institutions. It serves as a protective framework against the destabilizing forces of anomie, fostering resilience and well being at both societal and individual levels.

part 1 : DOING

1.1

PLANT-BASED DATA CENTER

PAGES: 6-8

Summer semester studio project researching current structures and shortcomings of data centers to instead propose a new prototype of storing data via plant DNA amino acid chains.

1.2

TRANSNATIONAL RESEARCH STATION

PAGES: 9-14

Fall semester studio project establishing a cross-border environmental research station between Norway and Russia along the Pasvik River assessing pollution sources via sediment extraction.

1.3

REBIRTH OF A NOITE

PAGES: 15-21

Spring semester studio project aimed to reimagine the historic newspaper headquarters of A Noite as a dynamic hub for the dissemination of information and cultural expression for Afro-Brazilian populations across Rio and beyond.

part 2 : MAKING

2.1

RAMMED EARTH x COB ARCHES

PAGES: 23-26

Building technology sequence project investigating the compressive strength of rammed earth and cob as concrete alternatives for more sustainable material construction methods.

2.2

ADAPTIVE SHELVING SYSTEM

PAGES: 27-29

Building technology sequence project designing a modular, flat-pack shelving system with various architectural fenestration and accessory elements for customizable, flexible user-based needs.

part 3 : WRITING

3.1

MIND EXPANDER / FLYHEAD HELMET

PAGES: 31

Investigative and analytical writing on Haus-Rucker-Co's Mind Expander / Flyhead Helmet project, aiming to expand transcalar ideas on the project and its impact and commentary on society.

3.2

GASTON BACHELARD'S THE POETICS OF SPACE: EXPERIENTIAL DUALITIES OF REAL AND IMAGINED WORLDS

PAGES: 32-37

Final research paper investigating and analyzing Gaston Bachelard's The Poetics of Space as a piece of architectural theory.

3.3

KAROLA BLOCH'S CHILDCARE FACILITIES: ANALYZING MATERIAL-FEMINIST LEGACIES

PAGES: 38-41

Final research paper analyzing the impacts of Karola Bloch and material-feminism ideologies on childcare facility design in postwar socialist European states.

CONTENTS

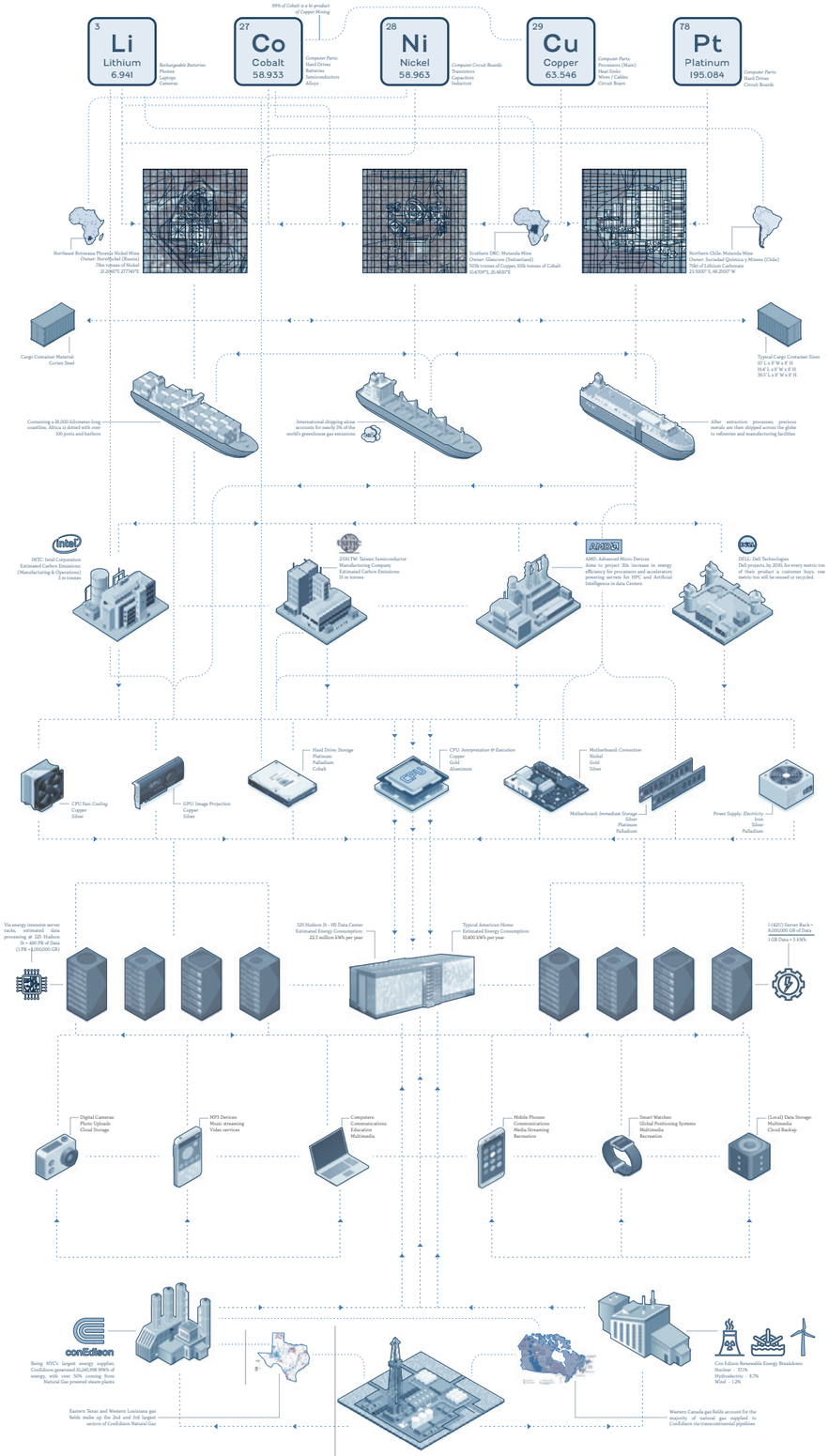
part 1 : DOING

1.1

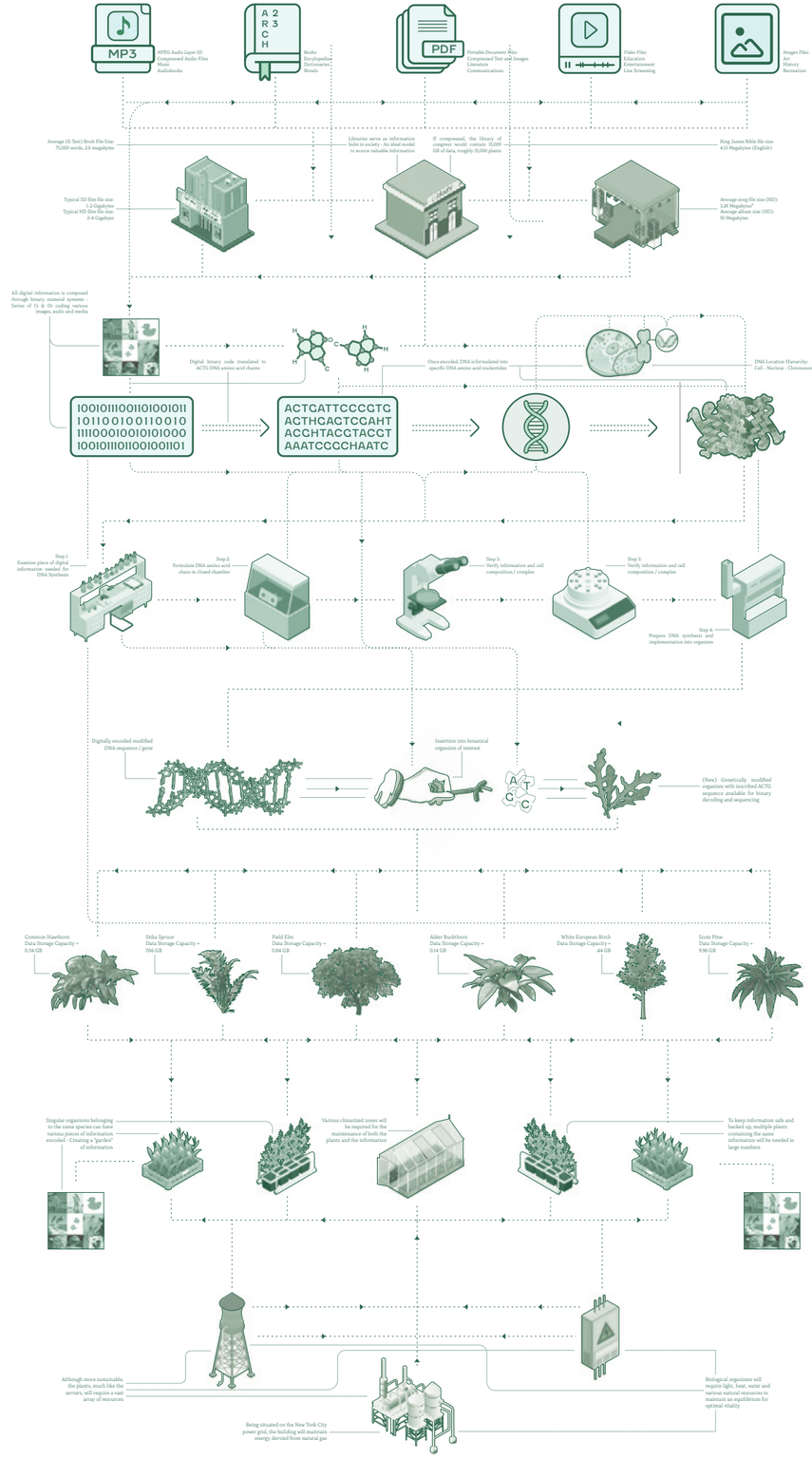
PLANT-BASED DATA CENTER

BASIS: INDIVIDUAL PROJECT
COURSE: ARCH 4853A
PROFESSOR: URIEL FOGUE

Data centers currently have an immense impact on the environment through a variety of processes and scales. From severely damaging extractive methods necessary to obtain the required materials for their construction, to their colossal operational energy requirements, these clouds of computation are rather toxic. Instead, what this project proposes is a new type of data center that uses the inscription of binary, digital information into plant DNA. This technology is not entirely novel as the amino acid chains within DNA serve as one of the most efficient forms of storing information, biologically or digitally. By housing various types of plants and using the heat from servers to create adequate greenhouses, the building acts a new prototypical data center for this potential technology and research. This is done through a series of supplementary spaces such as labs and research offices that would allow for users within the building to archive data within plants for long term storage. In doing so, the project aims to question not only the longevity of our current acceleration to a more digital society, but also how we would potentially take care of our surrounding ecologies, knowing they could possibly hold various types of information that could help prolong and sustain human life.

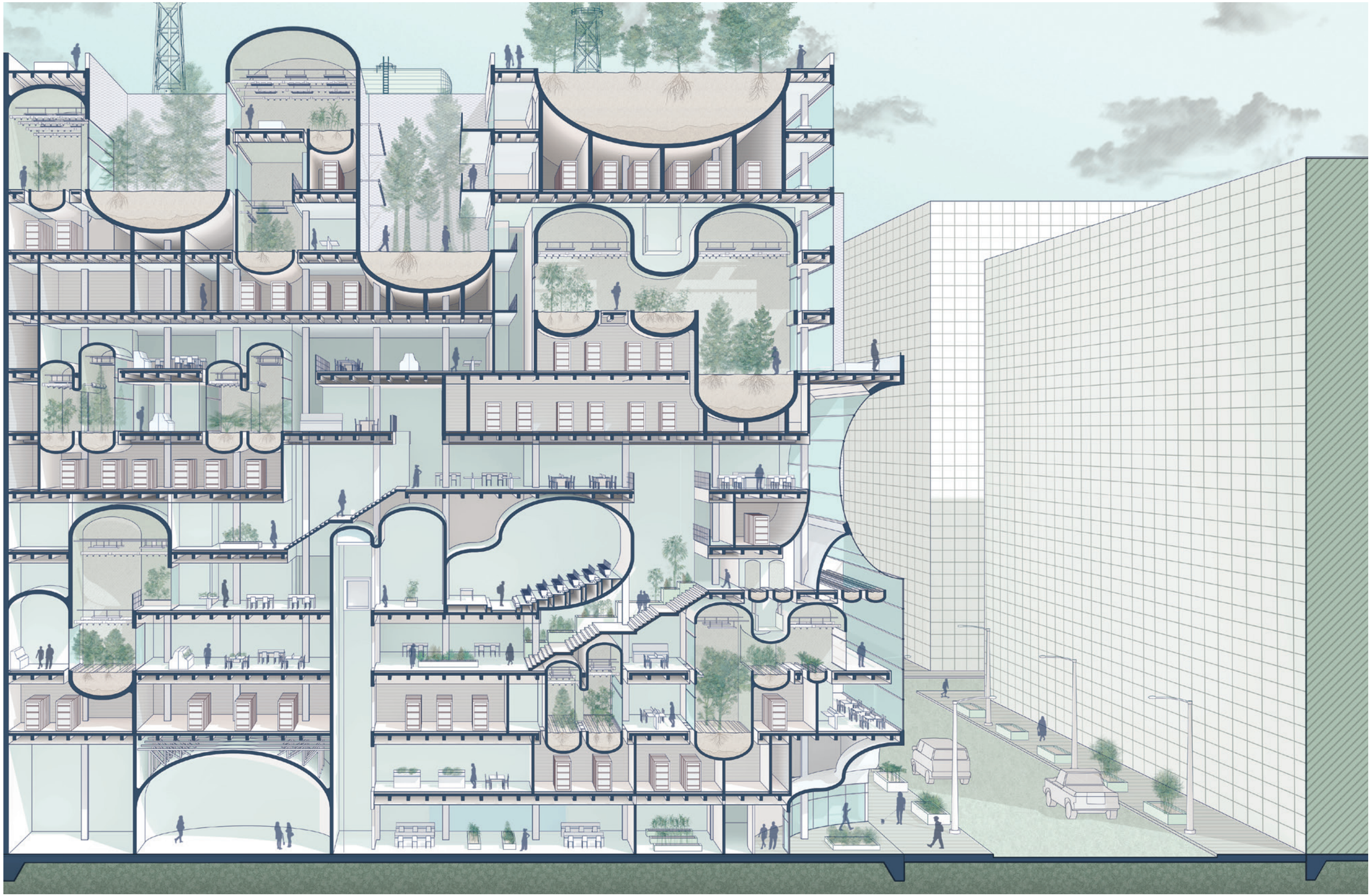


CURRENT STATE:
THE CLOUD & ALGORITHMIC TOXICITY



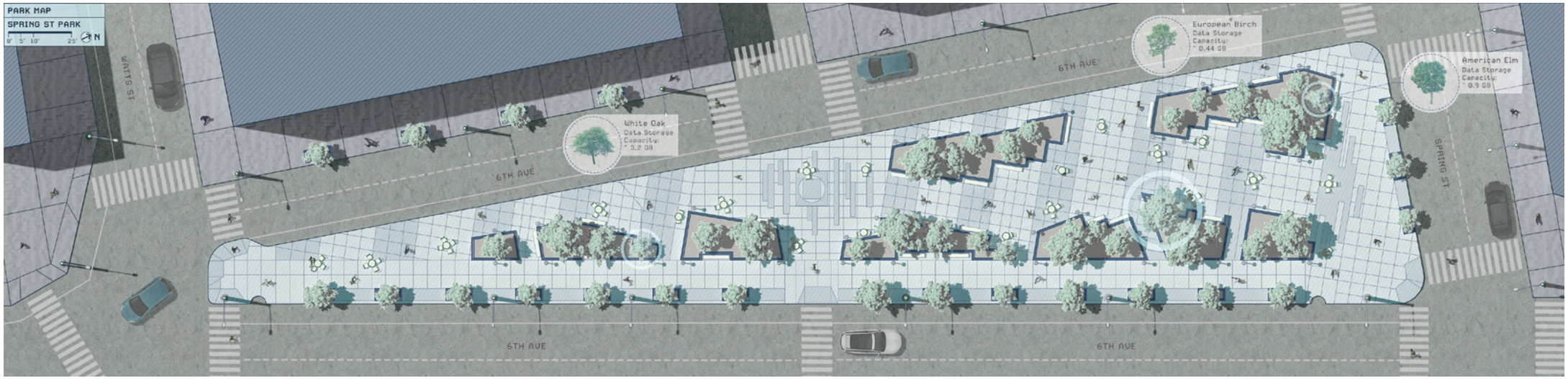
PROPOSED PROTOTYPE:
BOTANICAL DATA STORAGE VIA PLANT DNA

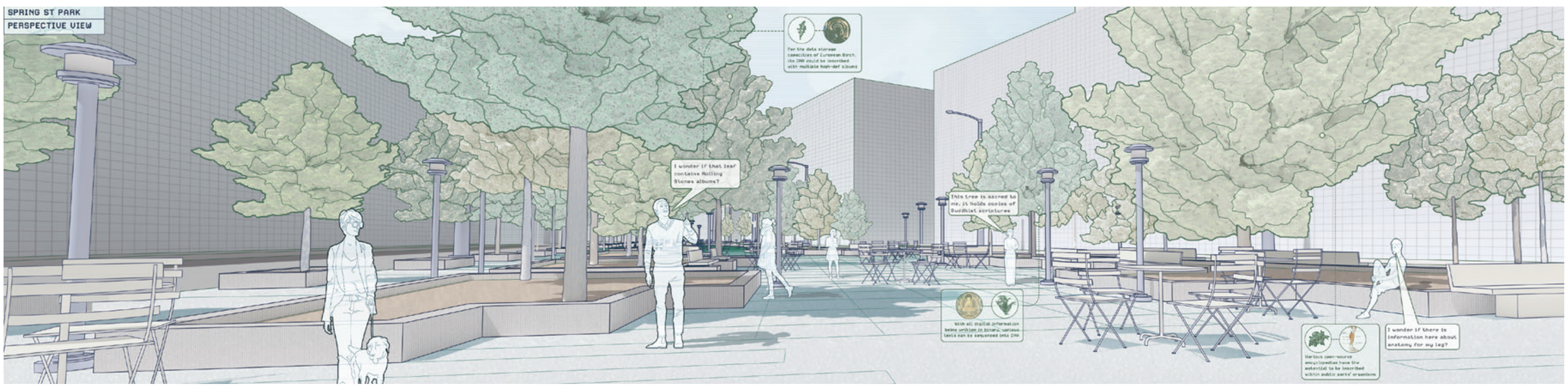
SECTION PERSPECTIVE



By using such aforementioned technologies, there is the potential for information to be lost if the subsequent plant or organism becomes deceased. Thus this begs the question, what backup services would such bio engineered plants need? Using the closest nearby park, Spring St Park, the species of trees are also proposed to have information inscribed within their DNA.

Through examining the various species of trees that already existed on site, data files of up to six gigabytes can be stored in any of the over 50 trees in the urban landscape, effectively becoming a continuum or extension of the proposed new data center prototype.





By providing such information technologies to rather natural elements, the goal in doing so is to start to question or challenge the way in which we could see the potential of certain ecologies beyond their typical benefits. How would one choose to protect a natural space knowing it contained information that was sentimental or even sacred?

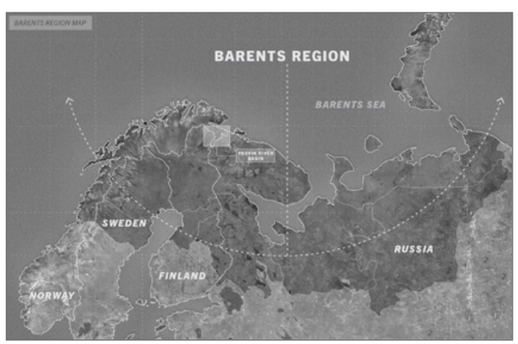
1.2

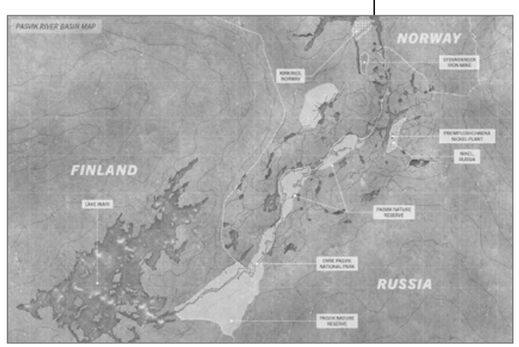
TRANSNATIONAL RESEARCH STATION

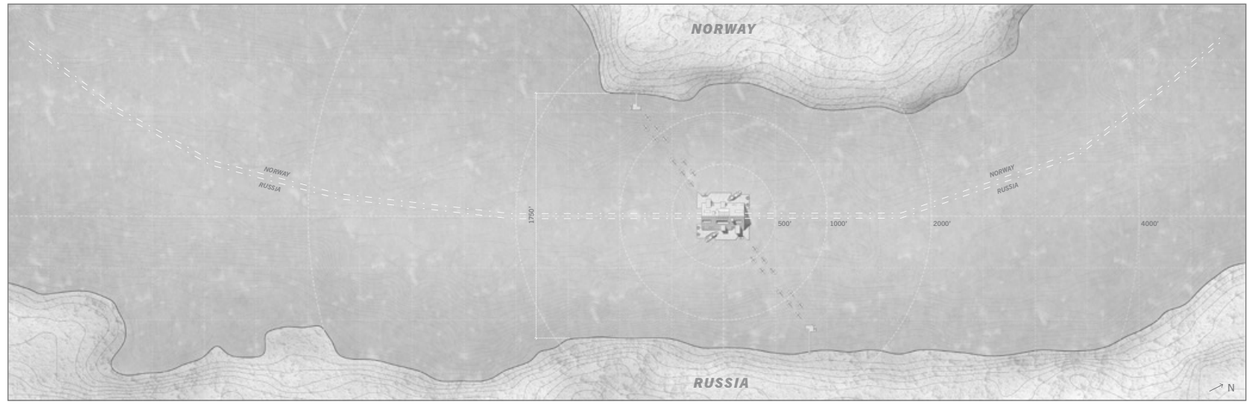
BASIS: INDIVIDUAL PROJECT
COURSE: ARCH 4005A
PROFESSORS: LESLIE GILL & KHOI NGUYEN

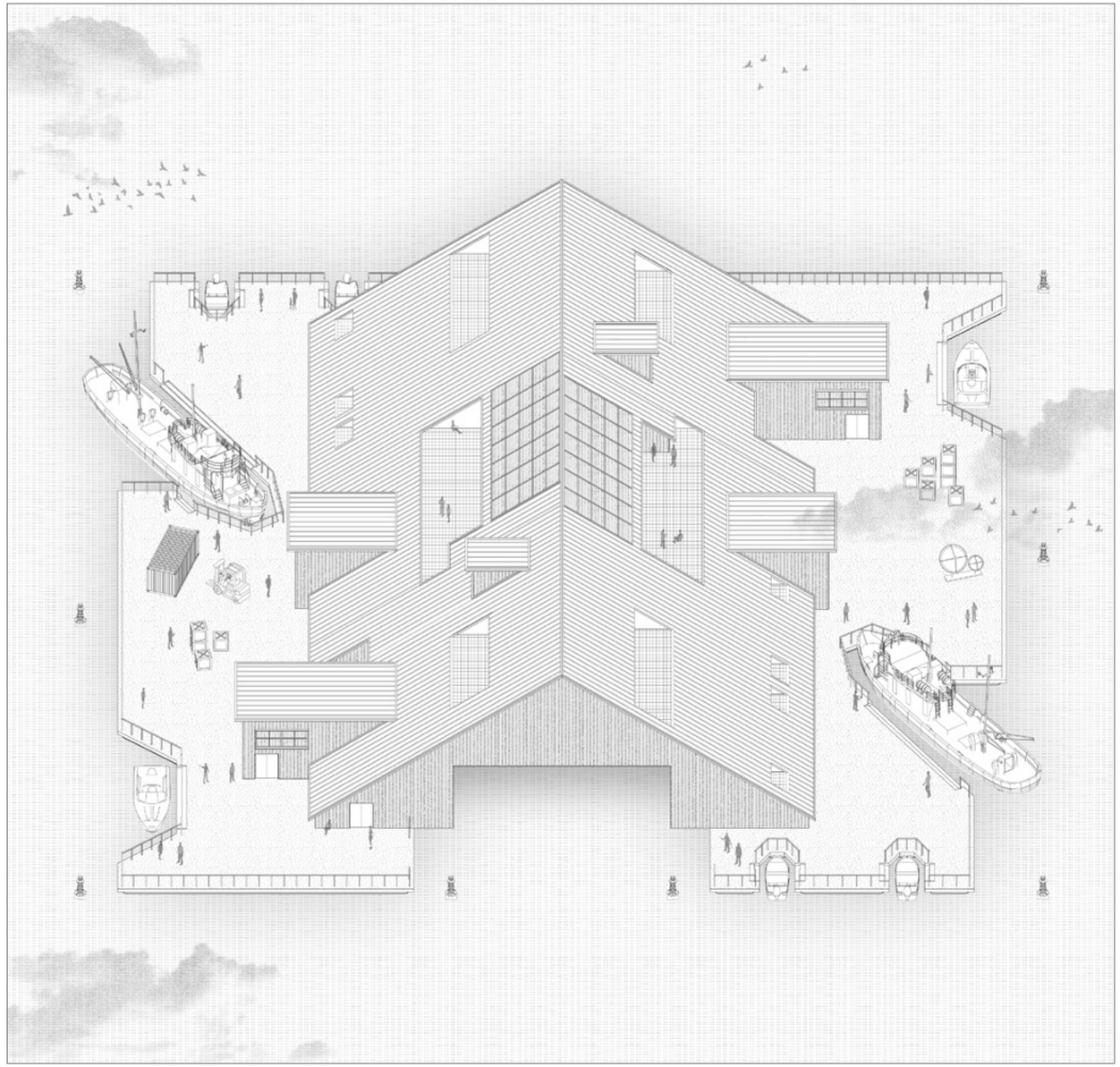
The transnational research station focuses on regionalism within the Arctic Circle, specifically along the Pasvik River, as it serves as the natural border between Norway and Russia. Previously, there has been diplomatic relations between the Nordic European states and Russia. However, due to Russia's recent political volatility, there ceases to be cooperation between the group, specifically between Norway and Russia. Therefore, what the project proposes is a research station that straddles the border of both countries, floating in the middle of the Pasvik River on a dual barge like structure. The goal in doing so is to use the river as natural medium for trans-boundary research so as to catalyze new political cooperation and the subsequent creation of respective soft power via environmental examinations and the production of knowledge. Crossing various forms of pollution along its route, the River aims to be a sediment extraction research station, as sediment and its benthic organisms serve to be one of the greatest indicators of a body of water's health. In doing so, the overall program and various social spaces aim to start anew cross-border conversations surrounding this medium of environmental research and the future potential protection and regulations needed, thus creating a stronger framework for future diplomatic relations.

SITE LOCATION: PASVIK RIVER - NORWAY/RUSSIA BORDER
PROGRAM: ENVIRONMENTAL RESEARCH STATION
SIZE: 31,500 SQ FT - 2 STORIES









SEDIMENT EXTRACTION TO FUTURE DIPLOMACY

As the shape of benthic organisms along the Pasvik riverbed is manipulated by the type of environmental pollution they reside in, the research station serves to provide indices on what is affecting the river's health and the subsequent sources of such via testing methods. By providing the adequate program of spaces seen on the following pages, the structure and its users are the first step in spurring diplomacy between Norway and Russia as with the River being the border between the countries, each party has a greater incentive to work together for future environmental protections.



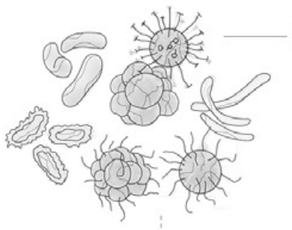


33 As Arsenic 74.921

82 Pb Lead 207.2

Benthic Organism Research

Benthic organisms can be researched on a microscopic level as their shapes are morphed by sources of pollutants



Benthic Microbial Organisms

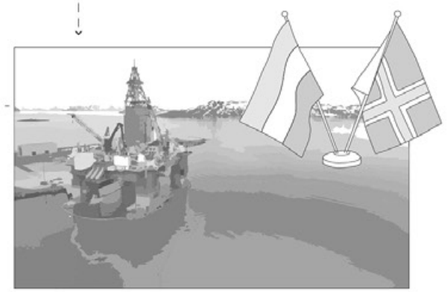
Benthic organisms are abundant in sediment sampling, and not only indicate the health of an ecosystem, but the biodiversity status as well

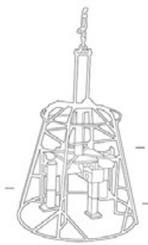


Environmental resarch on the Pasvik River and the subsequent recommendations made by scientists can catalyze soft power and diplomacy between Russia and Norway


Russian / Norwegian Delegates

With such newly instigated conversations between the two states, new regulations can be made as pollutants are not bound by borders

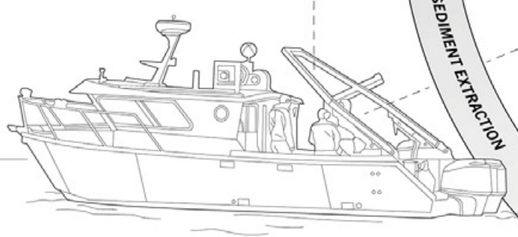




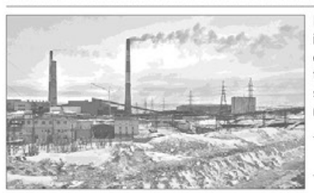
Sediment and benthic organisms lying on the riverbed are often the greatest bioindicators to a river's health, making sediment extraction paramount for pollution assessments

Mutli-Core Sediment Extractor

Sediment Research Vessel



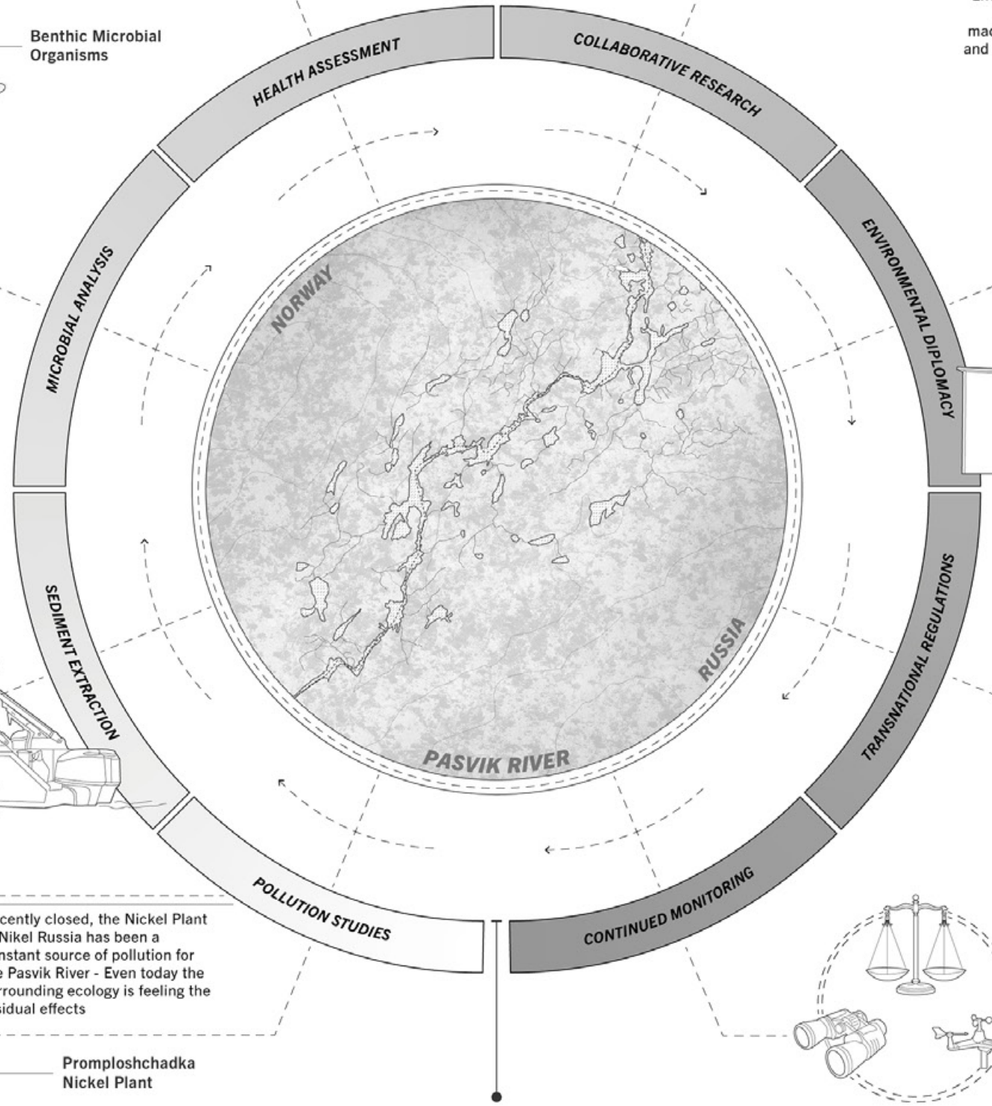
28 Ni Nickel 58.693



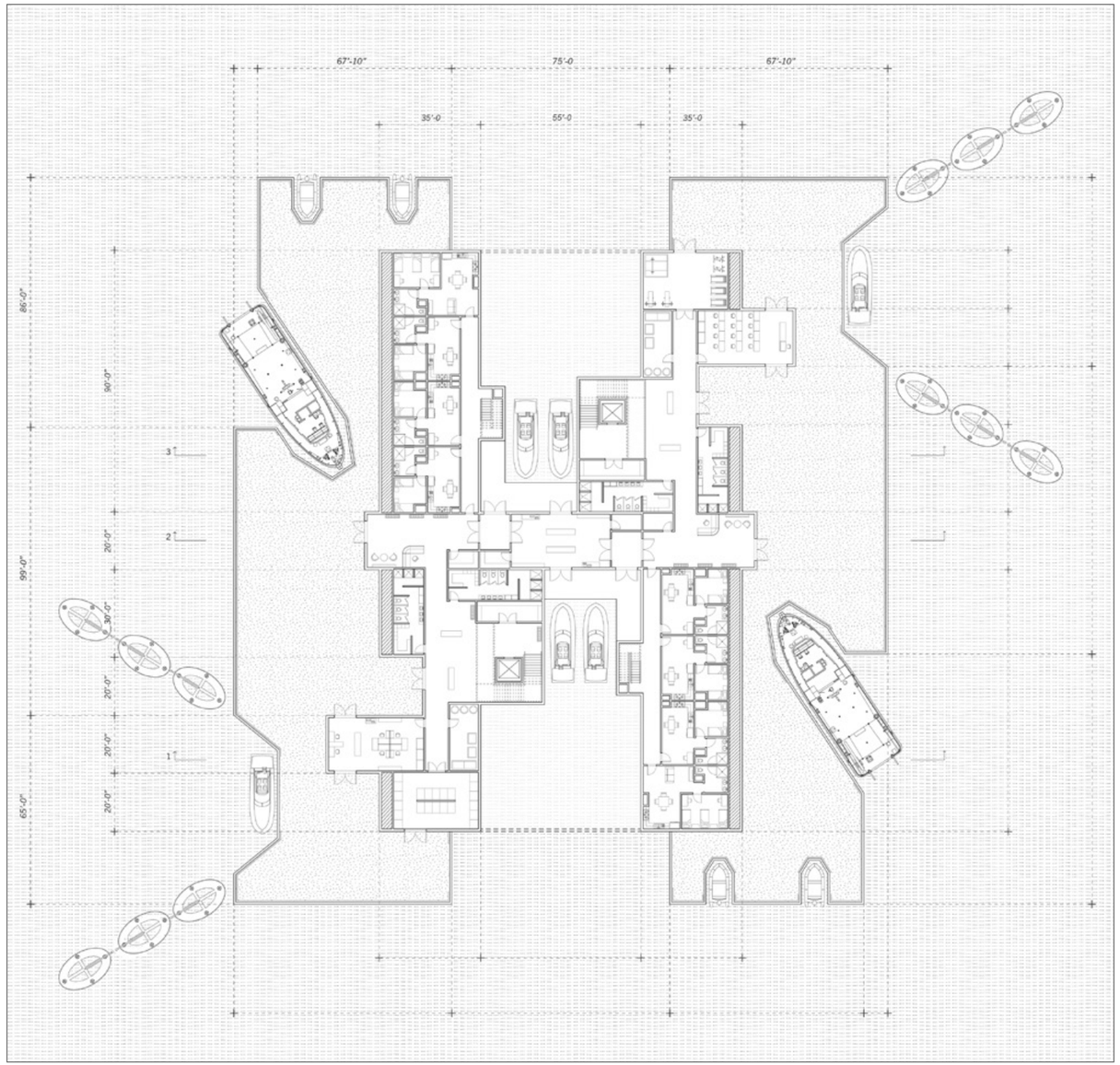
Recently closed, the Nickel Plant in Nikel Russia has been a constant source of pollution for the Pasvik River - Even today the surrounding ecology is feeling the residual effects

Promploshchadka Nickel Plant

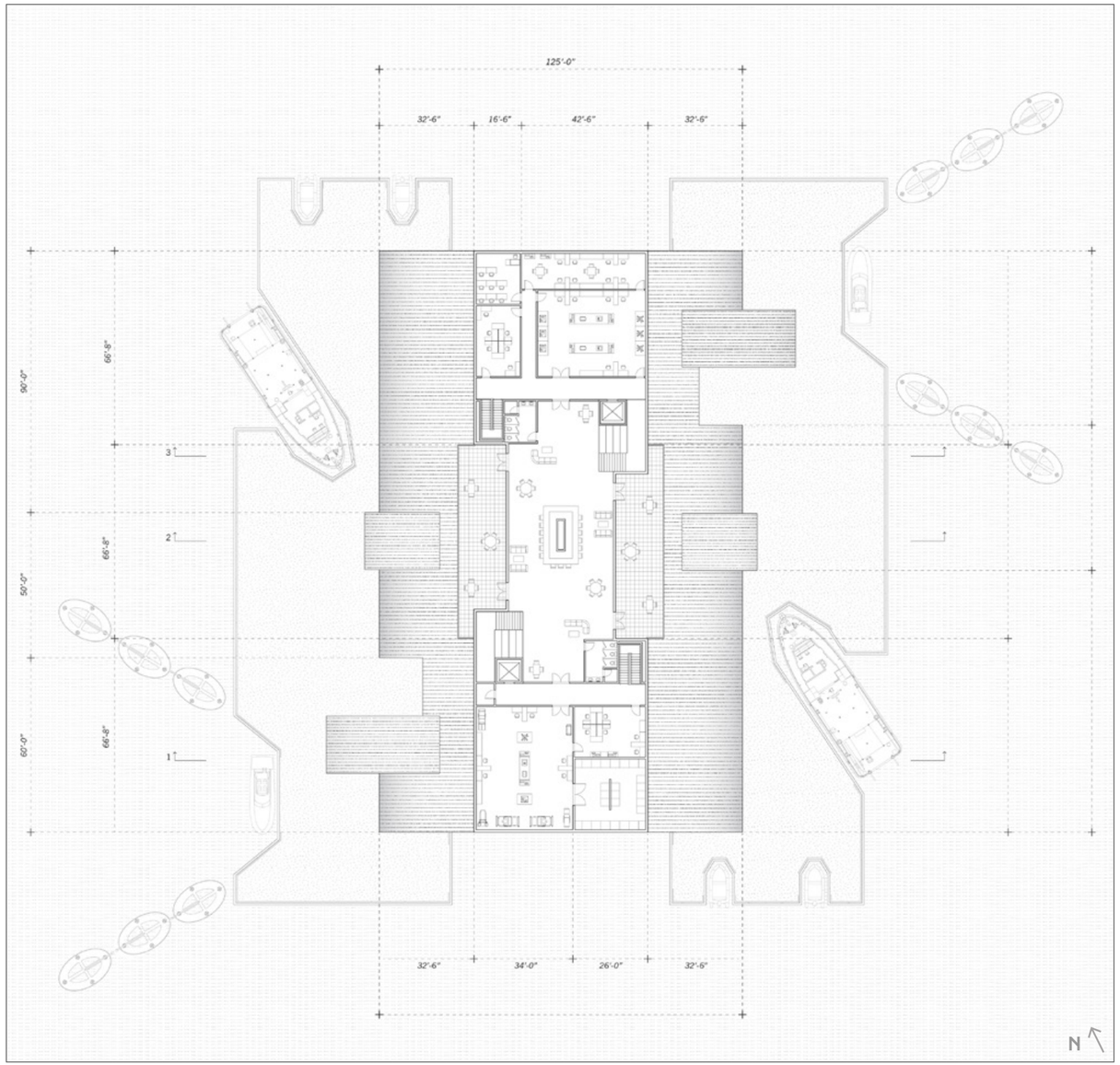
80 Hg Mercury 200.59



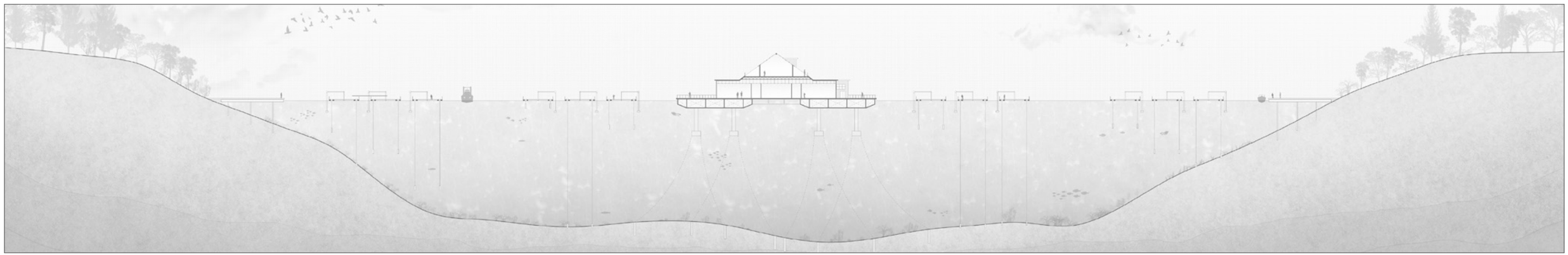
LEVEL 1 FLOOR PLAN



LEVEL 2 FLOOR PLAN

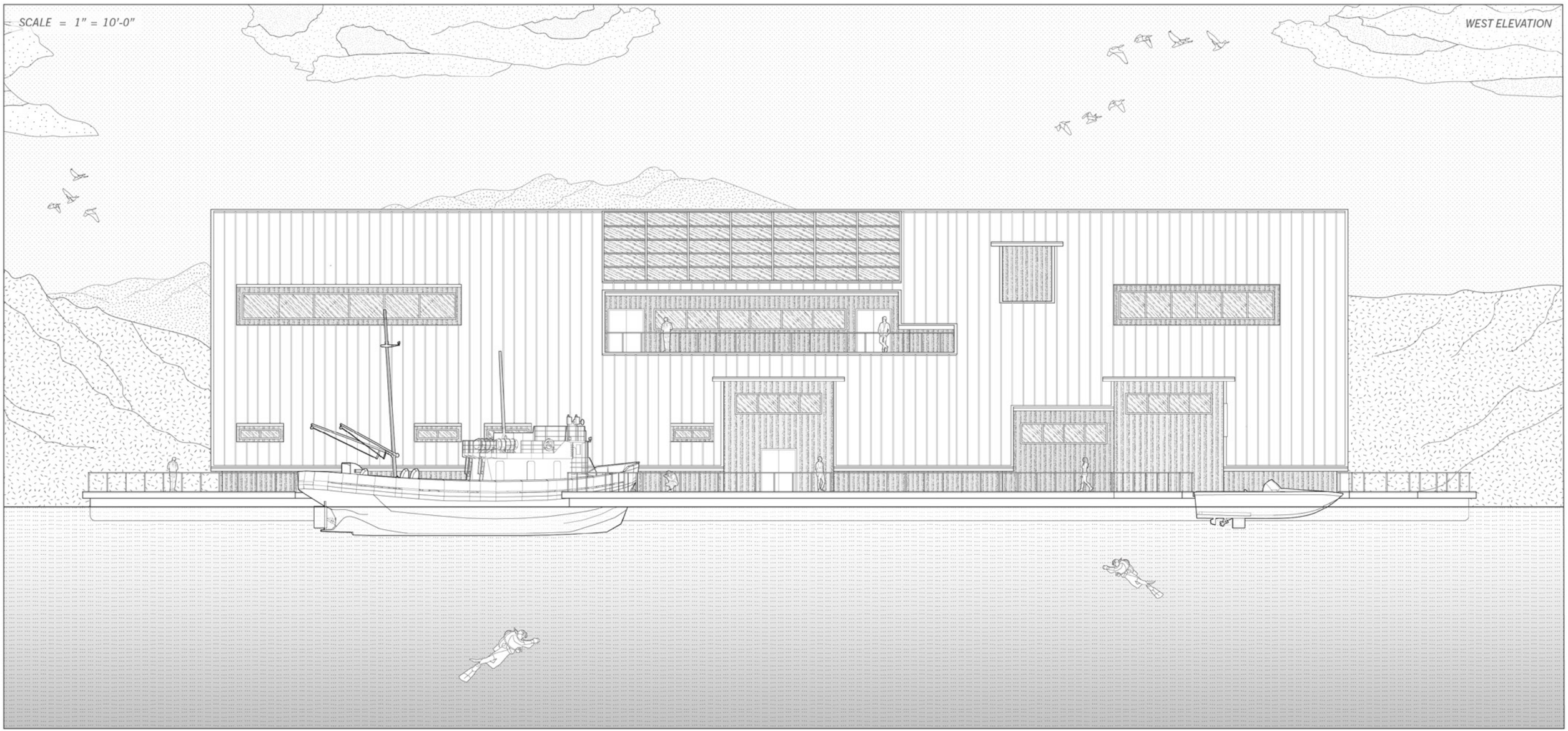


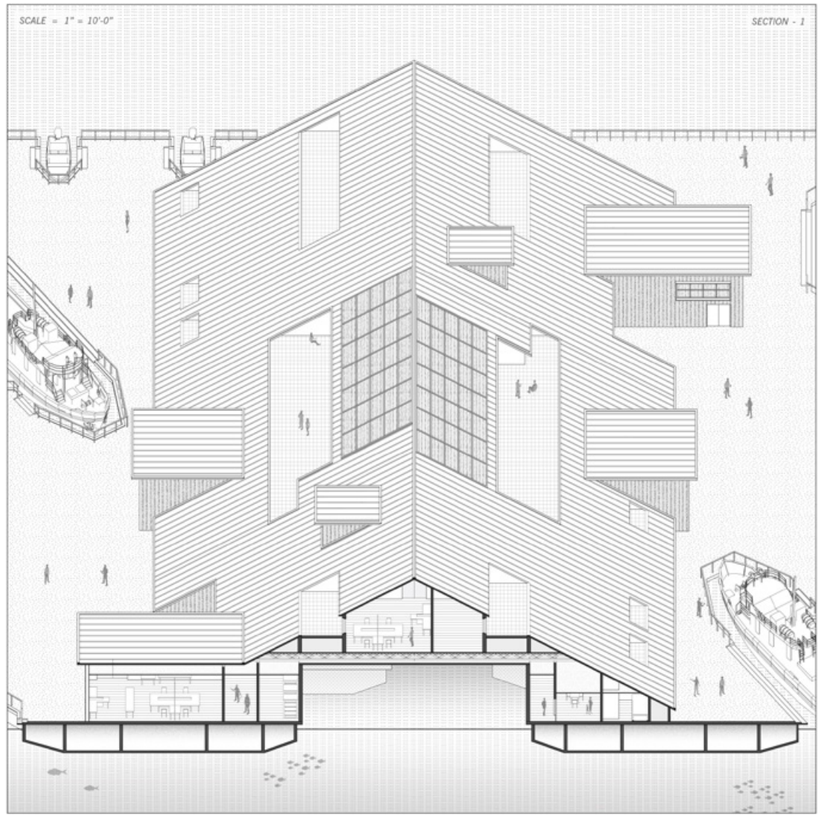
OVERALL SITE SECTION

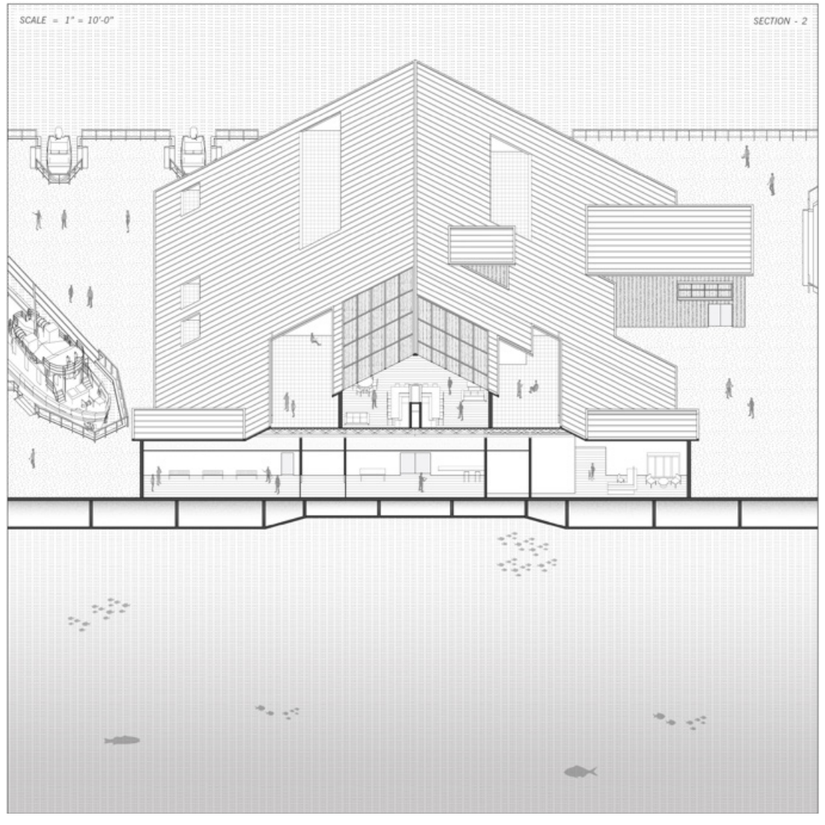


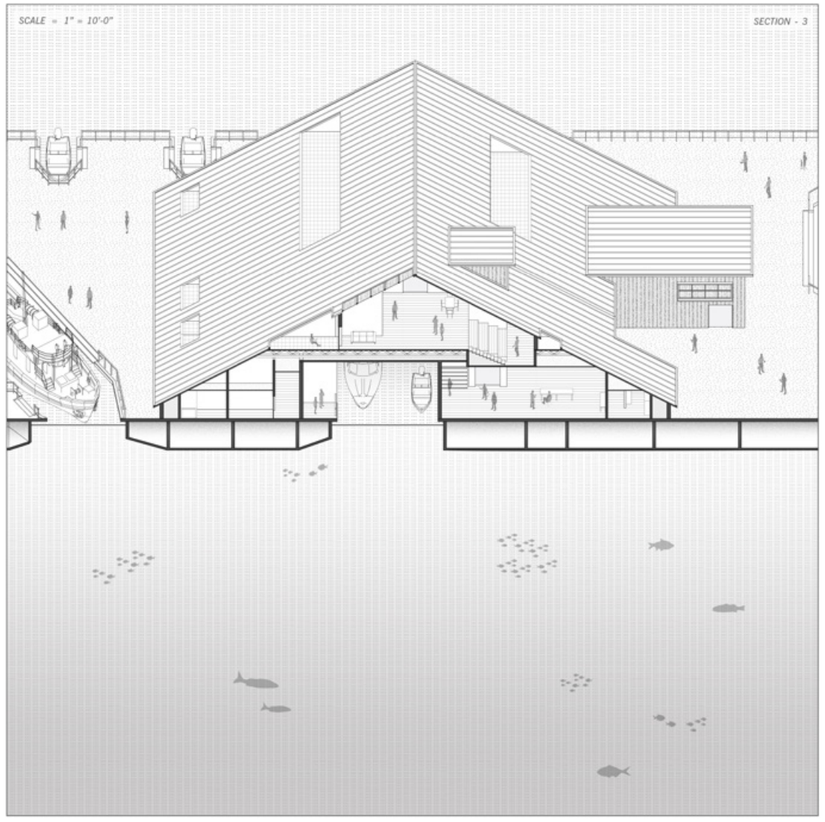
SCALE = 1" = 10'-0"

WEST ELEVATION




SCALE = 1" = 10'-0"
SECTION - 1


SCALE = 1" = 10'-0"
SECTION - 2

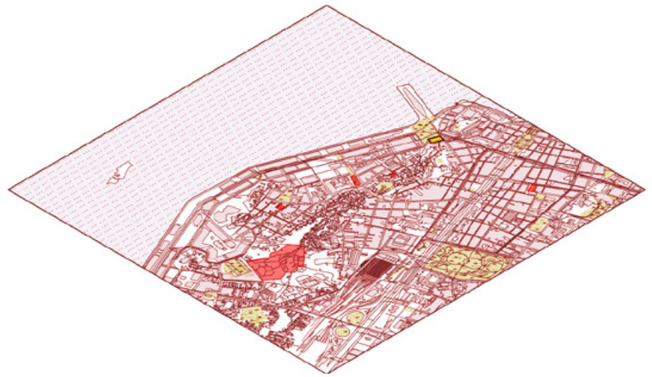

SCALE = 1" = 10'-0"
SECTION - 3

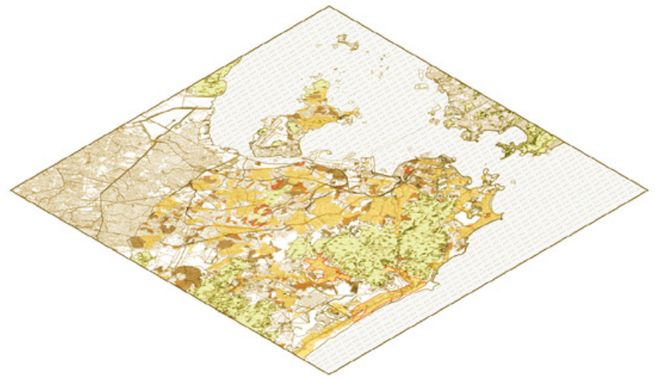
1.3

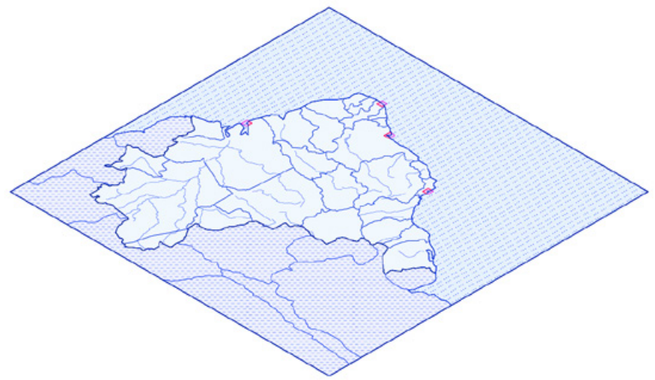
REBIRTH OF A NOITE

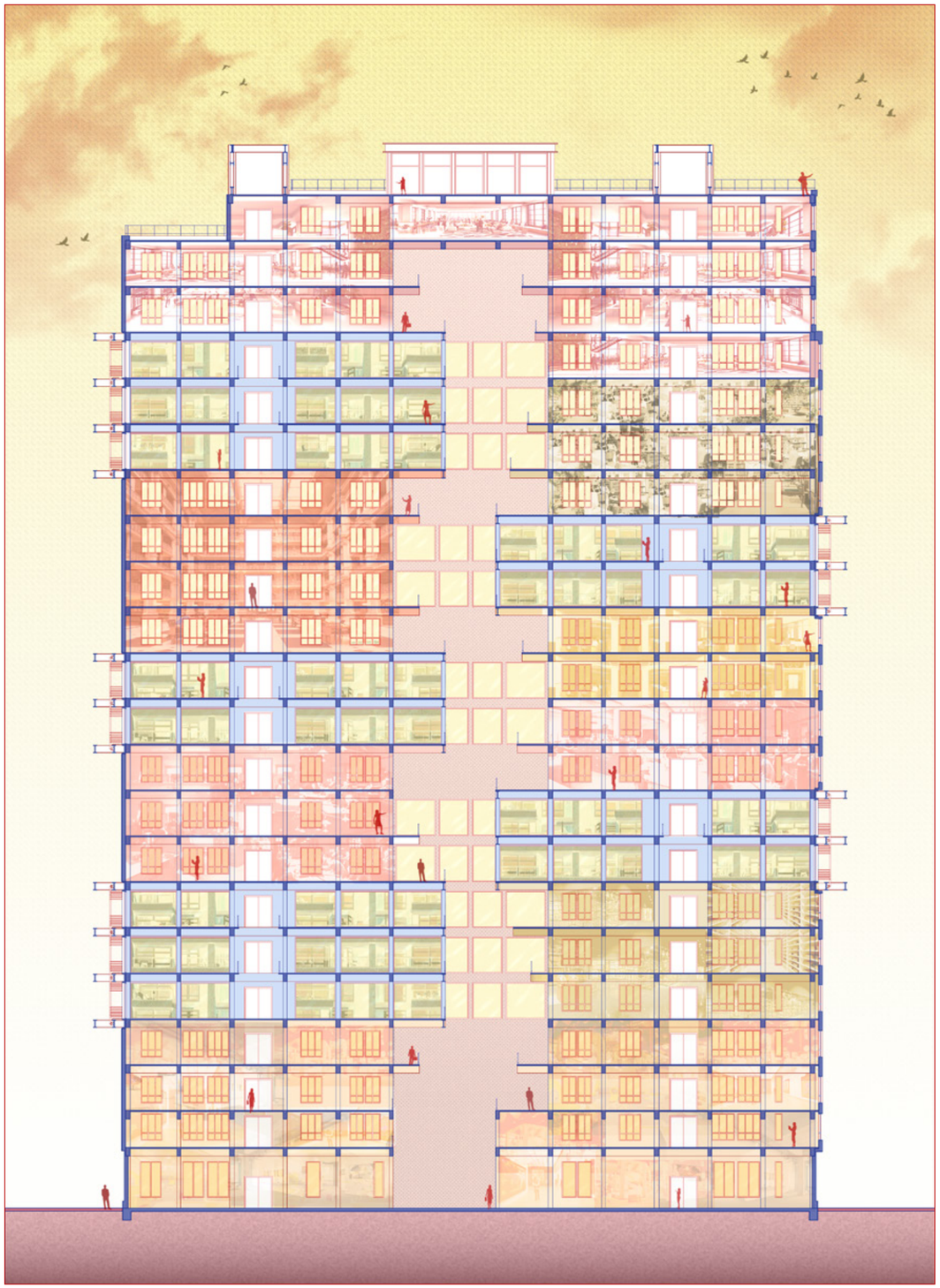
BASIS: INDIVIDUAL PROJECT
COURSE: ARCH 4106A
PROFESSOR: GALIA SOLOMONOFF

Located in the culturally rich city of Rio de Janeiro, the project re-imagines the historic newspaper headquarters of A Noite as a dynamic hub for the dissemination of information and cultural expression for Afro-Brazilian populations across Rio and beyond. Formerly a bastion of traditional media, this adaptive reuse initiative breathes new life into the structure, transforming it into a multi-functional space that celebrates Afro-Brazilian heritage and creativity. The redesign embraces the building's rich history as a disseminator of news and information, re-purposing it to amplify Afro-Brazilian voices and narratives. Inside, the space features artist residences, editorial offices, conservatories, and cultural exhibition areas. These carefully curated spaces serve as platforms for fostering dialogue, nurturing talent, and showcasing the diverse artistic and intellectual contributions of Afro-Brazilian communities. The vision for the project goes beyond architectural transformation; it embodies a commitment to social equity and cultural enrichment. By re-purposing this historic site, it aims to honor the past while envisioning a more inclusive future, where creativity and heritage converge to inspire and empower generations to come. This project symbolizes a progressive step towards amplifying underrepresented voices and nurturing a vibrant cultural ecosystem in Rio de Janeiro and throughout Brazil.



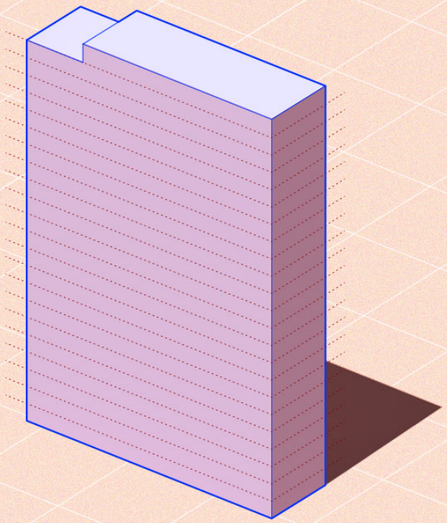






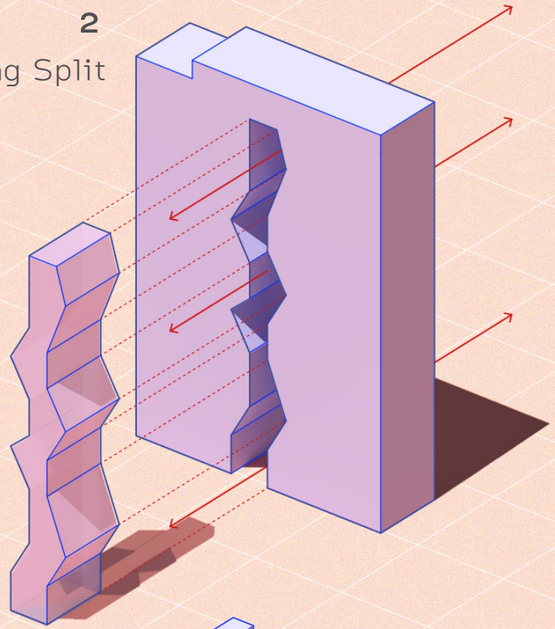
1

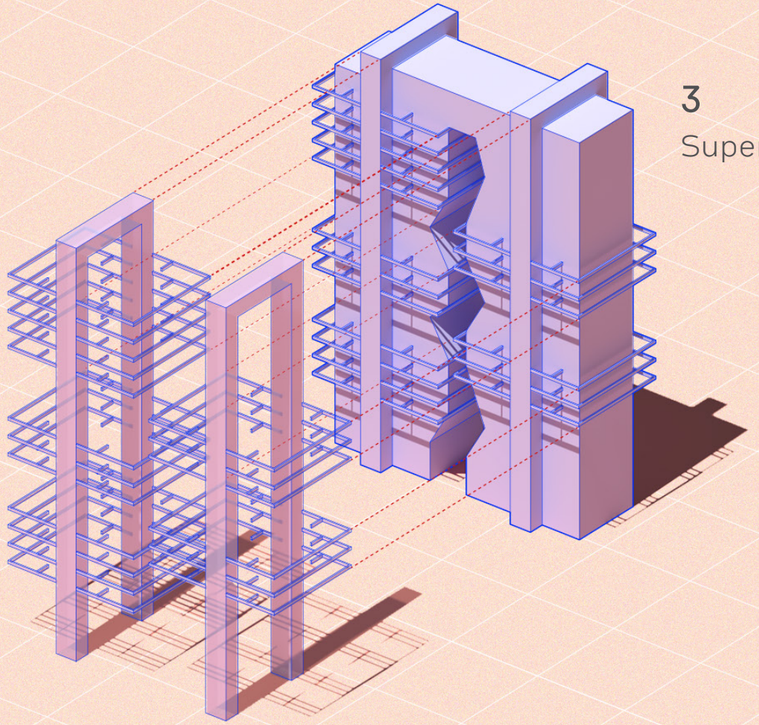
Base Massing



2

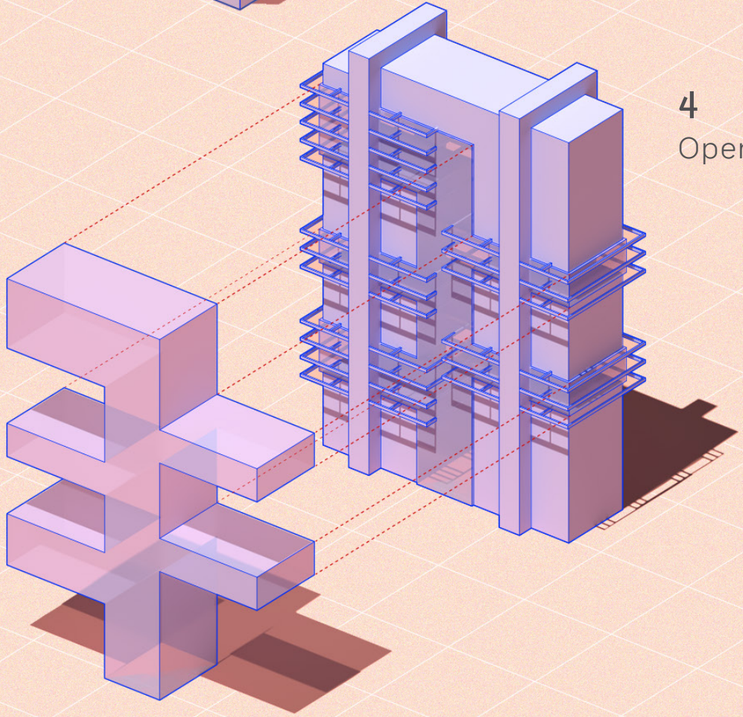
Building Split





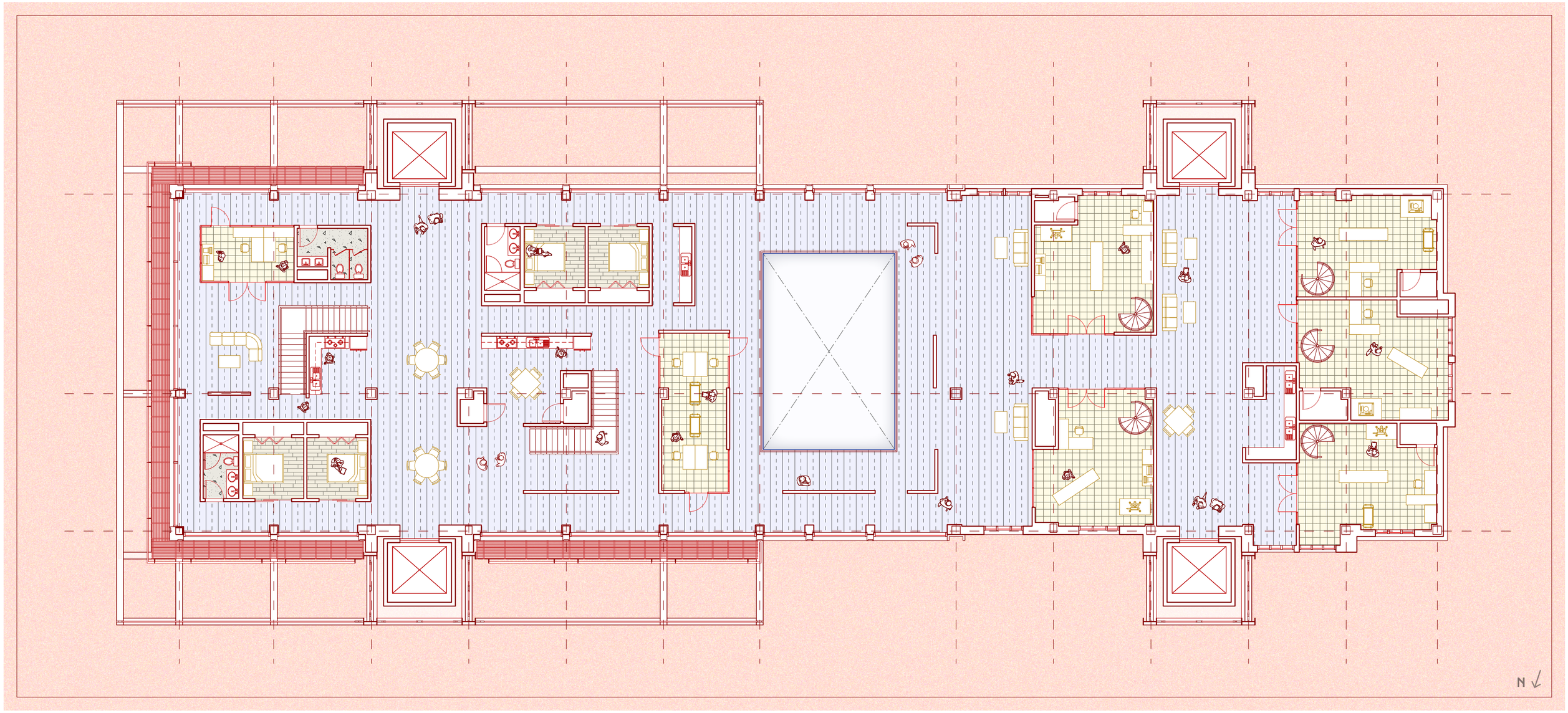
3

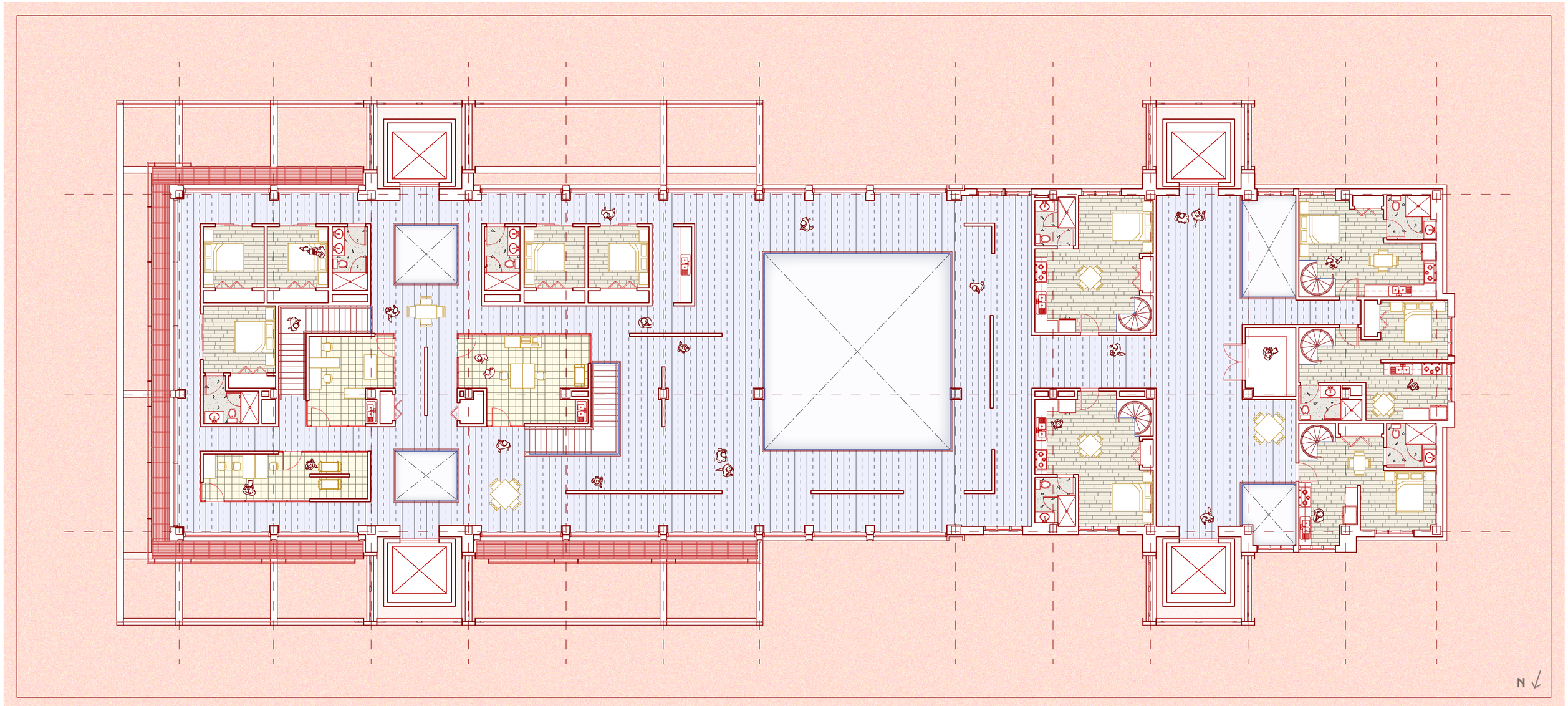
Super Structure

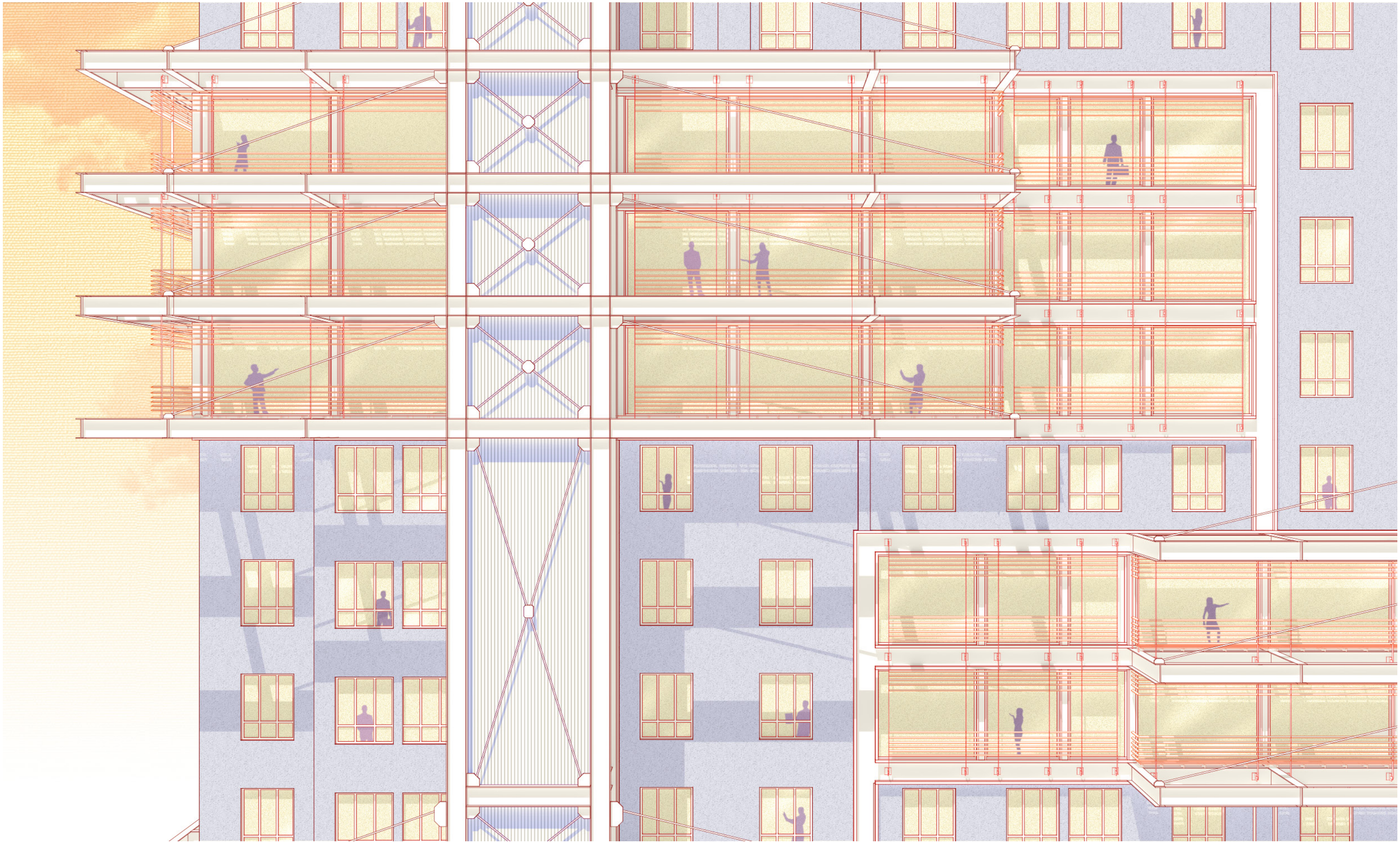


4

Open Fenestration


N


N



part 2 : MAKING

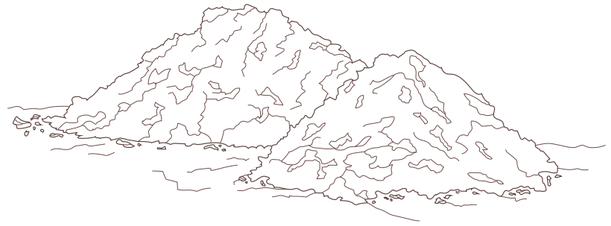
2.1

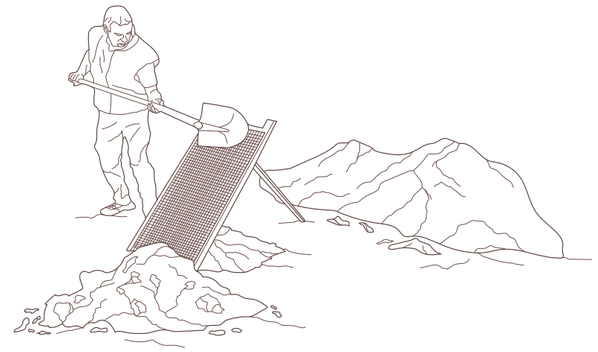
RAMMED EARTH x COB ARCH

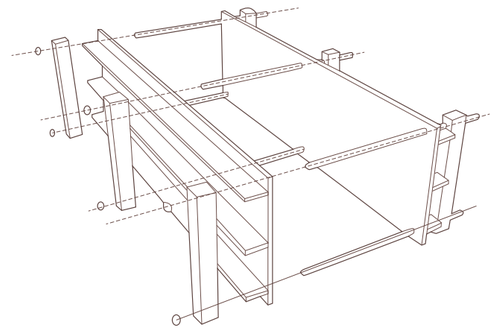
BASIS: PARTNER PROJECT - ADITYA MEHTA
COURSE: ARCH 6948A
PROFESSOR: MARTA HEISEL-WISNIEWSKA

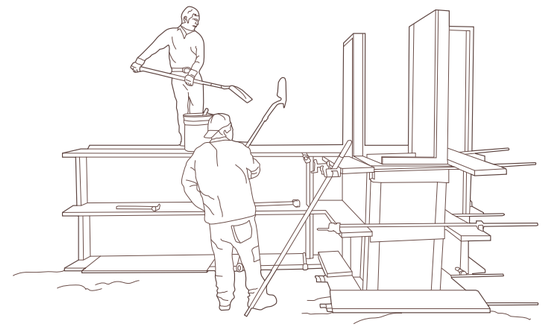
Investigating concrete alternatives in the realm and need for compressive strength, the project aimed to further potential applications of alternative, more sustainable building materials such as rammed earth and cob - two very low carbon intensive construction materials. In doing so, a catenary arch form was derived to test the compressive strength of the hybrid material system, as well looking at it to be an opportunity for aesthetic explorations of the material itself. Various prototypes and construction methods were conducted, using different composites and mixtures of the materials. After obtaining optimal, high-volume clay sediment from a local construction site near the university, a mixture was concocted using aspen straw and food coloring. To further the compressive strength analysis, a computational structural analysis test was preformed in order to derive where cob, the stronger compressive strength material would be placed. Seen in the adjacent and following photos, the cob material is blue, where the weak spots were indicated by the aforementioned stress tests. The black and blue materials are the rammed earth. Together, the project combined a narrative of structural analyses with aesthetic explorations, in order to maximize the material and its qualities in multiple capacities.

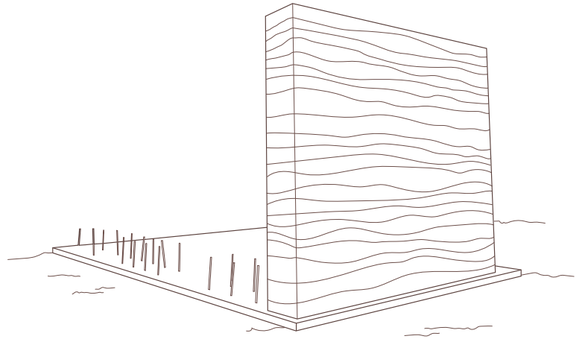
OVERALL RAMMED EARTH LIFE CYCLE DIAGRAM

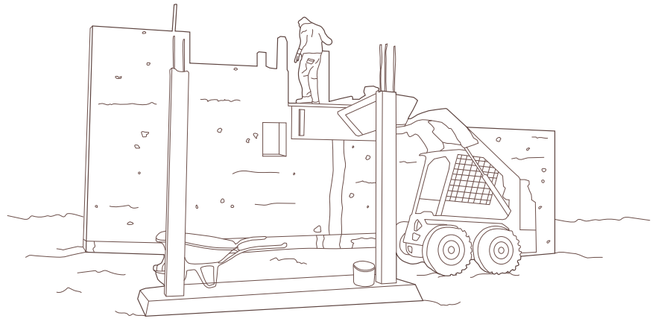




















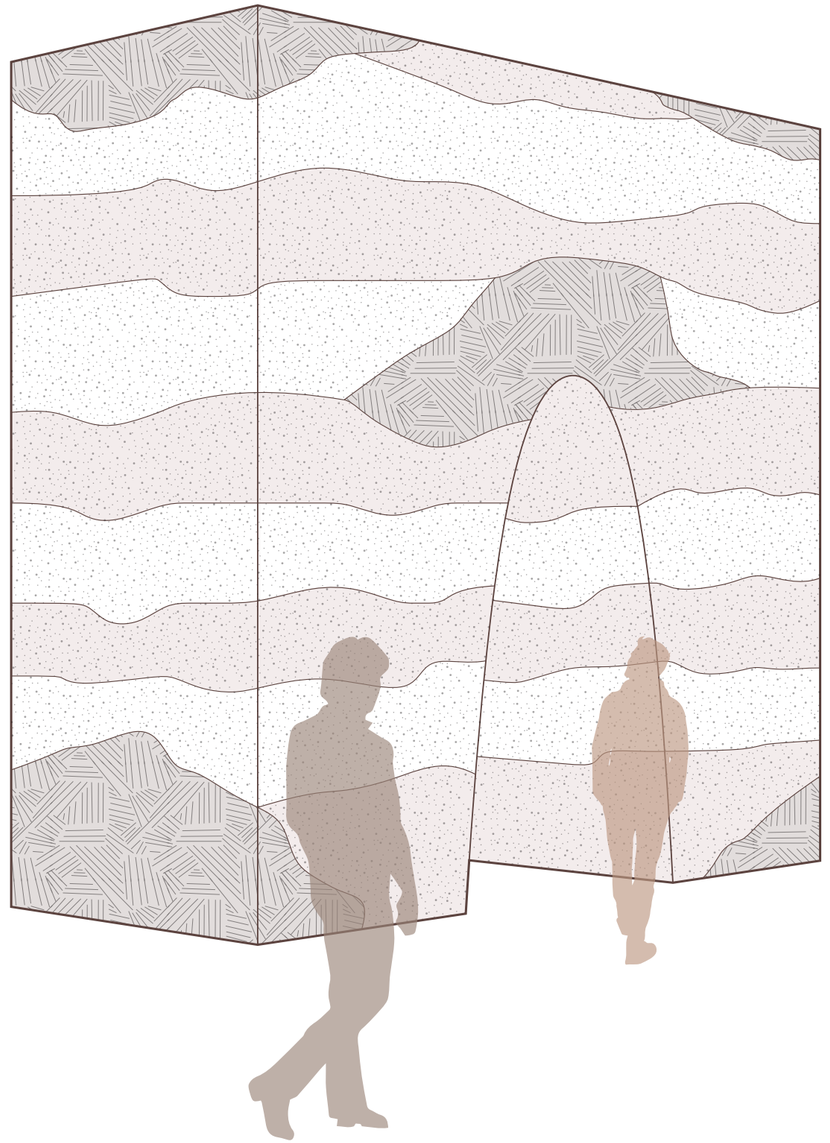









OR MATERIALS HERE

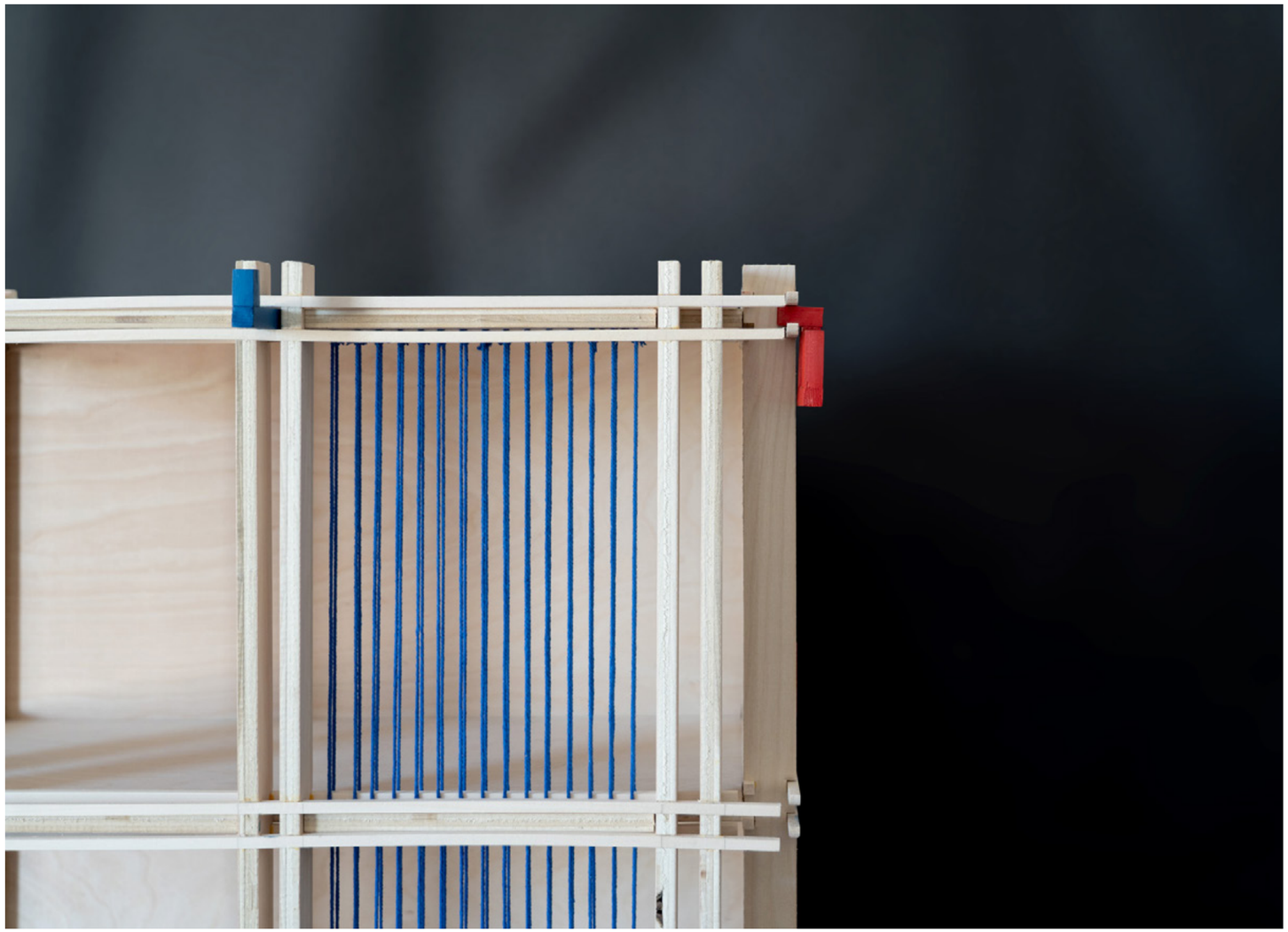



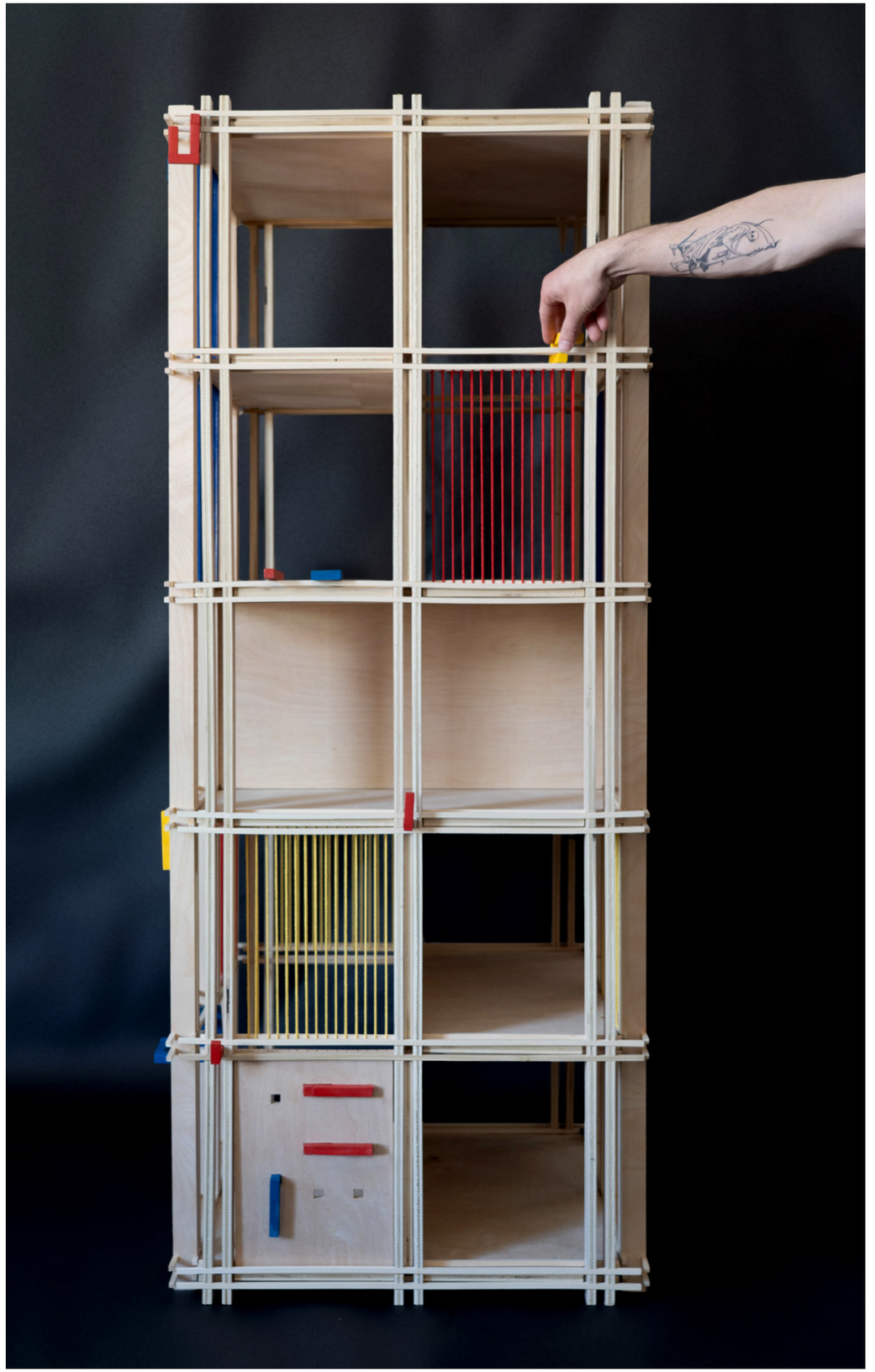
2.2

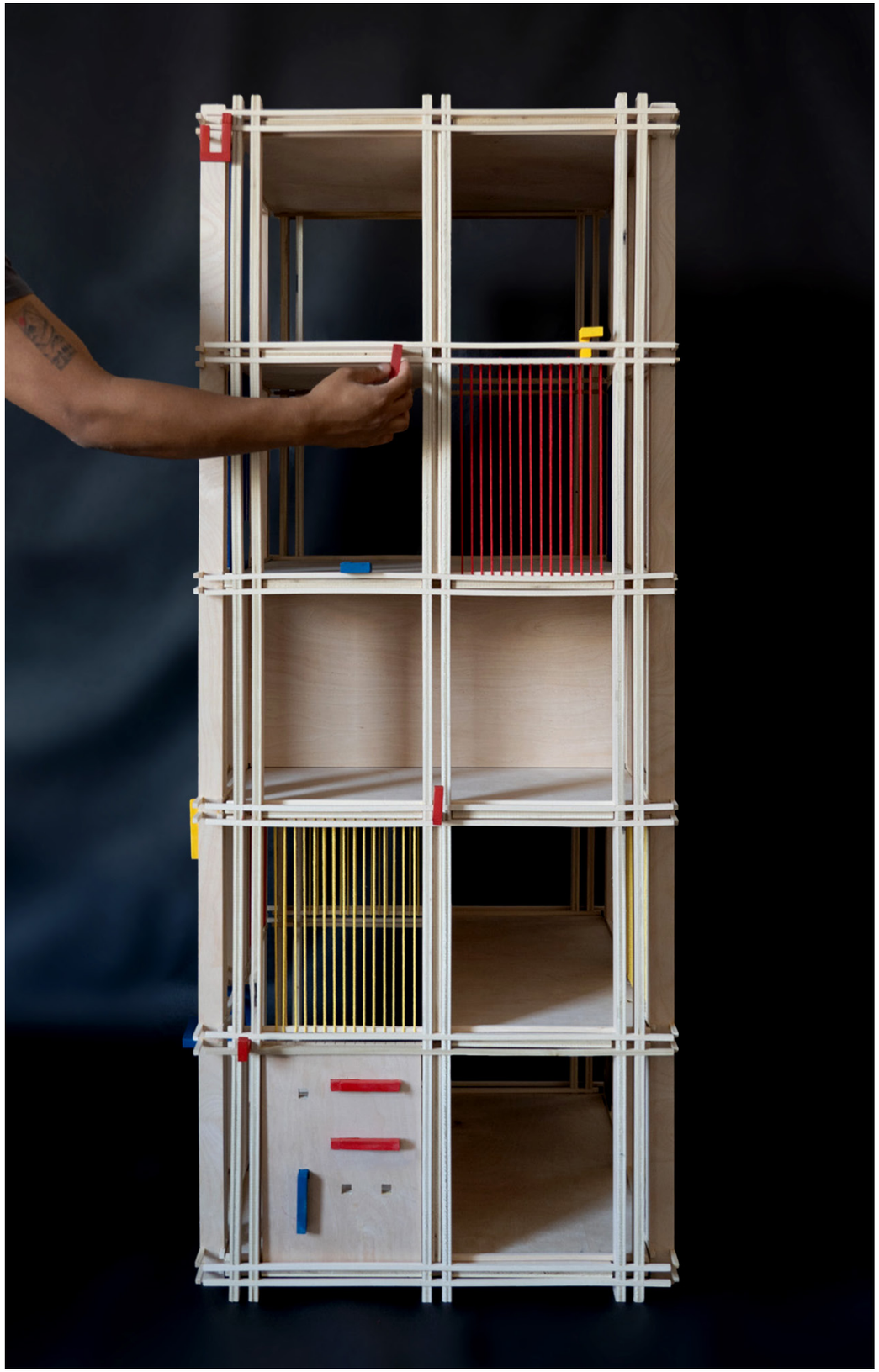
ADAPTIVE SHELVING SYSTEM

BASIS: PARTNER PROJECT - SONAM SHERPA
COURSE: ARCH 6892A
PROFESSOR: ZACH MULITAUAOPELE

As part of the 1 : 1 Crafting and Fabrication of Details course, the semester project entailed constructing a 5′ x 2′ x 2′ totem structure. Besides these dimensional requirements and various architectural elements within the system to be featured, students had complete liberty in design and fabrication methods. In doing so, our project is an innovative modular shelving system that pushes the boundaries of design with 1/2″ plywood, 1/4″ x 1/4″ square wood dowels and colored string. We focused on the art of composition through grids and reveals, employing precise dimensions and interlocking joints for structural integrity and aesthetic appeal. The shelving system features a range of modular components, allowing users to create customizable configurations accompanied with playful colored accessories that give users the freedom to deploy and use the shelving system as they deem fit. The system incorporates a grid-based framework, showcasing the beauty of intersecting lines and negative spaces. Our design emphasizes the use of interlocking joints using the square wood dowels, ensuring a seamless assembly process without the need for traditional fasteners. Through this project, we aimed to explore the interplay between form and function, encouraging users to engage creatively and playfully with their space. The minimalist aesthetic, coupled with the versatility of the modular units and primary colors, enables users to experiment with various arrangements, transforming their shelving into a functional piece of art.







part 3 : WRITING

3.1

MIND EXPANDER / FLYHEAD HELMET

BASIS: INDIVIDUAL WRITING
COURSE: ARCH 4402A
PROFESSOR: BART-JAN POLMAN

In the 1960s, as technology and media became increasingly pervasive, so ensued the rise of counterculture – a dynamic western subculture that celebrated experimentation and individuality. Like many others during this time, Haus-Rucker-Co, a trio of designers from Vienna, Austria emerged as a pioneering art collective aiming to challenge conventional notions of (western) society. Through visionary works such as the Mind Expander and the Fly Head Helmet, the group sought to explore the relationships between individuals and reality through the use of rapidly evolving technologies and materials of the time. By designing devices that allowed users to escape or alter reality, Haus-Rucker & Co straddled the line between satirical commentary and utopian visions of society, provoking profound questions about the human experience.

Through both the Mind Expander and the Fly Head Helmet, the projects serve as clear representations of a coalescence between architecture and the ‘‘drug-hippie’’ mentality so prevalent in the 1960’s.1 By distorting and expanding physical spaces through immersive colored plastic shields, the projects aimed to critique the manipulative tendencies of mass media, while simultaneously offering a stimulating, multi-sensory escape from reality as the devices were meant to be wearable or placed in direct proximity to the user(s). While the Mind Expander Chair II challenged individuals to question the influences that shape their thoughts and desires through swirling colors, hallucinogenic imagery and subtly coerced sexual interactions, the Fly Head Helmet delved into a utopian vision of society, allowing users to transcend their physical limitations and experience the world from a new, immersive first-person perspective. By granting users these unique viewpoints, both projects encouraged a dissolution of boundaries between the self and the other, provocatively questioning methods of implementing technology.

Through this technique of oscillating between a dystopian critique and utopian possibilities, the collective highlighted complex and ambivalent relationships between society, technology, and individual thought. Although the mediums of design were equally as important in their explorations, it is this oscillation and the ambiguous unknowing of which side Haus-Rucker-Co. stand which makes their works so stimulating. It makes one question the true agendas of various cultural media while also making one question their own participation in such mediums. Whether it is coercion, control, or even an analogized hypothesis that psychedelic hallucinogens formed new pathways in the brain, they undoubtedly embodied the fluidity of the counterculture in which they belonged.

Haus-Rucker-Co’s Mind Expander and Fly Head experiment pushed the boundaries of human perception and challenged conventional notions of what it means to be human. By designing devices that allowed users to escape or alter reality, the collective further questioned the very essence of the human condition. Through the Mind Expander, they probed the influences that shape our thoughts and desires, while the Fly Head experiment explored the boundaries of identity and empathy. By blurring the lines between satire and utopianism, Haus-Rucker-Co prompted us to reflect on the nature of our existence, inviting us to ponder the fundamental question: What does it truly mean to be human?

3.2

GASTON BACHELARD'S THE POETICS OF SPACE: EXPERIENTIAL DUALITIES OF REAL AND IMAGINED WORLDS

BASIS: INDIVIDUAL WRITING
COURSE: ARCH 4469A
PROFESSOR: MARK WIGLEY

When architects recollect or experience space, it is highly probable they do so in a different manner compared to the common person. Whether it may be trying to observe patterns of behavior in a public space, or the attempt to solve the method of construction on a small detail of a building, architects possess distinct subsets of knowledge that allow them to see and feel the physical space around them much differently. However, for the general population, the experience of space may be relatively ordinary and not thought of in such depth. Without the knowledge of the various processes and executions that led to the manifestation of space around them, the physical world can easily be taken for granted.

Yet as Gaston Bachelard argues in his book, The Poetics of Space – The Classic Look at How we Experience Intimate Places, the ability to experience space intimately, aside from its technicalities, is inherently part of the human condition. Through this seminal work, Bachelard constructs an argument that the way in which humans experience, recollect and imagine the physical world is innate, through a phenomenology of space naturally ingrained in the human psyche. He argues the various ontologies of space are largely diverse due to the numerous properties in which they may possess, such as their geometry or functionality. Space, compared to other mediums of the human condition thus needs to be studied in a significantly different manner, as there are various metaphysical reasons as to why this manifests - ones that can best be explained through phenomenology and the properties of consciousness.

Originally trained as an academic heavily rooted in rationalism teaching the philosophy of science, focusing on physics and the cosmos Bachelard found himself as someone ''wholly bent upon the art of using reason as an instrument to achieve an always closer approach to concrete reality'' (Bachelard XV). When describing this break from a school of thought rooted in rationalism, Bachelard states that it was personally relieving and retrospectively beneficial. No longer did he feel consistently obligated to live by the parameters of rationalist thought. Candidly instead, recounting his personal and intellectual background, he describes his fascination with poetic images and their constant ''newness'', and the depths of the mind from which they may come. When describing the reasons for the occurrence of distinctly salient experiences and recollections of space, he writes that the ''psychological causes of which have not been sufficiently investigated'', and rather now he seeks a more succinct, phenomenologically determinate explanation for how images are manifested in the mind (Bachelard XV).

The scientific development during the 1940's and 50's, specifically within the context nuclear physics developments at the time undoubtedly influenced Bachelard's academic shift and The Poetics of Space, upon its post-humous publication in 1954. With major upheavals in scientific understanding surrounding the theory of relativity and quantum mechanics, Bachelard experienced an ''epistemological rupture'' in his understandings of physics. He argued such new understandings of the physical world required a new, non-Cartesian epistemology, one which accommodated newly discerned philosophical discontinuities and epistemological breaks with past scientific developments. (Tiles) No longer could academics and philosophers hold on to previous understandings of the past as such paradigms deeply rooted in empirical science had been broken.

Yet still, in The Poetics of Space, it is apparent that his past studies of rationalism have influenced these subsequent investigations. Bachelard's scientific background manifests in his meticulous attention to detail and precision in analyzing the physicality of spaces while his philosophical inclination enables him to go beyond the empirical, exploring the symbolic and imaginative dimensions of space. He deeply expresses a constant fascination with the duality of how certain creations of the physical world can be explained so rationally, yet the experience of such elements of space and their perceptions, can somehow be so different. In essence he asks, how does one construct a philosophy surrounding the intimate subjectivity of perceptions, recollections and even imaginations? Capturing this thought Bachelard writes, ''These subjectivities and transsubjectivities cannot be determined once and for all, for the poetic image is essentially variational, and not as in the cast of the concept, constitutive'' (Bachelard XIX).

Bachelard begins such investigations with a deeper, more philosophically rooted introduction of the overall text. Compared to his other publications, the introduction is longer than most, encompassing a sufficient forty pages. Throughout this extensive preface, Bachelard attempts

to describe the reasons for the metaphysical limitations of space, but mostly on a philosophical level. Rarely does he mention anything relating to that of discrete building elements, but rather focuses on the abstract concept of space. Instead, he remains fixated on trying to describe to the reader the importance of phenomenology, the philosophy of experience, how this affects our imaginations of spatialized images and the various poetic languages of space each material element in the world can possess. He writes, ''In this domain of the creation of the poetic image by the poet, phenomenology, if one dares to say so, is a microscopic phenomenology...In this union, through the image, of a pure but short-lived subjectivity, and a reality in which will not necessarily reach its final constitution, the phenomenologist finds a field for countless experiments'' (Bachelard XIX). Through such heavily lexical semantics, Bachelard is expressing two key points. First, he is touching on the previously explained notion that there are deeply intimate reasons for subjectivity, or rather a meta-phenomenology for the field of phenomenology itself. Second, he explains that the perceptive subjectivity of images is in constant flux, not only due to the vastness of ''images'' that exist, but also by the mere fact that humans are constantly experiencing various forms of stimuli, thus compounding or influencing subsequent perceptions of the next set of images perceived, whether through imagination or physical experience.

Here, one can start to feel the weight of Bachelard's background in physics when speaking on the importance of time with our varied perception of images. It is clear that Bachelard believes the human imagination is always in dialogue with its senses; such that both the noumena and phenomena of the human condition form a symbiotic relationship in which one does not proceed the other, thus implying a simultaneous operation of perceptions and the immediate meanings or feelings attached to the poetic languages of space. By explaining such occurrences within the physical world, Bachelard elicits his prior knowledge of the elements of metaphysical space-time theories while acutely translating them to architectural understandings. Through these deep academic projections, he transcends architectural theory into one that oscillates between epistemology and ontology, evoking a deep introspection that time, in its elements of the past, present and future operate simultaneously when perceiving space and its various material languages.

Such introspections undoubtedly carry with them significant complexities. Yet Bachelard does well as an academic not directly trained in architecture to use phenomena such as air, earth, wind and fire to translate basic elements of the built environment to deeper philosophical, architectural meanings. He uses these material elements of the world to construct a philosophical framework that allows for the co-existence of the previously aforementioned noumena, with their perceived related phenomena in built space. Together, this creates a material imagination within these basic elements' inherent properties. While able to be combined in an seemingly endless ways, each material element functions as their own creative heuristic when manifested in the physical world, whether through succinct design choices in the aesthetic identity of a material or more simply as basic manifestations in space with the use of a lit candle or opened window. In doing so, Bachelard captures the idea that these elements carry rich histories, identities, and aesthetic forces deeply inherent within the human psyche, thus furthering his argument that the perceptions of space in time are not a matter of an instant, but rather both ontologically and phenomenologically instantaneous.

When reading such parts of the text, it is hard, however, to not to feel the weight of Bachelard's philosophical background. While The Poetics of Space remains a philosophical text at its core and these deeper philosophical moments come with the nature of the literary canon, it remains difficult at times to endure Bachelard's overall argument as both an architect and a general reader. In such moments, it would be aptly presumable that Bachelard takes a given reader's knowledge or understanding for granted, specifically within the framework and meanings of phenomenology. Furthermore, if one is not well versed in various philosophies or the effects of space as an architect or designer, it could also be assumed that such writings by Bachelard may be immediately perceived as purely academic and aloof from reality. By being overly verbose, it is hard not to feel that Bachelard is being slightly impudent in his selective word choice, potentially alienating himself from his argument in which he is so expressively passionate.

Venturing further into the introduction, Bachelard begins to construct his investigations into perceptions of space by explaining the difference between the mind and the soul. Clearly departing from his influences of rationalism, he expresses his affinity for the soul in writing, ''...we are obliged to acknowledge poetry is a commitment to the soul...a consciousness associated with the soul is more relaxed, less intentionalized than a consciousness associated with the phenomena of the mind'' (Bachelard XXI). Here, Bachelard clearly expresses the importance of the soul and how through poetic recollections, perceptions and imaginations, the soul allows us to have new phenomenological depths awakened within us, compared to the more static, rationally rooted mind.

This importance of the soul provides the reader with the framework for understanding the difference between what Bachelard describes as ''resonances'' and ''reverberations'' and their relationships to poetic imagery. Bachelard explains to the reader the distinct differences between the two, this time in an arguably more digestible manner. When perceiving an image, the resonances of an image are the elements that connect you with the physical world in a material sense. These resonances are the objects humans associate with other objects in order to create a constructive mental network during the act of attempted comprehension. Very much rooted in rationalistic thinking, the resonances impact both the mind and the soul to some degree, but for obvious reasons heir more towards logical understandings.

Comparatively, and very much in congruence with the previous opinions expressed by Bachelard, he argues for a greater importance of reverberations. ''The resonances are dispersed on the different planes of our life in the world, while the reverberations invite us to give a greater depth to our own existence. In the resonance, we hear the poem, in the reverberations we speak it, it is our own'' (Bachelard XXII). Here, Bachelard is effectively trying to convince the reader that poetic images not only affect humans on a multi-faceted perceptual level, but when powerful enough, they inherently connect to something greater and deeper such as the soul. By doing so, he is asking the reader to start to construct a greater self-awareness of their perceptual conscious, aiming to convince them that there are deeper phenomenological reasons for why they perceive images in the manner they do, whether it be past, present, or imaginative. Thus, he argues that architectural design is more important in its capacity of the subsequent engendered experience by an individual, rather than abstract concepts that may manifest in geometric forms or other creative concepts.

Even more self-aware in his own right, Bachelard explains to the reader that the attempt to discover the origins of such internal activities in the human mind and soul is incredibly complex. He speaks of the lack of ''modesty on my part to assume personally a reading power that could match and re-live the power of organized, complete creation implied by a poem in its entirety'' (Bachelard XXV). Meaning, it is incredibly arduous or potentially not even possible to assume the position of another's internal imaginations as one's perceptions of images are vastly interpersonally connected on various levels within the human psyche. In doing so, Bachelard is effectively admitting that he does not know exactly how the perception of images occurs, but rather he aims instead to express a greater philosophical understanding of why it occurs, and what are its origins, specifically within the context of architectural space. Pointedly he writes, ''For a phenomenologist, the attempt to attribute antecedents to an image, when we are in the very existence of the image, is a sign of inveterate pyschologism'' (Bachelard XXIX).

When speaking of this dichotomy between lacking the knowledge of how the perception of poetic imagery occurs, versus attempting to explain why, it brings forward a quandary for an academic reader. At first, this former argument of Bachelard's immediately loses credibility or intellectual weight. However, in discerning a clear understanding in the differences between how and why as adverbs of western semantics, Bachelard once again shows a deep understanding of epistemology and ontology. First, the question of ''how'' in epistemology pertains to answering the methodology in which something occurs, and the empirical knowledge possessed in said phenomenon's procedures or mechanisms. This compares to the epistemological understanding of ''why'' and how it delves into the justifications behind a certain occurrence in a proposition. The question of ''why'' is more concerned with the underlying principles, causes, or purposes that explain a phenomenon. However, when observed from an ontological perspective, the ''how'' refers to the nature of existence and the structures of reality that govern the existence of said object, while the ''why'' addresses the fundamental reasons or grounds for the existence of certain phenomena.

It is these subtle nuances when reflecting further that make Bachelard, once again upon further reflection, discernibly difficult to academically challenge. While effusive as his words may be at times, The Poetics of Space consistently demands the reader's attention in multiple intellectual capacities. When reading the text and digesting dense academic content that simultaneously broaches various philosophical schools of thought, within the deeply vast frameworks of architectural space, it is somewhat of an arduous task that lends itself towards being easily dismissive of the argument in which Bachelard presents. However, if read delicately, Bachelard rarely if not ever directly diminishes his argument as seen in this differentiation between the meaning of how and why in philosophical terms.

Throughout this extensive introduction, the reader slowly begins to construct the needed mental framework suitable for digesting the subsequent analyses of space by Bachelard that follow. While the mentions of architectural space are predominantly absent, and the focus is rather on the idea of the poetic image, the reader nonetheless starts

to grasp the meaning of phenomenology and its impact on perceived space. For all intents and purposes, it would hopefully be assumed that either philosophers or designers would read this text, as through a retroactive analysis, it can be difficult to imagine one without an architectural or philosophical background having a relative grasp on where exactly Bachelard was to proceed with his argument in order to remain intellectually engaged.

Nonetheless, the text remains captivating. As the end of the introduction approaches, Bachelard begins to mention houses, stairs, and cellars, peaking the architectural reader's interest just at the right moment as the text starts to become arguably superfluous. Bachelard constructs smart quips such as, ''there is ground for taking the house as a tool for analysis of the human soul,'' followed by stating, ''Our soul is an abode. And by remembering 'houses' and 'rooms' we learn to 'abide' within ourselves,'' thus helping to captivate the reader into what is to come in the following pages (Bachelard XXXVII).

Subsequently, Bachelard compounds this approach, potentially expressing an acute sense of self awareness of his potentially overdone introduction. He concludes the introduction by succinctly summarizing the vast topics of philosophy formerly endeavored by the reader. This is then followed by a short synopsis of how he attempts to explain his phenomenology of space through a meticulous methodology that gives structure to the overall argument made prior in the introduction. By telling the reader that by further exploring perceptions of space, and then reinforcing the argument with explicit architectural examples such as roundness and material elements, the exhaustive introduction appears to be rendered worthwhile by succinctly bridging architectural and philosophical concepts, enticing one to read on past the previously endured literature.

In starting the first chapter titled, ''The House. From Cellar to Garret. The Significance of the Hut'', Bachelard deviates from previous verbose, anticipatory literary tendencies in delivering a concise beginning to the text. He writes, ''The house, quite obviously, is a privileged entity for a phenomenological study of the intimate values of inside space, provided, of course that we take it in both its unity and its complexity and endeavor to integrate all the special values in one fundamental value'' (Bachelard 1). Here, the reader is finally presented at the beginning, rather than the end, with a captivating macro-scaled idea. Albeit as conceptual or abstract as the idea of a house can be, the reader now has something more discernible to grasp onto. For an architectural reader specifically, the mere rendering of the image of a house is a relief.

In doing so, Bachelard specifically begins with the idea of shelter, and how the idea of the home is inherently intimate with the human condition. Thus, he argues for the need of a thoughtful, almost poetic way of analyzing why certain memories of our first homes are conjured and how they manifest in our imaginations. This begins Bachelard's extensive interest in what he considers ''daydreaming''. Whether the idea or the use of the word ''daydreaming'' is something lost in translation from the native French text, the reader can start to grasp what Bachelard means in his specific use of this verb as they venture further into the chapter. This is of importance as for native English speakers daydreaming is often associated with being significantly adrift from one's current state of consciousness. However, in the method in which Bachelard uses both the noun daydream and the verb, it feels as if daydreaming is meant to be a more active, lucid conjuring of memories. Once this understanding of daydreaming is clarified, the reader should clearly start to begin to understand Bachelard's argument.

Concisely put, Bachelard states that a person's first house is their first world. It is their world within the world as their first memories are constructed not only through it, but by it as well. Whether these memories remain to be positive or negative, it is nonetheless this primitive connection with shelter that humans have in their first home which Bachelard deems so important. He states, ''the house is one of the greatest powers of integration for the thoughts, memories and dreams of mankind. The binding principle in this integration is the daydream...Past present and future (daydreams) give the house different dynamisms, which often interfere at times opposing, at others, stimulating one another'' (Bachelard 6). Here, it is undeniable to Bachelard that the house holds integral psychological influence on one's developmental psyche. However, the element that remains to be told throughout the chapter is explicitly how the house does so. Frustrating in some capacity, Bachelard instead reverts to his introduction's tendencies, by reiterating countlessly the importance of daydreaming, and the methodology of reconstructing the three-dimensional space of our first home.

While instances like this in the text may generally lack more tangible architectural content, it is not to say however that Bachelard does not have grounds for his arguments pertaining to the perceptions of space. Although he is not an architect, but rather someone trained as a physicist, it would be an academic fallacy to believe that only architects or adjacent academics to the field of architectural design

have the intellectual capacities to philosophize on the phenomenology of space. Creating such a standard for architectural theory would set a dangerous precedent for architectural academia in general as it would allow architects to gatekeep not only the canon of architectural theory but all of the elements that fall under its umbrella such as curations of space, tectonics and anything surrounding ideas of meaning and perception within architecture.

If architects were to do so, it would be considerably indicative of not possessing an understanding of the holistic nature of architectural design as well as the ability to face the transcalar problems in which the field faces today in society. Instead, architects should listen to ''outsiders'' such as Bachelard as an attempt to hear something that is not directly being said as their subsequent predisposed knowledge of the built environment can make them hear what people are not aware of what they are saying, specifically in the context of the impacts of three-dimensional space. This is clearly the case in Bachelard's text as he remains highly abstract - yet architects can start to digest his dense writings more effectively. Thus, allowing them to be more thoughtful when designing space and the importance of various design elements, such as material languages, and even spatial sequencing. To dismiss Bachelard completely in his text and its impact on architectural theory would in essence exacerbate the hubristic nature of architects that has hindered and detracted from the profession for far too long.

Yet ironically, the most considerable piece of evidence Bachelard lacks in his argument is the omission of the human body in the experience of these sentimental domestic spaces. From both micro and macro scales, the ideas Bachelard presents remain consistently object centric. By doing so, this allows for a potential breakdown in his philosophies of space that some would argue is a critical element to any idea pertaining to architecture theory. Much like the platitude 'does a tree make a sound when it falls?', what is architecture without humans or other sentient beings? While his writings about space and the multitudes of perceptive abilities of various objects remain well executed, it is these elements of various stimuli that remain omitted such as tactility, color and scale in which Bachelard lends himself toward a hard critique, especially within the context of domestic environments in which these elements of design are so critical and intimate.

Regardless of these shortcomings, Bachelard succeeds in some capacity in explaining how deeply our phenomenology of space is tied to its procedural recollection and the subsequent imaginary reconstructions of domestic environments. He does well to describe a hypothetical scenario in which if a person were to describe their bedroom in their first house and the personal intimacies tied to it, it would first be undeniably difficult for said person to try and explicitly conjure those feelings in a listener. This is because the listener has not personally experienced the space the way in which the person explaining has, and therefore lacks the emotional knowledge or connection. However, what occurs instead Bachelard argues, is that to connect with what is being told, the listener stops, and begins to recollect their own intimate space and how it made them feel, thus creating a commonality between the original content being told and their own experiences. By doing so, Bachelard argues that it is not the importance of the relative comparison between the two, but that there is in fact a relative comparison to be had in the first place, thus providing evidence for the primitive connections to our homes we all supposedly have.

In essence, Bachelard effectively argues in this first, seminal chapter that space is not just space, but rather it belongs intimately to every person in varying capacities. By relaying this argument through various examples, such as psychological anecdotes, or fiction-based literature, these tactics provide the author the opportunity to incorporate relative examples, but now in a more tangible, architectural sense. For Bachelard, this is compounded further, as the chapters that follow start to deviate from being solely philosophical or theoretical, continuing the text's positive, lexical trend of enticing the reader to venture further.

In chapter 6, titled ''Corners'', Bachelard writes, ''Every corner in a house, every angle in a room, every inch of secluded space in which we like to hide, or withdraw into ourselves, is a symbol of solitude for the imagination; that is to say, is it the germ of a room, or of a house'' (Bachelard 136). Once again, we are able to see these specific examples in which Bachelard not only grasps well the phenomenology of space, but also the nuances of architecture and the various impacts its minutia of space can have. By explaining to the reader that a corner is not solely a point at which two walls meet, but rather a room which can ascend around our bodies, thus providing refuge, Bachelard expresses a deep understanding of the human condition and its relation to architectural space. He does so almost ironically, advocating that corners actually create a positive sense of immobility. This is of peculiar interest, as traits of immobility often carry restrictive, negative connotations. However, as Bachelard describes, it is the feeling of being surrounded, and having an apt surveillance of the space in which one occupies, that creates this feeling

of immobility a rather positive one, manifested through control and comfort. Rather instead, one is able to think and imagine more freely in a corner, especially as a child in their first home. Through this sense of liberation provided by the refuge of the corner, the occupant is now able to have ''the past rise to the levels of present'', creating a greater, more meaningful connection to the world around them (Bachelard 141).

Much like his understanding of the nuances of corners, Bachelard again expresses his deep psychological understanding of space in chapter 10, titled ''The Phenomenology of Roundness''. Furthering this investigation of being (as a verb) within space, and the subtleties that impact inhabitance, Bachelard focuses on the poetics of geometry. While the chapter remains more abstract than others in its relation to physical space, uses of digestible metaphors are aplenty. In this chapter, Bachelard expresses that people often identify with roundness via explicit psychologies, specifically using the ideas of philosopher Karl Jaspers. He argues, roundness is ''an instrument that will allow us to recognize the primitivity of certain images of being'' (Bachelard 234). By doing so, he furthers his advocacy for roundness previously discussed in chapters on corners and stairs, in hailing roundness as a potential vehicle to manifest ''geometrical perfection'' within the soul. Whether this remains to be true is subject to interpretation. However, what this chapter proves further is not only Bachelard's understanding of phenomenology, but also his fascination with ontology; showing a multi-faceted philosophical understanding – thus lending himself hard to discredit, albeit as interpretative as it may be.

Regardless of the chapter, topic, or nuance of architectural space which Bachelard discusses throughout The Poetics of Space, , he undoubtedly demands the reader's attention. Whether this is due to his dense prose, or the highly intellectual nature of the subject matter, a certain feeling of intellectual capacity is portrayed throughout the work. Throughout the text, Bachelard invites us to engage with our surroundings in a more profound, imaginative manner. He asks people to be more thoughtful in their understanding of the space and encourages them to see the poetry in everyday spaces and objects, urging others to delve into the emotional and symbolic depths of the physical world.

By expressing such a deep knowledge of physical space, the argument can be made that The Poetics of Space is essential literature for anyone adjacent to field of architecture. Specifically for architects, it can provide a better mental understanding of how spaces that resonate and reverberate more intimately with the human condition. Thus, allowing for a space's occupants to conjure deeper and more meaningful emotions, as Bachelard so emphasizes the ability to dream and its inherent intimacy. While the text does lack in some capacity various elements of architecture that some would deem critical in any domain of theory, it is through this deep encouragement for architects to not only consider design in a functional manner, but also in an emotional sense, in which Bachelard's work becomes so enriching for the field of architecture, as it serves as a tool for not only architectural theory, but how architects can better create spaces that are inherently more human and enhance the quality of life.

Bibliography:

Bachelard, Gaston. The Poetics of Space. New York, Orion Press, 1964.

Tiles, Mary. Bachelard, Gaston (1884–1962), 1998, doi:10.4324/9780415249126-DD007-1. Routledge Encyclopedia of Philosophy, Taylor and Francis, https://www.rep.routledge.com/articles/biographical/bachelard-gaston-1884-1962/v-1.

3.3

KAROLA BLOCH'S CHILDCARE FACILITIES: ANALYZING MATERIAL-FEMINST LEGACIES

BASIS: INDIVIDUAL WRITING
COURSE: ARCH 6930A
PROFESSOR: MARY MCLEOD

Born in 1905, in Łódź, Poland to an upper middle-class Jewish family, Karola Bloch's personal and professional endeavors serve as a testimony for feminist architecture movements advanced by the various groups of women in western society during the mid-twentieth century. Although her career is often overshadowed by patriarchal historiographies in being married to Ernst Bloch, a predominant Marxist philosopher of the twentieth century, when one starts to dive deeper into her designs for the German Democratic Republic's childcare facilities in the 1950's, significant parallels can start to be drawn when analyzing later childcare facility designs of socialist countries in greater Europe, allowing her to break free of such relational confines to Ernst block, thus constructing a greater legacy of her own.

What will be seen in the following pages is a historical analysis of childcare facility design through a material feminist lens in the relative contexts of Hungary and Czechoslovakia. The aim in doing so will be to simultaneously cross reference such designs in the second half of the twentieth century, with Karola Bloch's designs completed during her time working for the socialist German Democratic Republic state, so as to draw historical parallels not only from a material feminist perspective but also to potentially construct or uncover a new legacy of Bloch's influence on such countries' approach to said typology. In each of these contexts, political and social elements of society remain imperative in understanding architectural trends. Through these related countries socialist politics, there was a new emphasis on gender equality, collective responsibility, and even an exploration of new modernist architectural principles. Together, these curate a rich historical and architectural analysis of what Bloch's legacy can be seen to potentially be or even not to be. Regardless, the goal remains to construct potential knew knowledge on active female architects during the mid-twentieth as specific information on Bloch and many others remains scarce.

After her family fled to Russia during the first World War, Bloch was able to witness the October Revolution as Vladimir Lenin and the Bolshevik Party took control of the Russian state. It was during this time in which Bloch's persistent loyalty to socialism and its values manifested, as they would eventually play a role in the various feminist architectures in which she would manifest, both physically and conceptually (Siegele 84). Later on, her family moved from Russia to Berlin in 1921, as Karola, now sixteen years old, enrolled in an arts and crafts school. It was during this time at the arts and crafts school which inspired her first visit to the Bauhaus and to enroll at the Technische Hochschule in Vienna, Austria to study architecture. This began a subsequent series of moves throughout Europe with her then eventual husband Ernst Bloch, as World War II became more imminent and the political landscape of Europe increasingly more volatile, thus making socialist, communist, and Marxist beliefs often contentious depending on their context.

At this juncture of her life, Bloch also began to become associated with various associates and students of the Bauhaus such as Hannes Meyer, who would eventually become the successor of the school's founder, Walter Gropius. Furthering these associations was her involvement and evolution of friendship with two other members of the Bauhaus, Hans Poelzig and Bruno Taut. While the influence of such personal relationships on her future architecture of childcare designs remains speculative, standardization, equality and other key principles of the Bauhaus movement remain consistent with her designs completed while working for the socialist Germany Democratic Republic state, also known as the GDR.

During her time traveling around Germany in the early 1950's to help the state standardize childcare practice, Bloch sought to begin to actualize the socialist principles of what she had seen from Lenin and his domestic agenda to liberate women "from their status as domestic slaves," which in fact "degrades her (women) to the kitchen and the nursery and makes her waste her labor on barbarously unproductive drudgery," (Siegele 124). Seen here is a clear impetus of Bloch's to promote gender equality through a more extensive participation of women in the workplace, as the material feminist concept remained, that through standardizing or industrializing childcare, more women would be freed from the confines of the domestic workplace, thus leaving them able to contribute to not only the workplace, but the overall social State as well. Introduction to the workforce was of utmost importance as it was deemed a distinct catalyst in having women begin to be recognized as equals by their male counterparts. Through such new societal structures, it was only a matter of when they would be considered equal through actualized participation, rather than if.

Upon analyzing the architectural designs and principles in which Bloch touted, when she began to develop the standardization of buildings for children, certain resemblances of material feminism ideologies begin to emerge. Seen below in Figure 1 is a plan and elevation of Bloch's Weekly Childcare Facility ''Future of the Nation'' project.

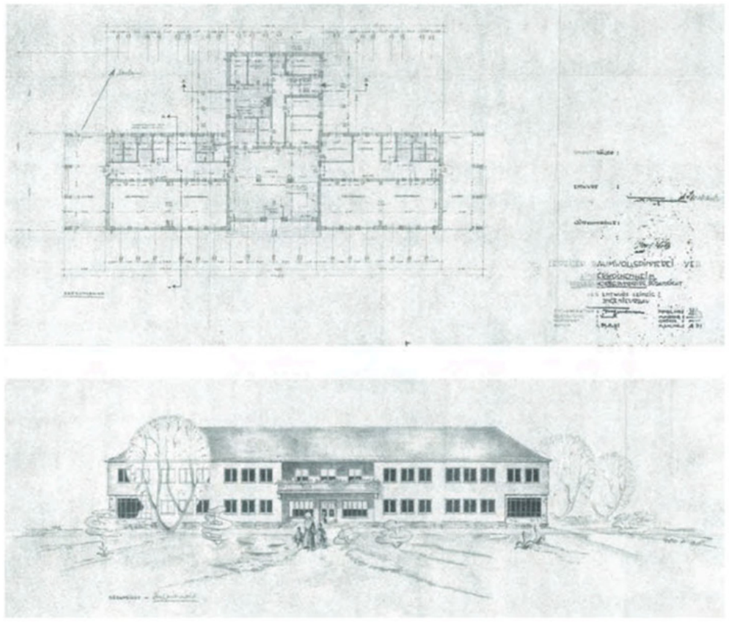


Figure 1: Karola Bloch's Weekly Childcare Facility – Plan & Elevation

In aiming to actualize such material feminist ideologies, the project seen above aimed to accomplish and embody material feminism in four distinct ways. First, on a basic level, the project aimed to address the materials and facilities needed in the first place for women to participate in the workforce. By providing such services, Bloch and the initiatives of the project directly addressed societal barriers to women's economic independence. Second, the project also embodied the collective action and solidarity needed for women in order to solve a common-place issue that would not otherwise be solved by individualism but rather one solved by a state driven system.

Third, it redistributed that labor balance within working class families, furthering the empowerment of women and allocating more time toward potential working-class duties. And finally, fourth, the project itself stood as a broader advocacy and symbolic need for systemic change within the policies of new state systems such as the GDR. Together, these elements of the project, while although more principle based, embody and serve as a testimony for material feminism, while the Childcare facility itself aimed to physically actualize such principles in a concrete way so that women may be empowered and free from their typical societal and gender confines.

Although state sponsored projects existed across the globe on a wide spectrum of governmental and political structures, it is important to emphasize from a policy perspective the accelerant factor of being within socialist governments at the time. The ideologies of increased social welfare within socialism undoubtedly allowed for a greater pursual of such projects, and thus material feminist aspirations and their goals of addressing inequalities through systemic change. As seen in the following analyses of other socialist states of Europe, the goal in doing so is to analyze through material feminism and childcare facilities as to not only establish historical parallels but also posturize the GDR and Karola Bloch as the seminal leaders of such projects and a potential legacy to be established or even have been reacted against.

After the culmination of World War II, Hungary, its proximity, and occupation by the Soviet Union underwent historical, fissured changes to society and its government. Following the establishment of a new socialist state in 1949, there was a far-left attempt ''to construct a viable social base for their vision of a postwar state'' aimed at ''industrial, working-class communities'' (Pittaway 462). In doing so, material feminist ideologies began to emerge through state sponsored programs and structures. The new socialist state began to promote ''state feminism'', promoting ''a family model that assumed that women would be wage earners like their husbands'' (Bicskei 160). Thus, beginning the embodiment of material feminist ideals. While problematic in some capacities due to the various issues that the Stalinist regimes posed to its Soviet Bloc states such as Hungary, the communist ideals proposed by the Soviets ran considerably parallel to that of the GDR and Karola Bloch's childcare facilities. As seen in the figures below, the state and Soviet influence began to emphasize the need for supporting working mothers. So much so that in 1953 Hungary adopted a law through the Ministry of Education that established childcare services not universally, but rather was ''aimed only at providing childcare for working mothers'' (Bicksei 165).

Figure 2: Soviet Posters promoting the communal care and activities in Childcare Facilities in Hungary and other Soviet Bloc States

Figure 3: Children having a morning snack at a Hungarian Childcare facility in 1951

While this does seem quite radical in the sense of only providing services to working mothers, it represents an almost extremist view of material feminism that can be seen with Karola Bloch and the GDR, as this is not surprising due to the various factions and spectrums that existed within the post-war Soviet influence over Europe. Nonetheless it begs the question of Bloch and the GDR's influence of material feminism over Europe in a greater sense and how the future working classes would be treated in socialist states such as Hungary, highlighting such intersections of architecture, social activism, and feminist ideologies.

Much like Hungary, in its postwar years Czechoslovakia had to reckon with the vast social transformations that were occurring across the political landscapes of Europe. Established as a socialist republic with the brute force of the Soviet Union, the country ran as a satellite state in the Soviet Bloc (Rao, XXX). Due to this, many socialist principles and institutions emerged that ran parallel to such political ideologies, specifically within the context of childcare. As historian Frank Henschel describes, there was a new responsibility and sought out control over the field of residential childcare, specifically around displaced families from World War II. He writes, ''these transformations offered both new opportunities and challenges to traditional family relationships and gender roles'' within a ''new Czech family.'' (Henschel & Shmidt, 132). While there were an ample number of childcare facilities established, they were more so aimed at this issue of the vast number of orphans that existed after the war (see Figure 4). Such issues are actually where the communist regime of Czechoslovakia turned against the ideas of material feminism emitted by the GDR and Bloch. Instead of trying to promote equality, the state tried to combat its population crisis after the war with considerably restrictive measures on women and reproduction. Although prenatal and reproductive services became vastly accessible, new policies aimed to regulate women's bodies and the governed childcare was designed to tie women ''to their duty to reproduce the nation'' as well as ''surveilling them and distinguishing between those who were 'fit' to reproduce society'' – something with considerable eugenic and very problematic undertones (Dudova, Haskova, 226). This can be seen as direct deterrent for women trying to enter the workforce, and quite antithetical to material feminist ideologies.

Figure 4: Orphans in a Childcare Facility in Post-war Czechoslovakia

Such newly designed policies and resources can potentially be seen as a rection to the GDR's childcare approach in the 1950's. While it does remain peculiar in the sense that both states operated under the Soviet agendas yet had different approaches to the social equity of women, it begs the question of how material feminism manifested across Eastern Europe after World War II. Nonetheless, pioneers for socially political movements such as Karola Bloch remain paramount when analyzing such changes in society after the war, as with the rise of socialism, the emphasis of the working class, material feminism undoubtedly remains relevant. Whether it was through Hungarian Childcare indoctrinations, or a more adverse reaction to such in Czechoslovakia, in the historical context of childcare, and the decimated populations that some states faced, childcare design remained at the forefront of society and arguably still does today.

Bibliography:

Bicskei, Eva. "'Our Greatest Treasure, the Child': The Politics of Child Care in Hungary, 1945-1956." Social Politics: International Studies in Gender, State & Society, vol. 13, no. 2, 9 May 2006, pp. 151–188, https://doi.org/10.1093/sp/jxj007.

Dudová, Radka, and Hana Hašková. "Obedient mothers, healthy children: Communication on the risks of reproduction in state-socialist Czechoslovakia." Medical Humanities, vol. 49, no. 2, 21 Feb. 2023, pp. 225–235, https://doi.org/10.1136/medhum-2022-012498.

Henschel, Frank, and Victoria Shmidt. "Special education in Czechoslovakia between 1939 and 1989." The Politics of Disability in Interwar and Socialist Czechoslovakia, 1 May 2019, pp. 109–144, https://doi.org/10.2307/j.ctvdmx10t.11.

Siegele, Bettina. "Karola Bloch in East Germany (GDR, 1950-55). Standardization of Childcare Facilities as a Women's Emancipatory tool." ZARCH, no. 18, 2 Sept. 2022, pp. 122–133, https://doi.org/10.26754/ojs_zarch/zarch.2022186188.

Siegele, Bettina. "The Interplay of Philosophy and Architectural Aesthetics in the Work of Karola and Ernst Bloch." SITA, no. 8, 2020, https://doi org/10.54508/sita.8.07.

Rao, B. V. History of Modern Europe 1789-1992. Sterling, 2002.

Martin Lee

Columbia University
Graduate School of Architecture, Planning and Preservation

May 8, 2024