RUNNING CORRIDORS
Capping the Expressway / Parkchester, NY / Advanced V Studio / Fall 2021

DIDACTIC ECOLOGICAL RESILIENCE
Agroforestation Schools / Luces, Puerto Rico / Advanced VI Studio / Spring 2022

LAND BUOY
Eating Cycle on Beach / Mastic Beach, NY / Advanced Architectural Design Studio / Summer 2021
01
RUNNING CORRIDORS
Capping the Cross Bronx Expressway

Location: Bronx, NY
Advanced V Studio, Fall 2021
Collaborator: An WRONG
Instructor: Michael BELL, Professor of Architecture, mj892@columbia.edu
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"The corridors are compact and well built, and are arranged on the corridor system, i.e., all the rooms open off the corridors, running the whole length of the building ..."

- In Corridor Spaces, by Mark Janzembek
Instead of straight streets with mixed traffic, folded streets are implanted to create pedestrian streets. The perspectives are therefore reflected along the angles, strengthening the sense of interest. The zigzagging shape fits into the urban tissue of the Bronx, as well as complementing the streets interrupted by the Cross Bronx Expressway. The new streets consequently become corridors acrossing the expressway. The functions of the corridors are also designed to make perfect complements to the community. Apart from the corridors, as part of the strategy, courtyards enclosed by the corridors are utilized to accommodate additional activities, simultaneously adding vitality to the corridors in terms of both function and space.
CORRIDORS
FOR CIRCULATION AND MORE

TYPES OF CAPPING

1. Truss Connection
   Main span structure connecting the two sides of the庭院。

2. Truss Corridor
   Main span structure connecting the courtyards above each way.

3. Beam-String System Corridor
   A skeleton corridor with a slight slope for leisure and passing.

4. Beam-String System Plaza
   A skeleton of ground with a slight slope, for planting, grass or paving.

STRUCTURAL ANALYSIS

1. Beam String

2. Beam String

3. Beam String

4. Beam String

5. Beam String
ROOF GARDEN

The roof garden continues experience all along the expressway connecting to the subway station, as well as creating a new landscape in the community. It forms a new pedestrian corridor along and across the expressway.

COURTYARD

The courtyard enclosed by the structures is also connected to the surroundings through view and walkability. In contrast, the design turns the scale of the road into pedestrian-led street.
INTERFACE
The angle of the grid is rotated so that the circulations are connected. Pedestrians can have easy access to the structure and can easily go through it.

CORRIDOR
The ground space of the corridors are designed with versatility and could be used for various activities.
the Cross Boro Expressway is divided into three parts in most cases so that columns could stand on the side of slope to reduce the span of coping structure. Roofs of the corridor structures are supported by the beam stringer structure system. The whole space varies consequently in heights. The availability of the corridors allow the courtyard to become a crucial connection between both sides of the expressway.
DIDACTIC ECOLOGICAL RESILIENCE
Agro-forestation of Closed Schools in Puerto Rico

Location: Lares, Puerto Rico
Advanced VI Studio, Spring 2022

Instructor: Justin Garrett MOORE, Adjunct Associate Professor, jgm35@columbia.edu
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"Nature is reclaiming the classrooms... which closed right before the hurricanes, sits in an almost monastic silence; the only sounds the songs of birds in a red flamboyant tree in the courtyard, and the occasional blast of reggaeton from a passing car."

-In The Disappearing Schools of Puerto Rico, by Jonathan M. Katz
INSUFFICIENT REUSE OF SCHOOL BUILDING

The community, however, didn't participate in the decision-making process. Instead, they tried to build their own cycle by holding activities and made products, they gradually organized the space on their own. They produce food and other products, and make their presence at the space more stable.

But there are still some problems. The first one is that they only have a small land for farming, and it doesn't produce much food. So the people have only about 25% of self-produced food. They still have to buy food from supermarkets.

And the original school space is designed for 300 students in 20 classrooms. It isn't an appropriate space for community activities, when there is a group of people gathering.
The exchange center provides accommodation for possible people exchange and produce exchange. People from different communities could come and join in the events. The accommodation units could also act as studios for local artists, or Airbnb, or shelter from disasters. The exchange center also includes a marketplace where people can sell products and make income.

The exchange center is also a part of the exchange network, through which local people could exchange food with other communities. It also act as an exhibition towards the town as it is closest to the expressway.
The production center accommodates the indoor plantings, and aquaponics system. A new roof is applied to transform the space into a greenhouse. The building is open on the facade, and mobile metal frames and some mesh provides shading. The V shape of the roof also helped water collection for the indoor planting.

A new irrigation system collects rainwater from roof and ground to water tank, and flows to the farmlands. This agricultural system is expected to provide water supply for an aquaponics system.
The activity center accommodates the main activity hall, the activity room, and the community kitchen, and is designed for major community activities, and a public living room. Defined by a new roof with wood structure to release the height of space, wood frame shading and mobile scenes, door panels, and panels. The mobile panels make the activity space more open to the surrounding environment, creating a more intimate relationship between human and the nature, and between the interior and exterior, so the activity space could be all open and expanded into the environment.

The interior of the main multipurpose hall is also versatile as it could be divided into several spaces by the screen panels, and could also be rejoin into a larger activity room in case of large meetings and events. In this case the original school may continue to accommodate teaching activities through the exchange network, like people from different communities could exchange ideas, culture, knowledge, or experience and knowledge on agriculture, or when there is no events, just used as small leisure spaces for a couple of friends.
AGRO-FORESTATION OF SCHOOL

The project creates a hybrid of school and farm and a typological approach of reproducing school space through agro-forestation. The aim is to improve food sovereignty of the community through increased agricultural production and provide cultural, social, economical and educational opportunities through exchange between mutual centers, or closed schools, all across Puerto Rico.
03
LAND BUOY
Eating Cycle on Mastic Beach

Location: Mastic Beach, NY
Advanced Architectural Design studio, Summer 2001
Collaborators: Zupi Chen, GONG
Instructor: T. CARPENTER, Adjunct Associate Professor, Temple University

Witness the ocean giving us food and taking it away
Witness the sea exceeding to reveal the land and flooding it again
 Witness the sea evaporating into rain and then falling into the land
Witness the cycle
Witness the connection
MASTIC BEACH: CENTER OF MARINE TOURISM

NATURAL RESOURCES vs LITTLE UTILITY

The Mastic Beach is a tranquil seashore community two hours away from the New York City. There is various kinds of marine animals, including fish, oyster and scallops, with different flavors, all around the mastic beach.

The violet’s cove is surrounded by a series of wetlands, high marsh and intertidal marsh, existing and provide parks, boat ramps and marinas. There is also an suggested long bike trail along the coastline and passes near the Violet’s cove. And the site is an important knot linking to all the resources.

However, the site provide little tourism infrastructure. In addition, the site appeared as a food desert after the only local restaurant collapsed.

DISASTER vs RESILIENCE

Although there are plenty of natural resources, the site has been long suffering from occasional flooding which cause huge inconvenience. And the problem is to perturbe. In fact, the sea level is rising gradually, and is expected to inundate most of the lands of the Mastic beach in a few decades.

However, the community showed great power of cohesion and resilience. Despite all the problems, people in the Mastic Beach kept positive towards life. Something must be done to make a change...
EATING CYCLE
BUSINESS PLAN AND NEW ECOLOGY

The eating cycle aims to provide a whole process of experiencing the nature, including foraging, cooking, eating, and digesting, and to trigger awareness of natural resources behind the food.

EATING CYCLE programme

The eating cycle serves as a programme of the intertidal site. A hybrid formology is to be introduced to reiterate the relationship between human and the nature.
01 FORAGING
Exploring the nature resources

02 COOKING
Learning more about the species through cooking sections

03 EATING
Enjoying the local food at a variety of places

04 DIGESTING
Further experiencing the site through marine activities
LAND BUOY
HYBRID FORM BETWEEN LAND AND SEA

GENERATION OF MAIN LAND BUOY

Circulation
Support
Roof of Events

Four Modules
Central Connection
Ringing of the Exiting Cycle

PROGRAM OF EVENTS
ADAPTING TO FLOODING

The central theater is to float when sea level rise and continue to accommodate events also to trigger awareness of sea level rise and climate change.
[ REACTION ]

[ WRITINGS ]

TOWARDS ARCHITECTURE AS A TOGETHERNESS
On Sociology of Testing / Arguments / Summer 2021

TWO PIECES OF COMMENTS
On Sugar Hill and KAT Plazas / Transcurrences / Summer 2021

RETROSPECT AND REBELLION
On Arata Isozaki / The History of Architectural Theory / Fall 2021

CONTEXTUALIZING A CONCEPT
On Bagwa Church / Architecture: The Contemporary / Spring 2022

THE POWER AND POWERLESSNESS OF HOUSING
TOWARDS ARCHITECTURE AS A TOGETHERNESS
On Sociology of Testing

Arguments, Summer 2021
Instructor: Daniel COBB, danielatmit.edu

In a context of ubiquitous technological testing, one may feel anxious about being continuously tested and feel forceless trying to resist the tests. However, Noortje Marijs provided an alternative approach in her lecture, that human can play more initiative roles in tests, instead of being passively implicated in the tests, thus making a togetherness of social tests.

According to Noortje, if we take the social impacts of technological tests into consideration, there is a distinction between being implicated and being involved in the tests. As the manipulations and modifications of the settings in the AI tests also change the environment in the social context, the process contains not only the AI testing the social environment, but also the social environment testing the AI. We can also perceive human as an agency in the tests, then human are not only being tested by the technology, instead, they are testing the technology. With this transition in roles, tests are interactive and non-hierarchical processes in which human, environment and technology are equal actors. It seems that the ubiquitous tests are inevitable in contemporary scientific society. As a result, it may be a feasible option for humans to interact with the technologies actively, or to get involved in the tests.

In a process where the human and the technology are testing each other, they both become part of a togetherness of testing. In the togetherness of testing, human have capacity to become an element in a part of some heterogeneous assembly. And the togetherness need to be specified as resource to articulate the problematic. However, real-world testing are not satisfying in terms of the social. They have the potential to experimentalize social life, but tend to drive out social dynamics. Besides, demonstrations may not be considered as tests, as trials are not allowed to fail. Particularly, artificial intelligence are designed to understand and to simulate the thoughts and behaviours of the human. On the other hand, the human usually have little knowledge of the AI, as only experts can be fully aware of the scientific theories. In order to break such inequality, Noortje listed three possible approaches. Firstly, for the human, as well as test takers, can have more aware of the testing process. Instead of acquiescently agreeing the terms and following the rules, they can pose questions on the background and settings of the test, thus the test takers become initiative and the test become an interactive process. Secondly, testing can be designed as generative occasion for the explication of objects, capacities and relations, instead of being implicit “black boxes”; so that more agencies can actively participate in the process of testing. Thirdly, more articulation work could be conducted to articulate the tests, and to move beyond naturalism in engineering and sociology.

In a context of ubiquitous technological testing, one may feel anxious about being continuously tested and feel forceless trying to resist the tests. However, Noortje Marijs provided an alternative approach in her lecture, that when it comes to architecture, the situation becomes different in many directions. For a start, we shall agree that architectures are social tests, because they modify the physical environments significantly, and also because they usually have unpredicted effects on the social. Looking into the design process, designers are continuously testing their ideas, not in real world, but on paper or computers, and in the context of their own experiences. As

stated by Noortje, this phase of the design process can be considered as a kind of testing “in data”. Additionally, no one knows what would actually happen until an architectural project is finished. In every built environment, users continuously interact with the environment following their own will. So it is a multi-agent system where many social behaviors are improvised. Although architects are designing with expectations, neither the architect nor any other actors in the situations could decide the ultimate impacts. Hence the architecture is a complicated togetherness of architects as experts or test-ers, users as social actors, as well as the environment, landowners, the client, stakeholders... Finally, and maybe most importantly, the process of architectural design is not always logical. It involves subjectivities including emotions, memories, preferences and experiences. All these factors make design fundamentally different from scientific tests, or AI tests. In fact, architecture is a more explicit form of agency compared to the AI. This characteristic makes it possible for architectural design to involve more agencies. One may have little knowledge how AI works, but more likely have specific ideas how a building operate. The discussions of architecture definitely have larger audiences than scientific subjects. Thus it could be said that architecture is a more involving and more specific togetherness of social tests.

Considering all these actors, the architecture is tested or evaluated by not only the architect, but also the general public. Also, the architecture is not only being tested, but also testing the architect and other agencies. What’s more, the architecture is designed not by the architect, but by an assembly of agencies. And the architecture is not being designed, but actually designing the architects, as architects learn from the effects and appearances of built projects as their “data” in which they test their following designs. In this social structure of togetherness, architects gain design experiences, while the public get a modified (usually better) environment. In general, it is a positive togetherness in a new sociology of testing, where different agencies are testing and being tested.

As a result, it is crucial to think of architecture in the social context, particularly as Noortje proposed, “a new sociology of testing”. For architects, it is of vital importance to have a modest attitude to be tested, and to make the process of decision making more explicit, instead of merely conducting a test on the social, considering themselves as experts and experimenters. For the public, if you don’t want to be a subject of tests all the time, just speak out! You had better keep questioning on the tests, or maybe, the architecture.

Selected Questions:

Supervision of Testing:
In your description of the new sociology of testing, you mentioned the difficulty of counter-testing for individuals. Do you think there are any possibilities to not only analyze, but also impose restrictions on testing? What kind of entity should be responsible for such supervision?

Hypocrisy in anti-colonial:
In On Indigenous People’s Day, Let’s Commit to an Anticolonial Mindset on Earth and in Space you mentioned five actions to adopt an Anticolonial mindset. However, isn’t it humans embark on new activities in space itself a symbol of space-colonization? If we are merely holding verbal activities without stopping the exploration itself, it seems that we are colonizing the space and simultaneously whitewashing our crimes on purpose.

Methodology of Complexity:
One of your questions is: ‘Why have we imposed intolerable complexities on ourselves?’ Then I would ask: ‘Why are you imposing intolerable complexities on your questions?’ That is to say, the world is so complicated a system that you can impose plenty of questions. However, what people have been trying to do is to find simple rules in the complex to get knowledge, such as physical formulas. Are you suggesting a methodology of complexity, proceeding thinking through continuous questioning, instead of logical thinking?
TWO PIECES OF COMMENTS
On Sugar Hill and KAIT Plaza

KAIT Plaza: A Huge Space for Little Events

Students of Kanagawa Institute of Technology might be excited at a new “plaza” in the campus. The only problem is, it is not a real plaza. Designed by famous architect, Junya Ishigami, the semi-outdoor void is totally free of columns and covered by a punctured continuous roof. The project is expected to accommodate a number of activities within the institute. However, when it comes to activities, the plaza may not be as huge as it appears.

According to Ishigami, the campus lacked natural environments where students could take a break and relax, sit on the ground enjoying lunch, take a nap, and even do sports training on rainy days. The project brought the definition of versatility to an extreme, as the 12-meter-thick roof covers 4,100 square meters of space without any interior supports. The obstacle free space becomes half-outdoor thanks to the 3.9 square punctures in the roof, which let in sunlight, rain and breeze. The height of the space varies between 2.2-2.8 meters, as the length of steel roof is affected by temperature, and is similar to the scale of traditional Japanese spaces. The relatively low ceiling also intensifies the relationship between floor and ceiling, making an atmosphere appropriate for sitting down. The ground is also designed to be concave echoing the roof’s bend. The project has caught eyes from all over the world with phenomenal photos of its nomad space.

The architect was devoted to creating a space where “the process of passing time becomes the subject”, and it seemed quite successful in that for individuals or small groups. However, the immense plaza may be less versatile than it is claimed, especially for large events. Firstly, as the huge plaza has only three small entrances through long and winding passageways, it doesn’t seem to be welcoming to a large number of people. Secondly, limited by its low ceiling, it doesn’t seem capable of supporting big events. Actually, most of the photos taken have only a few, if any, people inside. In fact, most people in the photos gather around the punctures and in the sunlight. Hence the continuous space is actually divided by the punctures in the roof. When the space is used for big events, such as the Completion Ceremony in 2020, we may find it weird that the students were actually sitting in chairs placed in a grid to impose order in the nomad space. This ordering definitely contradicts the architect’s idea of a place where people feel free to sit anywhere on the ground and to spend time. Thirdly, the completion ceremony only occupied a small part of the plaza. Actually, due to the concavity of both the floor and the roof, one cannot see the other side of the space from the edge, which limits the use of the space. It seems that this huge plaza is only capable of supporting little events. Considering the huge effort and cost to build such a huge column-free space, is it worth it? Maybe the project succeeds in that people can feel free to spend time there, but not in large groups.

References:

Completion Ceremony 2020 at Kanagawa Institute of Technology, showing that chairs are in a grid
Screen shot from https://www.youtube.com/watch?v=9r6w5718m75

Completion Ceremony 2020 at Kanagawa Institute of Technology, showing the space occupied
Screen shot from https://www.youtube.com/watch?v=9r6w5718m75

A photo with only 1 person inside.
https://www.spoonertmag.com/2021/01/07/junya-ishigami-makusha-plaza
Looking for affordable housing in Manhattan? It sounds difficult, but the Sugar Hill Mixed-Use Development is expected to make it easier. As David Adjaye, architect of the project, puts it, it creates “a new typology for affordable housing, with its mixed program of museum space, community facilities, offices and apartments.” While mixed-use projects are becoming routine, Sugar Hill proved to be distinctive in that cultural infrastructures take the place of retail. The cultural infrastructures also add to valuable new resources for the historic neighborhood of Sugar Hill. However, although the project succeeded in its urban character, its own residents may find their home prosaic, if not awkward.

With its charming scenery and rich culture, Sugar Hill has been considered a unique neighborhood in New York City. However, the area is changing rapidly, especially as more and more white Americans move into the low-income community that has traditionally been predominantly African and Latin American. Adjaye’s work introduced modern cultural infrastructures into the site while providing multi-family residences. The project, initiated by a non-profit developer of supportive housing (Broadway Housing Communities, BHC), is a public program with a tight budget. It consists of a children’s museum, an early childhood center, as well as 124 rental units for low-income families. According to the designer, they kept close collaboration with both the BHC and local communities to ensure the design is tied to its history, practical and aesthetic requirements. As a result, the mixed-use was designed as a textured 13-storey slab building, making the north edge of the community. The cultural infrastructures include a children’s museum located in the basement and an early childhood center located on the second floor. The residences are distributed from the third to the thirteenth floor. The apartments are provided with fascinating views, including Central Park and the Hudson River. Terraces are placed on the second, third, ninth and the rooftop.

The idea of including cultural infrastructures in a residential complex is innovative and proved to be quite successful. The museum and the childhood center are closely connected to the community, changing the atmosphere of the area. The 13-storey mass also became a landmark of the community and made the community more cohesive. On the other hand, the residential area of the project does not seem to be as satisfying as the designer expected. Firstly, the entrance of the residential part is separated from the cultural part. So the residents do not have convenient access to the cultural facilities. Secondly, the residential units are organized by ordinary double-loaded corridors, which make the public area dull and useless. Apparently, it actually failed to create a new prototype of LIVING. Thirdly, the slanted walls on the façade create an eye-catching appearance of the building, but simultaneously lead to a great number of awkward crevices in bedrooms and some living rooms. It seems that the Sugar Hill Mixed-Use Development is an influential project for the Sugar Hill Community and even for New York City. But does it mean a better life for its own residents? Maybe there will be different answers.

References


RETROSPECT AND REBELLION

On Arata Isozaki

The History of Architectural Theory, Fall 2021

Instructor: Mark Wiggley, Professor, Dean Emeritus, masu152@uol.comau

Abstract

In the Jury citation of Arata Isozaki's grant the 2019 Laureate of the Pritzker Architecture Prize, it reads, "He has brought together East and West, not through mimicry or as a collage, but through the forging of new paths." In the 1960s, Japanese architects were devoted to bringing Japanese perspectives to the world stage. Among them, Isozaki was one of the most influential. He was probably also the most unique, as he also made a dramatic shift in his ideas, refusing to define himself as a modernist for any longer, when most Japanese architects were enthusiastic in participating in the mass Japanese architectural campaigns. Instead of western urbanistic modernism, he revisited the traditional spaces in Japan, trying to find an alternative, Japanese approach towards future architecture. He attempted to influence the tradition and the modern, as well as the eastern and the western. He also made efforts to introduce Japanese traditions, and their contribution to modernism, to the general public all around the world. In 1968, Isozaki held an exhibition in Paris. Titled "MA-space in Japan", the exhibition illustrated Isozaki's unique thoughts about Japanese traditions. The "MA" (according to Isozaki), is the core of Japanese tradition in terms of space and time. The exhibition used nine sets of installations, introducing nine aspects of traditional Japanese space. Isozaki's ambitious thoughts succeed in introducing and describing another kind of Japanese modernism, distinctive in its own way. In Tange Kenzo's orthodoxy (the which persisted directly from Le Corbusier). However, Isozaki's approach was very rooted in Japanese culture, which made it difficult when faced with actual projects. When it comes to real modern projects, Japanese characteristics shown in Isozaki's works may become subtle and imperceptible, making the architecture similar to other postmodern works.

1. Background: Development of Japan-ness

The theory of Western modernism has had a great influence on Japanese architecture since the 1930s. When learning from Western modernism, Japanese architects also made continuous efforts to generate a type of modernism with "Japanese characteristics", distinguishing it from Western modernism architecture. This expected Japanese-styled modernism is often referred to as "Japan-ness". The discussion of Japan-ness originated from the competition at Tokyo National Museum held in 1931, when the nationalistic big roof emerged, and raised a wide discussion about "What is Japanese". In such discussion, architecture with Japanese interest is considered to embody within (1) presenting "Japanese" with real objects, (2) patterns from temples are used in real objects, (3) actively use of western technologies. This new nationalistic style soon became the mainstream of aesthetic in the 1930s. On the other hand, Bruno Taut's comments on traditional Japanese architecture made a difference to modern Japanese architecture, as he described Katsura Villa as "modern" and "functional". He also compared the Jingū to Arcopoli. Based on the observation of Katsura Villa and the Jingū, Taut was opposed to the approach of using traditional patterns to achieve modernity. Instead, he advocated using modernist international style to check and balance the symbolic expression under the national tendency.

Taut's re-discovery of Katsura Villa led to the strength of rationalism and further criticized of "architecture with Japanese interest". Such critics are considered their recognition of Japanese traditions as ambiguous and irrational. Rationalists, led by Sulimlit Horfsch, focused on architectural categories that originated from Japan, thus generating 2+Japan-style" elements: (1) concise plan and structure, (2) respect of material aesthetics, (3) non-decoration, (4) asymmetry, (5) coordination with nature, (6) Tatami-based module (Fujo, 1980). Rationalists re-discover values from traditional teahouses and shrines. However, as they attach great importance to understanding the tradition, the pursuit of ultimate rationality lead to a theory-oriented attitude towards architecture (Tahira, 1995).

As Japan tended to fall in WWII, there were further retrospective thoughts on Japan-ness. Murayama Masao perceived "nature" as an idea of formation as well as a Japanese outlook on life, contracting to "to act" as a constructive will of western behavior patterns. In addition, Ryūichi Hamaguchi introduced Alos Riegel and Wilhelm Worringer's Kunstwollen into the understanding of Japan-ness, and considered a Japanese Order as constructive principles. In this context, Japanese will of construction is based on the interaction between behavior and space (Nishi, 1995).
personal experience. Time and space here are not absolute, but individually perceived, and unfold in traditional Japanese space, where "hinmoege" acts as expectation of god's appearance, "yami" provides the symbolic garden, and "sabi" performed as the subtle connection between the human world and the other world.

2. Moving Experience: "Utsurohi", "Michiyuki" and "Hashi"

Of the nine concepts, there is a series of descriptions of movement. The most direct one is "Utsurohi", in which "itsu" means void, and "hi" means movement. Hence, "Utsurohi" refers to the moment that the god appears out of void. More generally, the term can indicate the shift from one status to another. According to Arata, "Utsurohi" is a way to obtain awareness of the moment that space and time moves. Japanese people are inherently touched by natural movements such as the aging of life, the withering of flowers, and the appearance of the soul. In the exhibition, reflective metal mirrors are used to create an unreal atmosphere. The subtle movements of the environment are thus magnified and better detected.

On the other hand, "Michiyuki" stressed the physical movement from one location to another. "Michi" has the meaning of road, and "yuki" is an indicator of direction. As a result, the path here is specifically designed. Inside the teahouse where this concept is presented, a series of step stones located with various intervals are installed to adjust the step and rhythm of the visitors. In addition, the Japanese drama of Kabuki was played in the teahouse. The performers moved on and off the stage in intended locations, making the performers' movement dramatic (Kato, 2007). "Michiyuki" here is a dramatization of physical movements.

Finally, "Hashi", having multiple meanings including bridge, edge, and chopsticks, points out the connection of space. In the Japanese context, anything between something else, or fills a gap, or connects two edges, could be nominated as "Hashi". Hence, "Hashi" showed a novel means of artistic interpretation. "Hashi" is shown as a long bridge leading to a platform in the exhibition. Notably, it can also refer to the connection between the human world and the spiritual world. The square platform in the exhibition is traditionally a place for seeing the moon, and hence perceived as a place that connects to the other world. The element of "Hashi" also unfolds in Isozaki's earlier exhibition in New York in 1970, where a giant bird cage was installed to distinguish the different worlds in Japanese perception and the subtle connections between them.

This set of three concepts showed the dynamism of space and time under the "MA" perception. "Utsurohi" and "Michiyuki" showed the movement of humans and things, while "Hashi" focused on the spatial movements. In all three aspects, space and time are not fragmented. Instead, they live on each other and change as the other change. To Isozaki used installations where space changes dramatically as time goes in the exhibition. Particularly, Japanese people paid much attention on moments, or the assembly of moments, Isozaki considered the keen capture of moments as a Japanese-style deconstruction of time, which also embodies in the widely use of sudden pauses and shifts in Japanese drama, music and poems.

3. Dwelling: "Suki", "Utsushimi" and "Susabi"

The original meaning of the term "MA" is the distance between two points, and more generally the void defined by four pieces of walls. "Suki" has various meanings in Japanese, ranging from void to preference. Isozaki used this term as an order of living space. The "Suki" teahouse is a prototype of traditional space, in which the furnishing and decorations are carefully adjusted according to the preference of the master. Isozaki used this specific kind of "Suki", but exhibited in larger scales. An equal-scale magnified and a reduced teahouse were to provide experiences of different scales. In this way, Isozaki provided a more direct awareness of Japanese scale system. "Utsushimi", or "Imagining the body", is a perception of the living space. Isozaki thought that "MA" is a place where life is lived, and "Utsushimi" turned out to be a collection of living. In the exhibition, a photographer presented different types of housing from various sections of Japan. This photographic record showed how life is lived in Japan. By excavating meaning from the houses, Isozaki revealed the tectonic aspect of "MA". The living space of an individual is largely influenced by climate, social class, education and personal preferences. According to Isozaki, all these housed are "MA" then "MA" is a comprehensive concept that accommodates all kinds of chaos.

"Susabi" means "to play", or act as a combination of "Su" (elementary) and "Sabi" (discussed earlier). "MA" is here referred to as an empty space where all kinds of events take place and dissipate. It can be seen easily that urban space is filled with chaotic symbols and styles, as well as dramatic performances and activities. It is an awareness of interest in everyday life. In the exhibitions, various clichés are shown to trigger awareness of Japanese symbols and their combinations.

Isozaki's discussion of dwelling is a space for life. The little unimaginable phenomena in daily life provide a casual and cordial atmosphere. This characteristic made "MA" not a mere architectural theory, but more closely related to Japanese daily life. It is also shown that Isozaki's exhibition is not only an exploration of Japanese traditions which also an abstract retrospect of the time and space from a modern perspective. According to Isozaki, this difference is not rebelling from tradition, but bringing Japanese characteristics to modernism.

III. A Hybrid of Eastern and Western

Both eastern and western influences could be observed from Isozaki's discussion about "MA". Isozaki's rediscovery of Japanese culture is definitely based on and influenced by predecessors' works. Traces could be observed that Isozaki borrowed concepts from other thinkers to form his own discussion.

The word 'Suki' originally refers to a type of traditional Japanese teahouse, and was earlier used as an example in Okakura's discussion on Zen and Japanese aesthetics. In his book of Sea Talk, he used a frame to explain the Japanese concept of 'MA' coming from the blend of a Chinese thinker Laozi (Isozaki & Hiro, 2004; Okakura, 2013). The Chinese void is considered to have every possibility because its nothing. In the foreword of explanation to his "MA" exhibition, Isozaki stated: "Space was believed to be fundamentally void" (Isozaki, 1979). It is only in the fundamentally void that the movement of soul, or the god, becomes possible. The use of void also unfolds in the section of "Utsushimi", as a void space is constructed, waiting for the god to appear.

Isozaki's claim on movements, particularly the distinction between "human world" and "spiritual world", also showed his dualistic worldview. This idea is not an invention of Isozaki, but a development of Kuki Shuzo's study on Japanese self-concept. He likened Japanese self-existence to the equations of N. Chihara, which includes a binary relationship between sacredness and sexuality. In another way, pointed out the difference between Japanese and Chinese binary. That is, Chinese binary consists of two elements (usually referred to as yin and yang), while Japanese binary used one joint but contradictory concept (the "MA"). In this way, Japanese MA is kind of middle of the polar yang and yin. In fact, one of literal meanings of MA is "between" or "middle" (Isozaki, 1979). In isozaki's exhibition design, he didn't use dual items. Instead, he used connections such as the bridge in "Hashi".

Another important aspect of Japanese culture is the worship of darkness, which also embodied in Isozaki's "MA" theory. In Junichi Tanizaki's In Praise of Shadow, the darkness as a component of Japanese architectural space is specifically discussed. Japanese tend to appreciate the darkness, and worked closely with darkness (Tanizaki, 1977). Prior to the exhibition, Isozaki mentioned Tanizaki's work in a paper published in 1964, and claimed that the concept of darkness will become an attitude to comment his own architectural work (Isozaki, 1991). In Japanese language, claimed that the element of "yami" is the same word as the darkness' discussed by Junichiro. The use of darkness could also be observed from the exhibition of "Suki", "Morogoe" or "Sabi". The re-discovery of the importance of darkness is a fundamental attitude in Isozaki's theory of "MA".

On the other hand, Isozaki's thoughts were apparently influenced by western philosophy. Primarily, the exhibition was an international one held in Paris, and was aimed to introduce Japanese space to the Western audience. In the publication about the exhibition, an additional introduction by Claude Levi-Stross was included. Titled "Discreet Gods", it described Isozaki's nine elements of "MA" as a structuralist system, which element here is made up from other words, forming a tree of terms (Isozaki, 1979). The system is filled with chains of the signifier and the signified. For example, "sabi" is an independent concept but also a component of "susabi" and thus used to explain the latter concept. The nine elements of "MA" is not only a classification of Japanese culture. This is not only a characteristic of Japanese language and culture, but also a result of analyzing Japanese culture with structural linguistics methods.

Isozaki tried to achieve a unification of space and time in the Japanese context. Similar attempts could be found in the development of modern architecture. Isozaki referred to Sigfried Giedion, as he pointed out the unified expression of space and time to be the perception approach to promote the development of modernism. Additionally, Isozaki claimed that Japanese unification of time and space underlies in the use of language. When translating the western concept "space" and "time" into Japanese, the same suffix, "MA", is used (Nikolaus, 2013). This showed the deep consciousness of the unification of Japanese space and time.

As a Japanese architect, Isozaki tried to describe the Japanese culture from a Japanese perspective. Until 1960s, analyses of Japanese culture had been conducted by westerners. In 1966, French novelist Roland Barthes visited Japan, and analyzed Japanese social culture in a semiotic way (later published in 1970 in L'Empire des Signes). Isozaki saw his exhibition in Paris as a response to Roland's opinions. He recognized Roland's work as a decomstruction of Japanese space, and describing Japanese culture as a semiotic system (Isozaki, 2015). The deconstruction of meaning also embodied in Isozaki's exhibition. Plenty of evidence could be observed, including the use of the assembly of various cultural symbols in the "Susabi" section, and the photography of simple eating in the "Utsushimi" section. In both exhibitions, the room was filled with all kinds of signs, and people's lives are dominated and occupied by continuously unfolding cultural signs as well as their compositions. Unlike Roland, Isozaki revealed Japan-ness through the explanation of "MA" in these exhibitions.

With influence from both the east and the west, Isozaki managed to generate his own explanation of Japanese space and time. The exhibition was a direct attempt at cross-cultural communication, using specific spatial experiences to introduce Japanese-ness to the Western audience.

IV. Discussion: Rebellions from Metabolism

Isozaki is always an ambitious architect and thinker. Isozaki's theory of 'MA' is deeply rooted in Japanese traditions and influenced by modernism thoughts. However, his theory is critical, particularly to post-war architecture in Japan. The first modern Japanese architects learned directly from modernism, especially from Le Corbusier, in the 1930s. These knowledge were then applied to large-scale plans,
Japan soon recovered from the war. In the 1960s, with the prosperity of the economics of Japan, Japanese architects began to propose avant-garde manifestos. In 1960, the metabolism was raised at the Tokyo World Design Conference, making a profound influence on the architecture theory. The architects used the biological term ‘metabolism’ in order to show their vision of considering design or technology as an expansion of human vitality. They expect not only to accept, but also to promote the metabolism of history. The projects shown in the conference showed new thoughts of mass production, standardized pre-fabricated units, mega-structure, and aimed toward a ‘city of the future’. Another issue raised by Metabolists was the relationship or ‘linkage’ between architecture and environment. The mega-structures by Metabolists called for the transition of view from traditional ‘space’ to mobile ‘environment’. The metabolism was filled with the pursuit for utopian megastructures and dissection to new technologies. It also marked the complete absorption of western modernism. At that time, Japanese architects were considered to be at the forefront of modern globalization.

Although the campaign was led by Japanese architects, it was not widely considered an independent Japanese architectural theory. Metabolists’ works still borrow theory and form from the Western modernism, and were thus accepted as part of the Western modernism theory system. In the 1970 Osaka Expo, Tanega Kenzo made the masterpiece, bringing the grand expectations in the 1960s of Japanese architects to the world. Unfortunately, the ensuing financial crisis in the 1970s soon diminished the enthusiasm of the Japanese public for the hyperbolic plans. Hence, the 1970 Osaka Expo is considered the last novelty of metabolism.

Although Arata Isozaki was able to define himself as a metabolism architect, he took part in the campaign of metabolism at the beginning. His plans for the city of Tokyo in 1963, including in Marunouchi, Shinjuku and Shibuya, showed a giant frameworks of rectangular service towers and cubic units.

Such work may the last linkage between Arata Isozaki and metabolism. Isozaki did not conform to the metabolism architects. Instead, he held a critical perspective towards metabolism works. After Isozaki left his tutor Kenzo Tange’s architectural firm and started his own business in 1963, he was faced with a completely different modernism background as in Tanega’s time. Isozaki saw the Expo as a mistake. In the 1970 Osaka Expo, Japanese people struggled to prove themselves as modern, but turned out to be vulgar and awkward. (Isozaki, 1998). The economics and technologies had taken place of culture to become representatives of Japan. However, Japan has lost itself in its own culture and technology. The old traditions became overwhelmed by modern architecture. The old traditions became a new form of modernism. Isozaki’s “City Demolition industries” and “City in the Sky”, proposed that destroying massive cities is the only reality. “City in the Air” removes the residing humanity in modernity with military crudeness. The future of the city lies in ruins, lost in the cycle of mega-architectural and eschatological destruction, so where is the ultimate way out? Isozaki’s Fukuioka Bank Big Branch (1966-67) design can be seen as a contemporary moment as opposed to modernity, where we see a certain kind of “Japan-ness” where architecture is no longer built around the worship of ancestors within traditional culture, but a metaphorical discourse around a history translated through a collage of popular culture such as amusement parks, Godzilla, villous real estate tycoons, “demolition expert” and robotic libraries across the cityscape.

Although Isozaki participated in the 1960 World Design Conference held in Tokyo, named and signed the manifesto of metabolism, and was invited to be a member of the Metabolists, he kept distance from the metabolism campaign, and finally got rid of it. He tried to distinguish himself from Tange Kenzo intentionally. As a consequence, Isozaki decided to construct an individual path to re-construct Japanese space. By the time he organized the “MA exhibition”, he had totally departed from the Metabolists (Koizumi, 2011). In the “MA exhibition”, he could observe a completely different methodology from western architecture. Isozaki borrowed ideas from western philosophy, but from neither mechanization nor urbanization. Instead, he introduced ideas from some other non-architectural territories such as phenomenology, linguistics and structural anthropology. In his introduction to the exhibition, he nominated “MA” as not only an architectural, artistic, music, game and imagination metaphor of Invisible Cities, but also ideas of these subjects, Isozaki discussed the differences between Western and Japanese conceptions. The architecture here is part of a broader range of culture and art, instead of a subject of technology. Notably, he is proved not to be simply anti-technology, as he also used pieces of machinery in the “MA exhibition” to achieve his desired performance. In another word, Isozaki is using technologies to show a possibility of modernism other than modern technologies. It is also a evidence of Isozaki’s rebellion and innovation.

Isozaki also re-thinking the process of constructing in his theory of “MA”. As a Japanese architect who witnessed the devastating WWII in his school days, he began to construct the meaning of war. Particularly, he witnessed the sudden devastation of the city of Hiroshima and Nagasaki in the Second World War. Indeed, the shape of the city piece of architecture never fulfills its meaning until it collapses. In the logic of ancient Japan, it is only in ruins that a building achieved complete harmony and order. This thought is very different from the optimistic trend after WWII, when many architects and the public had the imagination of contemporary architecture; mechanical, biomorphic, and large scalefuture cities. Isozaki was solitude, but pioneering the evolution of Japanese architectural theory.

V. Limitations: Between Tradition and Modernity

As an architect of the post-modern generation, Arata Isozaki strived to discuss tradition in his own way. This is not because he needed to borrow forms from Japanese tradition. As a matter of fact, although he signed the manifesto of Metabolism at the very beginning and produced a number of works that resembles metabolism design, he had repeatedly stated that he refused to directly use traditional elements and refused to be recognized as a representative of Japanese. Isozaki’s continuing discussion on traditional architectural issues is itself an expression of modernity, since these issues were only raised upon the introduction of the Western concept of “architecture” into Japan. From Isozaki’s works, interpretation from tradition to modernity could be found mainly reflected in two aspects: “Inheritance” and “Rebellion”.

Isozaki’s inheritance of tradition embodies in two points: narrative system and cultural structure. In terms of narrative system, whether it is the debate about “Japan-ness” for several generations, or the discussion of the concept of “MA” as a Japanese philosophy of time and space, or the traditional buildings such as Katsura Palace, had been already discussed vigorously and was no new topics. It is on these inherent issues that Isozaki’s narratives takes its root. Isozaki’s discussion of tradition was intentionally placed into the title of narrative system. For “cultural structure”, Isozaki regarded “Japan-ness” as a result of interaction between Japan and the Western world, from whichIsozaki elaborated his discussion of the “MA” space. In addition, the Isozaki’s “MA” space also resulted from the process of “MA” produced by the constant impact of a foreign culture on the country of Japan. In this context, the “MA” space is no longer a physical space with certain fixed characteristics, but an abstract space that is constantly changing through times within the Japanese “cultural structure”.

Isozaki’s rebellion is also reflected in two points: his rebellion against “traditional forms” and his struggle against the new contemporary era these two points are reflected in his subtle and critical attitude towards his mentor Kenzo Tange’s works. As mentioned earlier, he was reluctant to recognize Tange’s influence, he felt that Tange in his works projected a legitimacy of ethnicity and nationalism that came from the traditional design of the Japanese people. This rebellion against the established design of the Japanese people can be seen as a part of his unique national identity and nationalism, which is the only alternative to the established design of the Japanese people.
virtual image side, and will flow to the future. Backtracking towards the original source, excluding time and space to reach the realm of "MA". The exterior space of Tsukuba Central Plaza references multiple historical elements, breaks the integrity of the building complex, and reinforces the void realm advocated by "MA". The combination of the golden section reflects the typical Western sense of form, and each part is intertwined and confronted, which makes people realize the oriental philosophy of Yin and Yang. The seemingly messy accumulation conveys a certain sense of nothingness. Behind the pure formal language, there is Isozaki’s deep understandings and thoughts of "MA", which he believes is the result of using Western logic to elaborate Japanese spatial characteristics.

All the featured architectural projects, if seen from a modern Western perspective, showed little obvious difference from modern or post-modern architectural projects in other parts of the world. The use of abstract cube frames could also be found in works of the Richard Meier. Although the "MA" exhibition showed surprising abstract installations, the architectural space of Isozaki’s museum works just looked modern and could be found not uncanny at all. They can be expected to take place anywhere in the world. Then where are the "Japanese characteristics"? Through Isozaki’s explanation of his projects, traces of amalgamating the tradition and the modern could be realized. But could this ingenuity be observed from the architecture itself? The answer may be uncertain. Probably this is what Arata Isozaki was pursuing: an imperceptible assimilation of tradition into contemporary daily life, and a blurred difference between Japanese culture and Western modernism. In fact, the exhibition of "MA" itself is a great example, through which Isozaki was trying to produce an abstract of, or modernized Japanese tradition, and introducing them to the Western audience.

VI. Conclusion

Arata Isozaki is an outstanding thinker who brought Western thoughts into Japanese architecture, and introduced Japanese traditions to modernism. In his "MA" exhibition in 1978, he introduced Japanese concepts to Western audiences innovatively. The exhibition is looking into Japanese traditions from a Western perspective. The methodology of space perception showed in the exhibition attempted to apply Japanese concepts to modernism, and showed complete rebellion from both orthodox modernism and Tange Kenzo’s Metabolism. Isozaki tried to unify the concepts of space and time, and to unify the tradition and the modern, and achieve an overall experience through perception. Such thoughts are translated into real-world scenes, and conveyed directly to the Western world, in his famous "MA" exhibition.

On the other hand, this idealistic mixed approach maybe insufficient when used as guidelines for actual projects. Isozaki made attempts to concentrate his theory with architecture. However, the result may be found showing little difference from postmodern architecture. Isozaki’s theory is based on a dualism. It attempted to make a balance between the Eastern and the Western, and between modernity and tradition. This led to the paradox shown in Isozaki’s works. However, this characteristic is probably exactly what Isozaki wanted, as he made continuous efforts to communicate with the Western world, bringing Japan and the world together. He was quite successful in achieving that goal, as his elaboration of Japanese traditions was quite adapted to western perspective. He was probably also successful in bringing Japanese architecture modern (or postmodern, if compared with Le Corbusier’s and Tange’s modernism), although it was an alternative approach compared to Tange Kenzo’s. Isozaki took the responsibility of making modern Japanese architecture without Japanese elements, but with Japanese spirits. His architectural works, whether fulfilled his original visions and expectations of "MA" or not, revealed a unique path towards "Japanese-ness" and turned out to be milestones in the history of Japanese architecture.

References

Cooper Hewitt Museum.
07

CONTEXTUALIZING A CONCEPT

On Bagsvaerd Church

Architecture: The Contemporary Spring 2022

Collaborator: Dhruba LAKSHMINARAYANAN, Danielle NRI

Instructor: Bernard Tschumi, Professor, Dean Emeritus, bit@columbia.edu

Bagsvaerd Church / Jorn Utzon / Contextualizing a Concept

In Towards a Critical Regionalism, Kenneth Frampton refers to Jorn Utzon’s Bagsvaerd Church as ‘a work whose complex meaning stems directly from a revealed conjunction between, on the one hand, the rationality of normative critique and, on the other, the arationality of idiosyncratic form’ (Frampton, 22). Frampton argues that the success of the Bagsvaerd Church lies in Utzon’s skillful negotiation between universal precast concrete construction and uneconomic vault construction. While Frampton’s point is important, Utzon’s intentions behind the Bagsvaerd Church reach beyond construction techniques. At the Bagsvaerd Church, Utzon successfully contextualizes a rather idiosyncratic concept by conforming and contrasting to its Danish context in form, structure, and materiality.

The Bagsvaerd Church was completed in 1976 and is located in the outskirts of Copenhagen, Denmark. The immediate context of the church is predominantly suburban to the north of the site and is surrounded by institutions including an assisted living facility, schools, a sports club, a hospital, and industrial and commercial offices, below the main Bagsvaerd street. The surrounding institutional and industrial footprints are broken down into an assembly of buildings rather than as large monolithic structures. At an aerial view, one can see that Utzon’s emphasis of the long, orthogonal corridors that travel through the building is related back to these contextual footprints that combine an assembly of buildings onto one site.

When thinking of the larger Danish context, the Bagsvaerd Church plan is also suggestive of the Danish castle typology. For example, looking at Frederiksborg Castle, which is located in northern Denmark, elucidates the relationship between Utzon’s treatment of the orthogonal corridors as breaking up the rhythm of the site. The castle’s plan includes the main castle building which has a square footprint with a courtyard and a larger open courtyard that is framed by two rectangular structures. In the castle plan the rectangular armatures are the buildings themselves, while in Utzon’s plan they are the corridors of the church.

While analyzing Bagsvaerd Church sectionally, and comparing it with sections of other famous building typologies in Copenhagen, it becomes apparent that the atmospheric qualities and sinuosity of the inside are akin to the monumentality of large cathedrals in the region, such as the Ribe Cathedral in Copenhagen. However, the structure itself has far more in common with the sections of the factories and warehouses that surround the church, and are common in the region. For example, the Copenhagen Factory, which was recently revamped by BIG Architects, possessed a similar terraced roof condition as the church, which was used to situate the now infamous rooftop ski slope. Utzon conforms to this prevalent warehouse/industrial style to contain his ethereal, dreamy concept of the clouds above that filters in light to the earth. In the words of Utzon himself, “understand the peace that wind gives — and sometimes it brings some clouds with it, and then the light and the sun fall through the clouds down on to the sand.”

The drastic contrast between the interior and the exterior also lies in the materiality and atmosphere. The building is covered with an ordinary aluminum roof. While the curvilinear interior is made up with prefabricated concrete panels with horizontal patterns. The nave is illuminated by a high side window facing northwest, which allows in ambient sunlight. The light is also made softer by the diffusion from the curved concrete panels, stabilizing the concept of cloud. On the other hand, the approach towards the building system, compromising an in-situ concrete frame with prefabricated concrete in-fill elements, is commonly contextualized. As Kenneth Frampton argued, “The universality of prefabricated concrete in-fill elements is abruptly mediated when one passes from the optimal modular skin of the exterior to the far less optimal reinforced concrete shell vault spanning the nave.” The unasuming exterior optimal modular skin and dramatic interior are both achieved through contextualized normal techniques.
to projects at least 20 percent below the lowest rents at which private enterprise unaided by public subsidy is providing to an adequate supply of decent housing in the respective localities. Of course such regulations gave privilege to the public housing. But the public housing system seems to have failed to stop more people from poverty. Slums continue to exist. An upsetting fact is that most architectural programs are adept in raising the public's awareness of problems, in which case, the poor are actually excluded from "public" discussion. In worse cases, the low income people are just actors in the buildings where pictures are taken and news is written to show the achievements of the architects.

Then to design for whom? Many of us, especially architects and architectural professionals, are accustomed to the powerlessness brought into architecture since modernism. Undoubtedly modernism successfully produced massive housing for millions of people and helped them recover from World War II, framed modern cities, and led to a new aesthetic of architectural design. However, in an era where social issues have become and are still getting more and more concerned, we are not likely to optimistically believe in the didactic power of architecture to shape public lives, as claimed decades ago by Sigfried Giedion or Christopher Alexander. On the contrary, attempts on actually shaping and teaching people's behaviors would probably be recognized as condescending and arrogant (or even colonizing, in certain circumstances). Especially, as in most cases, the architect him/herself doesn't come from the specific background. Architectural theories sometimes seem pale towards these problems. The modern cities and prototypes of housing deserves questioning even if not counting in cultural issues, as they themselves may not be fully credible and satisfying in seen from a retropective perspective. Every modern architect must have experienced both the convenience of life constructed in modern cities and the reluctance of being shaped and fit into a huge urban machine. Are we going to replicate the modern (or upper-leveled) typologies to the designing for a lower level of society? The development of architecture the subject seems to have a rich tradition of serving the wealth, from Palladio to Mies van der Rohe. This top-down strategy may be (and should be?) challenged in a more decentralized social context.

It should be noted that social issues are never all the challenges of housing design as architecture and buildings are given more responsibilities in terms of sustainability, which is another issue just as important as the technologies are rapidly developing. But the logic of science seems to be top-down. The key to advanced technologies is in fewer elater hands. In this case, it is unfortunately again the elites, not only architects; but also scientists in various fields, who are responsible for producing more effective, low-carbon, sustainable housing. Coincidentally this is absolutely an inverse decision-making process. In addition, scientists and architects surely have the ability to produce design proposals that meet all needs. However, this requires extra work, both intellectually and materially, and has the chance to be embodied in the cost of housing. Public housing projects are huge and take up an insuperable of building energy cost. However, should the low-income families be responsible for that? This of course requires negotiation and coordination, and probably requires a third party to deal with both social and technical problems. In either case, a renewed architectural design program is necessary, and so are the related regulations. As a result, even the government is responsible for the successful implementation of novel housing projects. In the end, maybe no one is out of the issue of housing. Housing is both for every resident and for the public. Probably everyone is participating in, and are therefore responsible for new new-era housing projects.

Then to design for whom? In terms of housing, maybe it is not to design for someone. Everyone is doing the design, and it is to design for everyone.
[ REACTION ]

[ VISUALIZATIONS ]

HEXAGONAL CUBES
Modular Tiles / Transitional Geometries / Fall 2021

RANGER'S HOMES
Scene Renders / Techniques of the Unreal / Fall 2021

GENERATING WALL
Computational Works / Generative Design / Spring 2022
HEXAGONAL CUBES
Modular Tiles
Transitional Geometries, Fall 2021
Instructor: Joshua JORDAN, Adjunct Assistant Professor, jjj2134@columbia.edu

1. 3d print cube halves
2. Make the wall
3. Glue a pencil
4. Pour in silicone
5. Make cuts in the mold
6. Glue to the base
7. Take out the mold
8. Pour in rockite
9. Make the tiles!
RANGER’S HOMES

Scene Renders

Techniques of the Unreal, Fall 2021
Collaborator: Haoran XU
Instructor: Joseph BRENNAN, Adjunct Assistant Professor, jab2315@columbia.edu
Phillip CRUMP, Adjunct Assistant Professor, pwc2110@columbia.edu
GENERATING WALL
Computational Works
Generative Design, Spring 2022
Collaborator: Malvina MATHIODIAK, Vinay AGRAWAL
Instructor: Danil NAGY, Adjunct Assistant Professor, dn216@columbia.edu

Variables/Parameters
- Dimensions of the movable unit
- Type of Rotation: Horizontal/Vertical
- Rotation axis position: Along the movable unit
- Angle of rotation with the wall

Run options
- Designs per generation: 1, 5, 10
- Selection rate: 0.05
- Crossover rate: 0.85