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Architectural Design Studio Works Exploring Archetype Based on Ecological Sensibilities from Experiencing Najdi Architecture of At-Turaif Town and Modern Riyadh †

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Abstract: The numbness to human loss becomes ordinary. Indifference to human affairs seems normal after experiencing the global lockdown. Bringing up empathy becomes the most challenging task in architectural design studios after the COVID-19 pandemic. Examining otherness solidified after a global pandemic would be a way to revive empathy and to engage more in architectural design studios. The physiological disparity between the modern and the vernacular environments narrows down with the revival of Najdi architecture, the Salmani architecture style, and the Diriyah Gate Project in Riyadh, KSA. The disparity is caused by intangible factors such as speed, density, and tension but the revival focuses heavily on the tangible, formal expression. The architectural elements in the vernacular Najdi architecture have different meanings and roles beyond being a decorative motif. The feeble values of the vernacular undermined by touristic images are challenged by a series of radical design projects not to be generalized again by picturesque replicas of the past. Seeing the lost, the ecological sensibility of a community or collective that embraced the harshest land with full respect, might not be visual but is instead radically experiential, like a serendipitous breeze in Riyadh. This paper introduces a series of studio works that challenge how to bring back the living structure, in the harshest environment, to daily life through experimental and speculative design processes. It proposes how a community is called on to guard the environmental landscape, again defying the visual interpretation of Najdi architecture in a political landscape dominated by high fence walls.

Keywords: Najdi architecture; modernity; Doxiadis's grid; ecological sensibility; archetype

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1. Introduction

There is a peculiar tribal town, approximately 500 m × 700 m in size, located along a desert valley, Wadi Hanifa. Meanwhile, symbolic 2 km × 2 km modern superblocks occupy two thirds of the city of Riyadh. The extreme disparity between these ontologically polarized urban settings overwhelms and leaves a blank and puzzled mind as one sees futuristic mega projects fulfilling Vision 2030 and the Salmani architecture style [1] valuing Najdi architectural features simultaneously.

Najd is the name of the central area of Arabian Peninsula. Najd consists of five regions: Diriyah, Sudu, Alkhabra, Ushaiger, and Riyadh (Figure 1) [2]. One of the five Najd areas, At-Turaif district in Diriyah, was listed as a World Heritage site in 2010. UNESCO describes it thus: "This property was the first capital of the Saudi Dynasty, in the heart of the Arabian Peninsula, north-west of Riyadh. Founded in the 15th century, it bears witness to the Najdi architectural style, which is specific to the centre of the Arabian Peninsula. In the 18th and early 19th century, its political and religious role increased, and the citadel at at-Turaif became the centre of the temporal power of the House of Saud and the spread of the Salafiyya reform inside the Muslim religion. The property includes the remains of many palaces and an urban ensemble built on the edge of the ad-Dir'iyah oasis" [3]. This description comes with the recognition of building methods and the presence of an outstanding human settlement in a desert environment. Courtyard houses mediating private and public worlds play a crucial role in Islamic family and culture [4]. However, with the advancement of the oil industry, the ARAMCO House program was introduced and has become the main residential typology since 1950s. It inverted the condition of figure and ground from the traditional houses; central courtyards are occupied by the house body. The empty space wraps around the house behind fence walls. Residents are isolated from the streets. Since 1975, Doxiadis's 2 km × 2 km superblock with no public transportation was implemented, the inner block, laid out in a pin wheel formation of hierarchical roads, propelled the isolated and exclusive urban environment with no proper pedestrian networks [5].



Figure 1. Transformation of Houses from Najdi Towns to Modern Villas in Doxiadis' Grid. Sources: Author [2,4–9].

The unforeseen shift from wall houses directly facing streets to fenced houses led scholars to discern the difference between the ecological setting mentioned in UNESCO criterion and the political setting of modernism; from narrowness between houses to cover the path to wide streets for cars confirmed by fenced walls excluding otherness, further to the barren but paved streets exposed under the scorching sun in a symbolic order of unity. In the polarity between productions of the mechanical cutouts of modernism and of the definitive forms of the past to confirm the puzzled identity even in architectural design studios, a series of design projects, intended to register architectural factors of Najdi architecture and to bring back inclusiveness in interwoven densities of living structures, have been conducted since 2016. There were things beyond distinctive Najdi architectural elements, not obvious visually, but highly perceptible and sensual when experiencing At-Turaif town, grown out from Wadi Hanifah. The building material is earth; clay was extracted from down the valley and dried and used for walls. Palm trees and tamarisk were used for roofing and doors [10]. It's built form factors might have included underground living, with buildings linked by paths like a rhizome carved by wind and water with a communal will. The design methods, interpreting regional architectural factors but not copying the elements, led scholars to wonder about an archetype [11] of a collective will that was radical, not rational, when thinking about "mapping" a desert land for sustaining a living structure.

Social and cultural factors affecting its peculiar architectural setting have been investigated as architectural design parameters and collected as a set of experiments on the ecological sensibilities of Najdi architecture. The sense of wholeness with live-ness over likeness of modern cubists' aesthetics, such as camouflage fence walls with two doors, were explored (Figure 1). The intangibles from experiencing At-Turaif were tested to stop the act of "tracing" architectural elements. Architectural design studio works introduced here have investigated, detected, and fleshed out the continued, the hidden, and the lost in modern Riyadh, where ARAMCO style houses with high fence walls in low density organizations in the midst of speedy highways are dominant.

2. Materials and Methods

Architectural studio works, from urban design to residential design, are developed through three design phases: an experimental ideation after a sensory site visit, narrative programming, and embodiment. Personal experiences of places are documented by a collection of ordinary things picked up from the site to encourage an act of personal engagement to the place. The things deserted or trashed on the street are considered as an instrument and as evidence to imagine and embody spatial programming and built forms. It resets students to be unpretentious on seeing architecture. Students were asked to discover their own order from the informal assemblage instead of ordering them to be an "architecture". In the embodiment phase, students studied the existential logic of the odd forms to function actually in reality. Form, what we call principles, is made up of observation and hypothesis on the most permanent component of architecture [12]. The methods and materials applied here are the outcome of fights against fixation and preconceptions of creativity fleeing from any intent of reproduction.

The collection of ordinary things as clues for mapping the site replaced tracing the data of the site. Experiencing the context with actual materials from the site to design users' movements of projects were essential in the programming phases. The imagined narrations as to how they related themselves to a place with a thing played as a map, externalizing various forces being active in the existing environment, so they could set up their own logic to assemble the ordinary things with vibrant colors and materials to fulfill architectural requirements in the mono-colored and mono-textured city of Riyadh. Inserting their peculiar moments into the layers of existing context was an act of disruption to the fixed urban grids. The process is implemented as seeds to grow out of the barren urban settings. It aimed to restore the ecological sensibility that corelates with various

forces, not to form the iconic images, but to humanize super blocks with singularities in layers of motion.

Making physical models with refurbished materials throughout design phases was designed to increase the degree of empathy in order to question the validity of mechanical cutouts from machines to perfect the presentation materials. To function as architectural elements, refurbished materials challenged students' imaginations and required constant revisions and care in an attentive manner. Digital tools; REVIT 2018, Rhinoceros 16, and3D Printing are applied in design and production, but the applications often intimidate students' spontaneous interventions and personal improvisations. Therefore, the design is fixed according to the machine. Students are asked to repeatedly review their works carefully to determine whether the incomplete project adopted the sleekness afforded by the digital tools for the sake of presentation. Students are excited about the free forms generated by Rhinoceros 3D 16, Grasshoper. Without testing models by hand, students tend to settle with the generative forms. Hybrid models were proposed for the final models.

A literature review on ecological sensibility is included after the collected studio works to clarify design parameters established by ecological experiences intended to document the undetected, the erased, and the intangible from the site visits along with hermeneutic readings on land. The physiological experiences of the site, which were projected to ordinary things rather than data collection, have been studied and explored, but it relies on ecological sensibility shifting students' decision makings on objects to be subjects. To escape from preplanned geometrical relationships for purified perfection, a set of rules were given to register and interpret informality of the ordinary things to guide narrative architectural operations. All projects are completed when students put their individual models on the site together as a part of the block. The collaboration with their adjacent projects is not forced. It is left as chances to conclude. All projects were executed with one condition: no fence walls. Simply, the following studio works would function as a guide on how to not have fence walls in Riyadh by experiencing and interpreting At-Turaif town.

3. Architecture Studio Projects

3.1. House of 20 Shadows, 2018_Shadows as Fence Walls

The studio was started with space units disassembled from a typical modern house occupying the center of a plot with fence walls in Riyadh. With the recognition of the inverted figure and ground condition from Najdi houses, the modern building mass, distanced from 3 m height fence walls, was disassembled to be rearranged to multiply shadows and shades. Layers of cardboard sheet were used to make solids of the space units to investigate shadows and shades under daylight. Along with the experimentation of shadows and shades, ordinary things scattered around the site were picked up and collected during the first site visit to map the context in reality. It is contrived to extend pedestrians inside the house, which are usually segregated and isolated by the fence walls (Figure 2). Their diverse materiality is scaled up to question building envelopes painted in one color onto concrete blocks.

After a series of photos documenting daily shadows and shades, Gustav Klimt's "Hug" (Figure 2) [13] was introduced to simulate the spatial condition under a veil, as the central house mass is encompassed by fence walls in Riyadh. The two bodies hidden under a veil reflect the social context; a family and guests in a house wrapped in fence walls. The human bodies are built with various sizes of paper boxes representing the volumes of body parts. The pose composed by two bodies under the veil was imagined to structure the veil. The model documented daily shadow patterns, which were then overlapped transparently to confirm 20 shadows around the pose model along the real shadows documented from the daily environment. Students realized the impact of empty spaces, questioning the massive house body at the center of the site. The empty spaces between space units used to draw the layers of shadows helped to design circulations and locations of openings. The study questioned the necessity of fence walls for social privacy. The freed and animated shadows in various tones explored spatial privacy over social privacy. Therefore, the inverted figure

and ground found a functional similar to the original courtyard house typology, which had no fence walls. For the phase of embodiment, the two bodies in the painting were translated as a shadow machine generating 20 shadows of a house without fence walls.

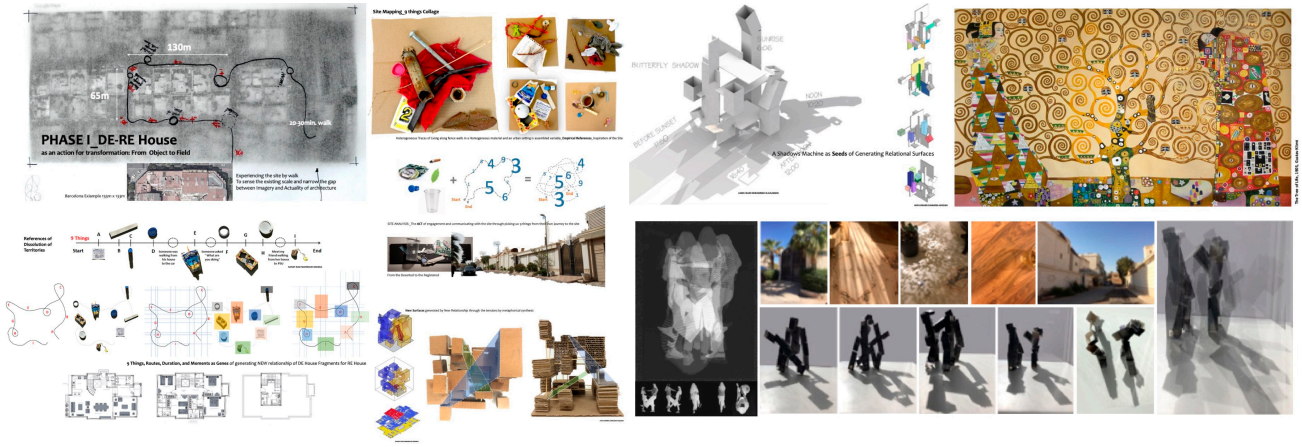


Figure 2. Ordinary Things and Shadow Machine by Klimt's "Hug", Sources: Author [13–15].

The shadow machine constructed with volumetric tubes is placed to empty the building mass for flows of light, air, and human motions. One is designated for the family and the other for guests. The 2D and 3D collage of ordinary things were an instrument to articulate a path with openings on the two bodies for 20 shadows and shades (Figure 3). The constant flow of movement of humans, air, and light provided clues to locate home activities in pleasant shadows and shades. Activities gathering around the machine form places for users' preferences according to students' scenarios of home.

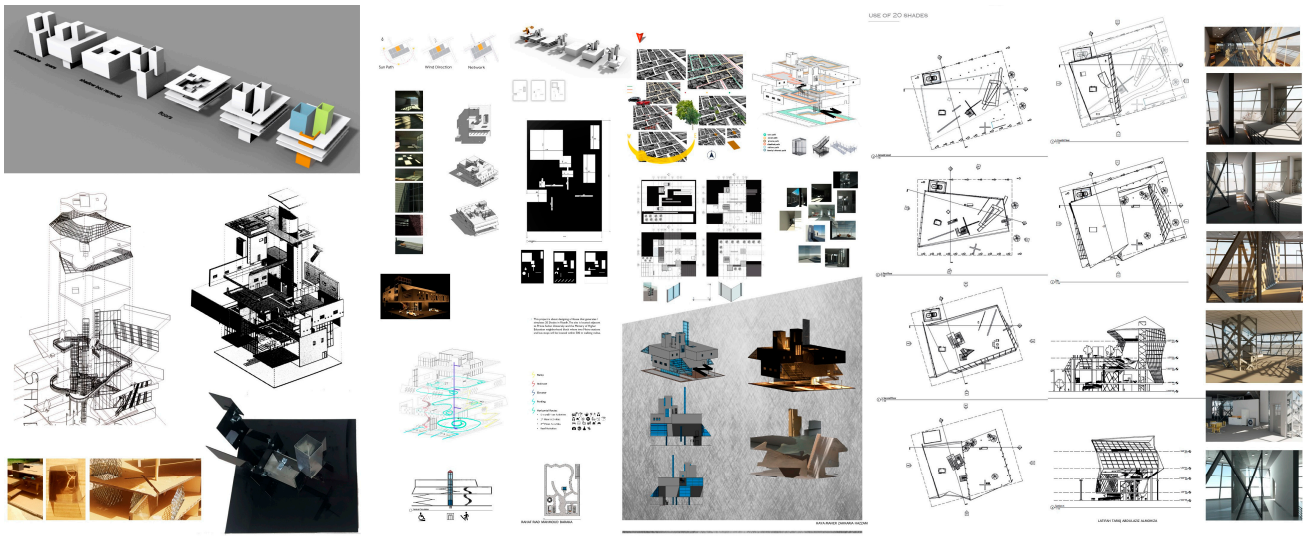


Figure 3. House of 20 Shadows Final Panels. Sources: Author [14,15].

Any intention to form a "house" was questioned and discussed in order to recall the environmental necessities embodied Najdi architecture over "privacy" justifying fenced ARAMCO house types (Figure 4). The number 20 was given to students as a mystery, not to be revealed until the end of the project. It is the multiplication of the four cardinal directions North, East, South, and West with five daily prayer times. The layers of shadows due to other students' adjacent projects covered the paths between them. They showed a way not to have fence walls but instead to make use of shadows in various intensities to secure privacy. The dead space along the fence walls, activated with various tones of shadows, bring design attention to the borders rather than the central figures.

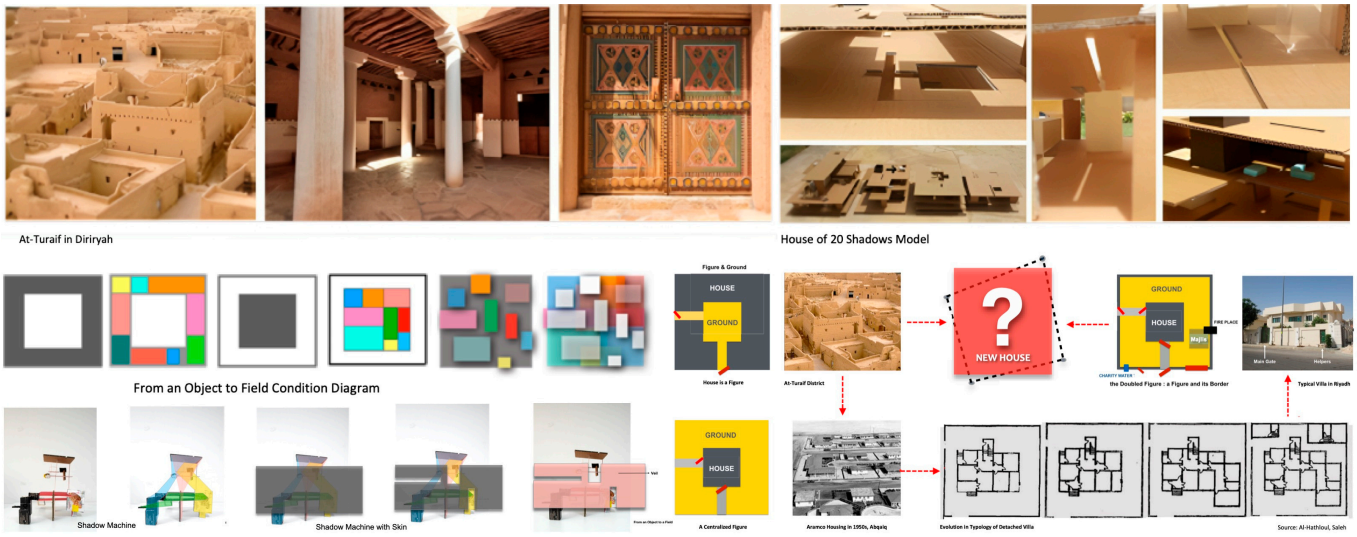


Figure 4. At-Turaif, House of 20 Shadows and Evolution Diagram, Source: Author [2,3,15,16].

3.2. House as Liminal Body, 2022_Interstitial Spaces

After documenting the site conditions, which are inactive and indifferent despite being surrounded by universities at the center of Riyadh, three materials were selected to be assembled by hand with no glue to study movements in a house. The movements in houses were characterized by the materiality instead of representing them in terms of privacy and exposure. With the hypothesis that each material represented movements in a house, students were asked to map space units on the linear plot, matching each materiality and the accidental joints, followed by users' scenarios and site considerations (Figure 5).



Figure 5. Three Materials in One with No Glue. Source: Author.

Eight students were each allotted an 84 m × 6 m plot. It was divided from an empty plot of land approximately 80 m × 100 m, one of the white lands located in the 2 km × 2 km block. The linear plot size was instrumental to propose how the pleasant open path in a courtyard house and the lively pedestrian activity at At-Turaif would be maintained in the modern neighborhood without referencing forms and motifs of Najdi architecture (Figure 6).

How exclusive courtyard houses with the peculiar sense of community at At-Turaif would evolve in a new context with a completely open plot setting was the challenge to face. Students interpreted the combined models mainly through structural devices (Figure 7). The intricate web of pedestrian networks at At-Turaif implies multiple perspectives of social, environmental, and invasive factors in the past. It exhibits the bottom-up and self-organized pattern of living structures that have been formed incrementally by the inter-relation of neighbors. According to Raoul Bunchoten, liminal bodies are "inter-structural" or transitional spaces.

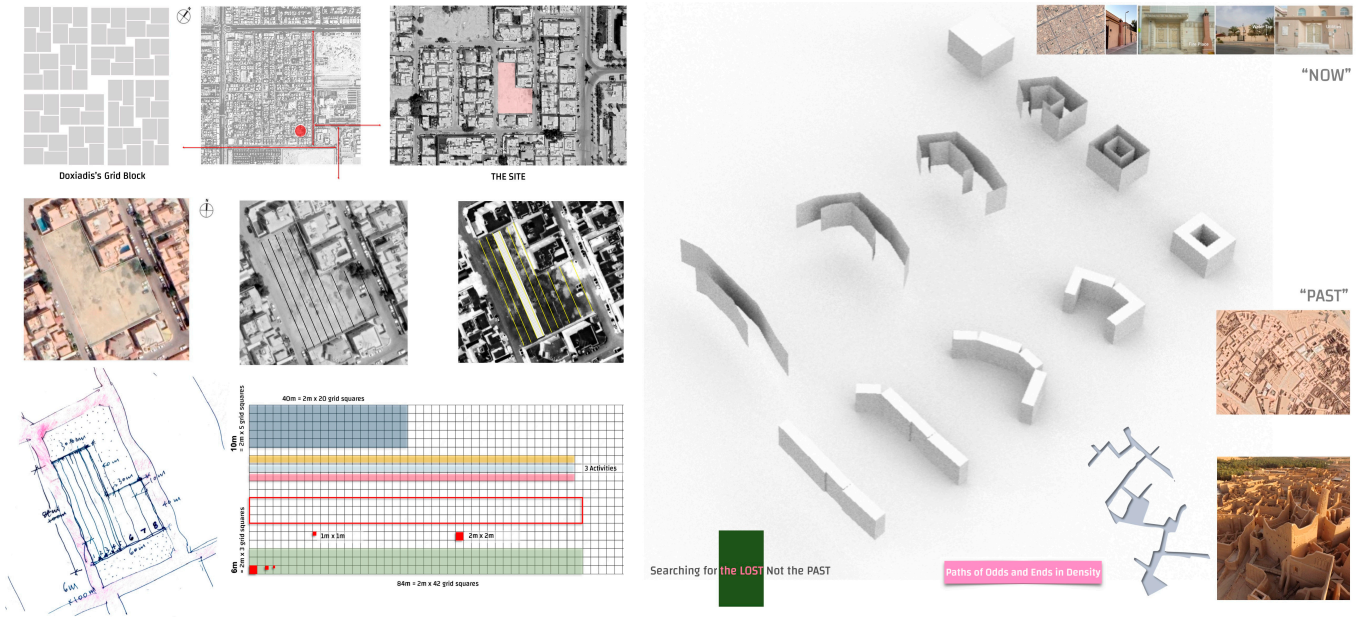


Figure 6. Hypothesis Diagram for Unfolded Linear Plot on the Site. Sources: Author [5].

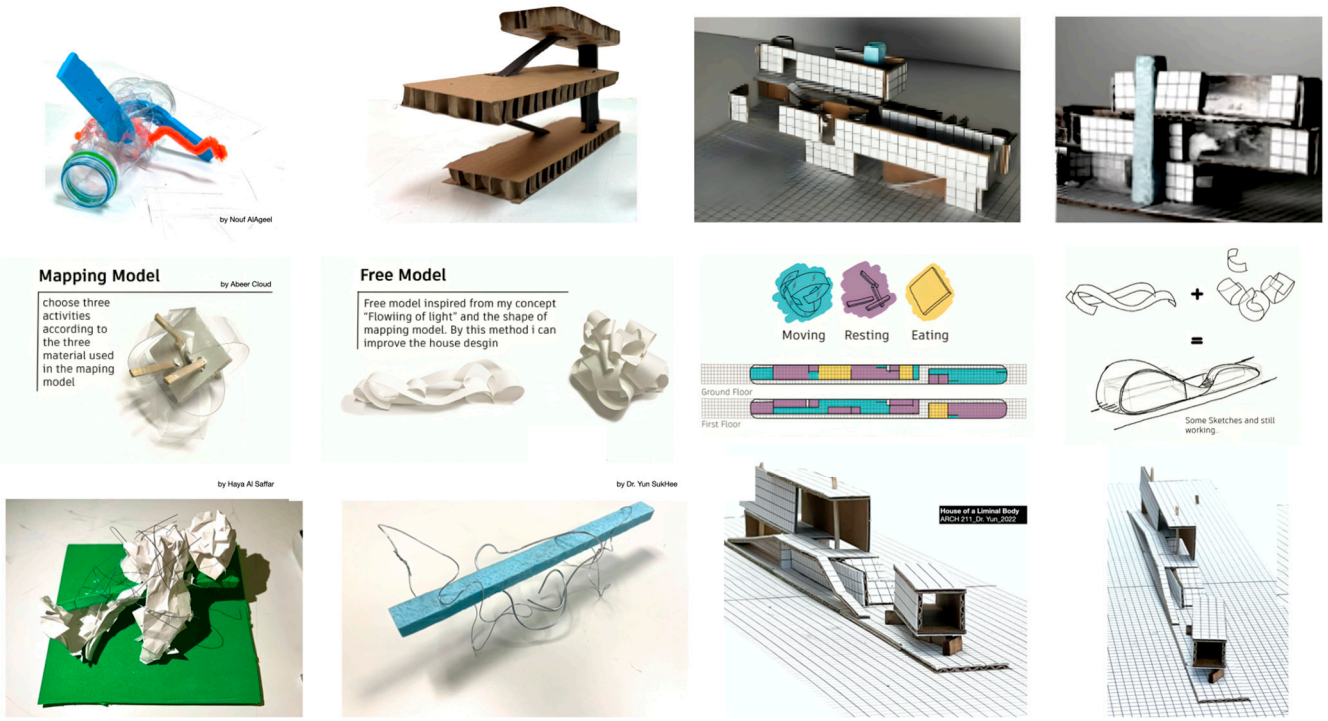


Figure 7. Liminal House Design Process. Source: Author [17].

As emergent organizational structures, they allow new forms of urbanity to occur: emerging urban settlements defined by and used for interactions, conflicts, and negotiations [18]. The tension field at At-Turaif was formed by paths as boundaries. The scattered space units on the lengthy plot found their positions, which activated more chances to interact with adjacent neighbors without fence walls but with tensions drawn from shadows. Applying a grid skin to the ground and building envelope was mandatory in order to amplify the simulated interstitial spaces in a single material at At-Turaif. When students placed their projects next to each other, accidental shadows and paths in the middle of directives emerged. People would traverse the misaligned and irregular widths of paths

formed by intimate boundaries as at At-Turiaf, where paths were formed by boundaries constructed from a single material but in layers of shadows (Figure 8).

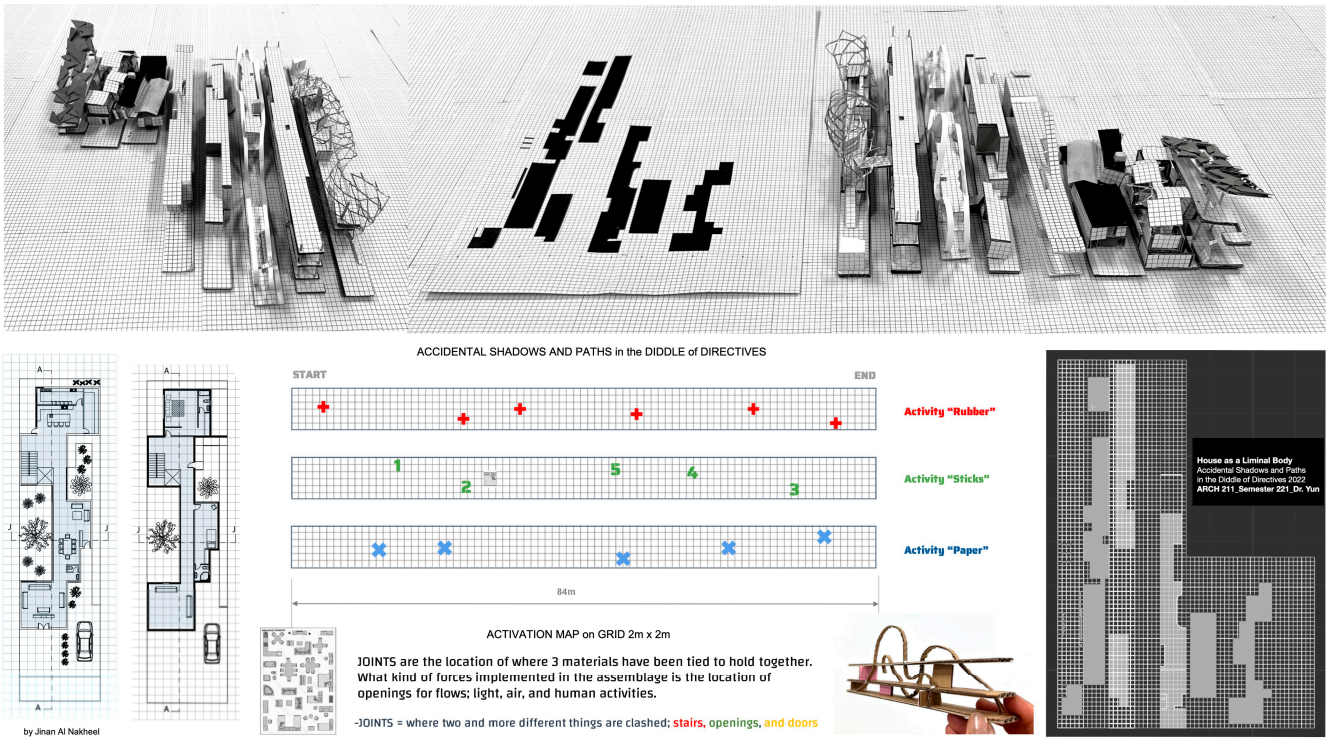


Figure 8. Liminal House Layout with Spatial Rule. Source: Author, Final Floor Plans [19].

3.3. Historical Pavilions; Rhinos, 3D Printing, and Laercut, 2022_Discrete Architecture

Two pavilions were proposed for two landmarks sites in Riyadh: Wadi Hanifah and the Masmak fort. Both sites represent the history of the Kingdom of Saudi Arabia; Wadi Hanifah, where UNESCO heritage town Al Diriyah is located, as the birthplace of Riyadh, and Al Masmak, as the historical battlefield where the unification of the Kingdom of Saudi Arabia was achieved. Natural and Najdi architectural motifs were selected to be interpreted.

Due to the construction with mono and soft building material (earth bricks), interstitial spaces securing the strength of walls are found in both sites despite their opposite contexts. These contextual features (an open-end assembly by bits or parts) were developed in terms of discrete architecture [20] for the assigned program. Students studied textures and patterns of nature around Wadi Hanifah (Figure 9) to shape a 2D unit to be assembled and expanded to form a pavilion, while Najdi motifs were selected for the Al Masmak site. Palm trees were studied and proposed for the Al Masmak site as a new building material. Its trunk size is big enough to cut out a section (Figure 10). Both projects utilized Rhinoceros and Grasshopper to generate free forms, which students acted on to understand body motion in a space, with the cast model formed by students' situational performance in a group, such as talking, sitting, and having tea.

The free form and flows built with plaster were drawn back into 2D with algorithm sketches. Digital tools, Rhinoceros and Grasshopper, were introduced to handle the structural issues of a pavilion assembled from parts. The incremental variation and difference allowed students to be more receptive to accommodate environmental and contextual factors in their design process. Palm tree trunks and Tamarisk used for making doors became a building unit following the building method of clay bricks with digital tools (Figure 11). With the revised joints from case studies, students could complete a structural system. Digital tools in a production system require spontaneous interventions to secure the design process.

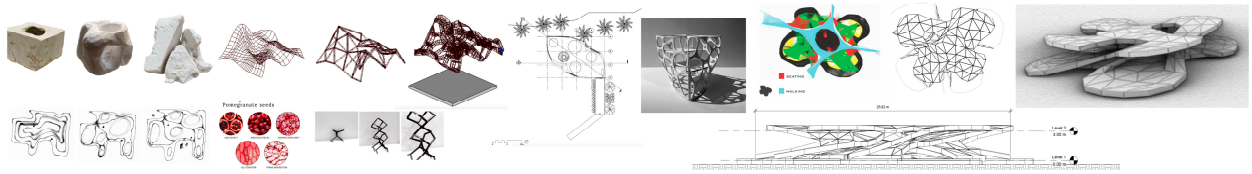


Figure 9. Motion Cast Model and Design Process in Rhinoceros. Sources: [21].

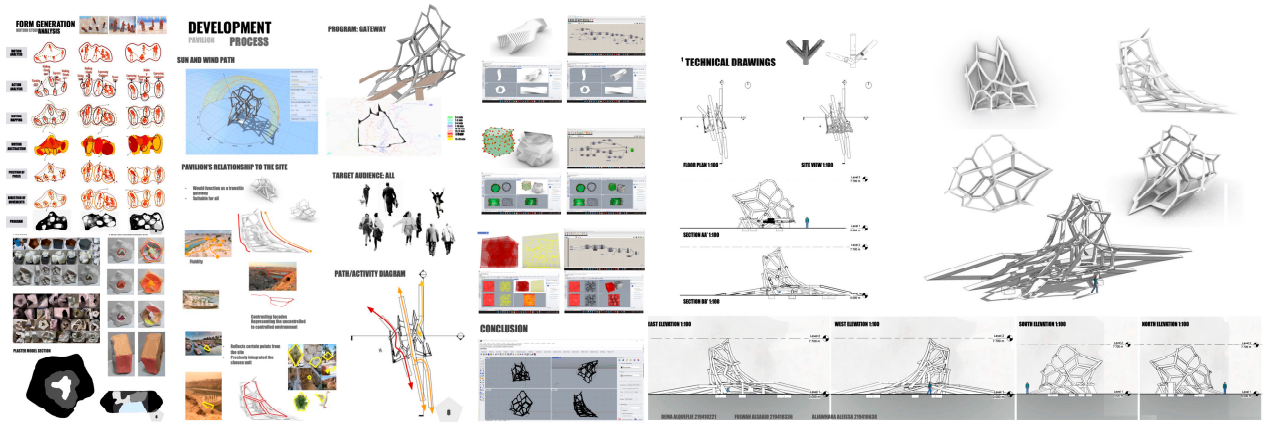


Figure 10. Wadi Hanifah Pavilion Final Panel with Digital Tools. Sources: [22].

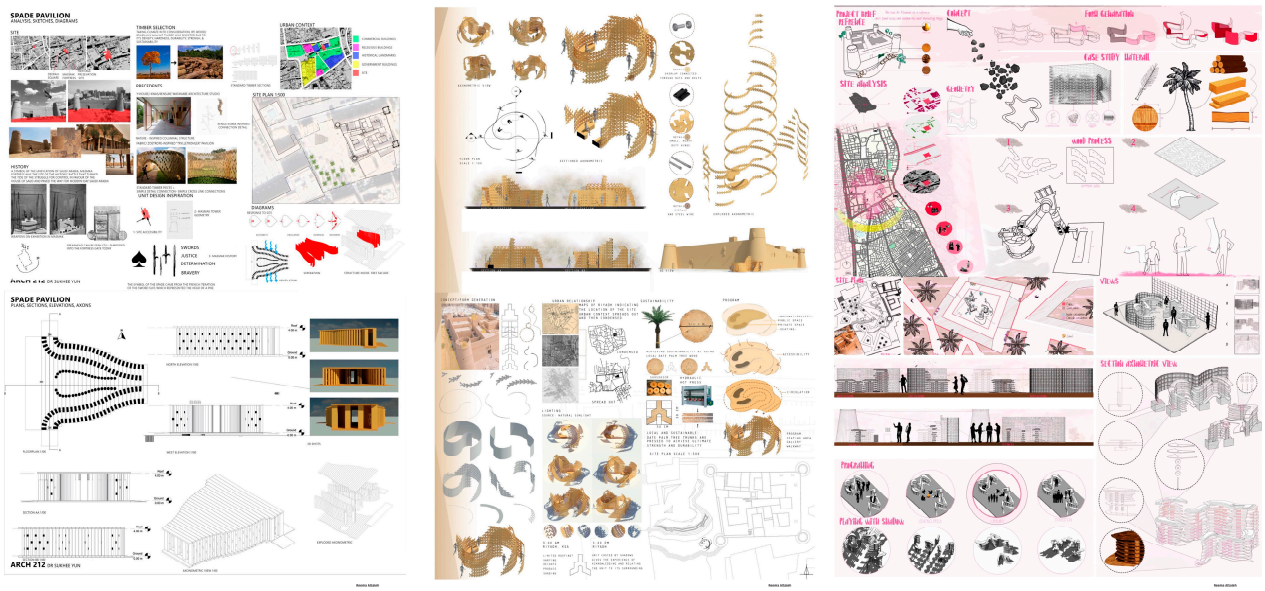


Figure 11. Al Masmak Pavilion with Digital Tools including 3D Printing. Sources: [23].

3.4. House of Wings, 2023_Vectors in Sequence

Houses are distanced from the fence walls, camouflaging their presence with identical designs from the house. The house located at the center of the plot locks air flows behind fence walls. The dynamic sand mounds were cut off by the streets, undermining air circulations and free motions of the land shaped by natural forces.

These cookie cutter lands demonstrate a strikingly different approach from Najdi towns (Figure 12). A site where the cookie cutter land was demolished was selected. The memory of the erased topography was reconstructed with columns in different heights covered with a sheer building envelope. At-Turaif town fabric was implemented by the author like skin graft to revive the blank land (Figure 13). The volume of the empty space was confirmed by four corners; in a Najdi house, the courtyard provides a sense of arrival from chaotic motions after experiencing a journey through the winding and linear paths at

At-Turaif. The speed of human and air flows is slowed down and tamed by the misaligned paths [10] and the central concavity is filled up with steady air movements; all followed land features.

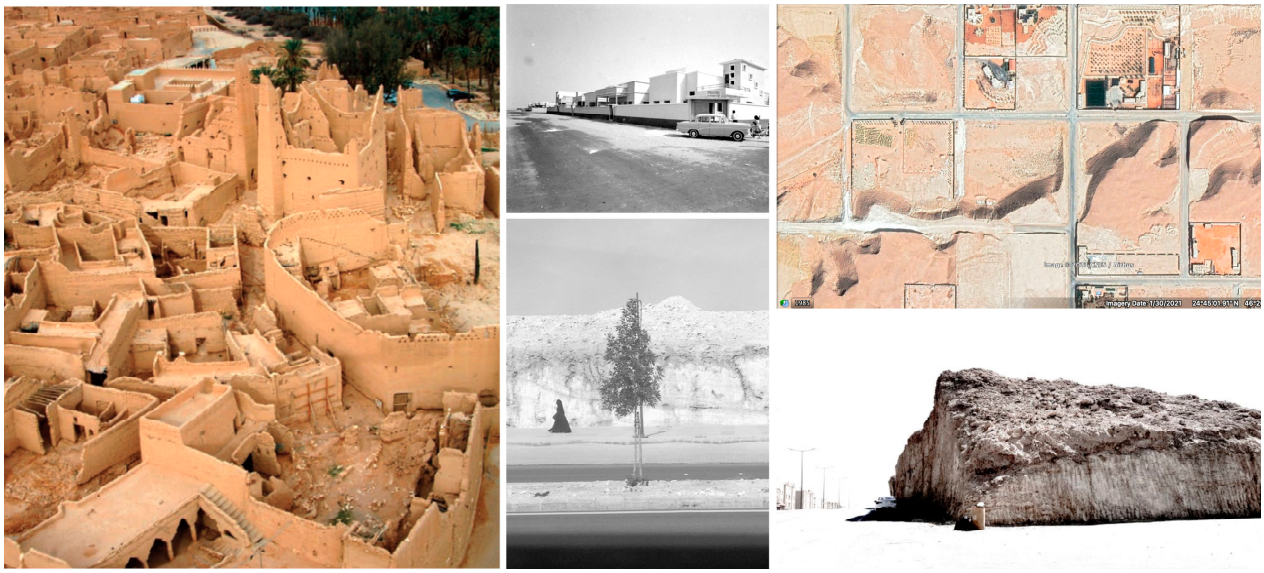


Figure 12. At-Turaif, Modern Houses, and Cookie Cutter Lands in Riyadh. Sources: Author [24–26].

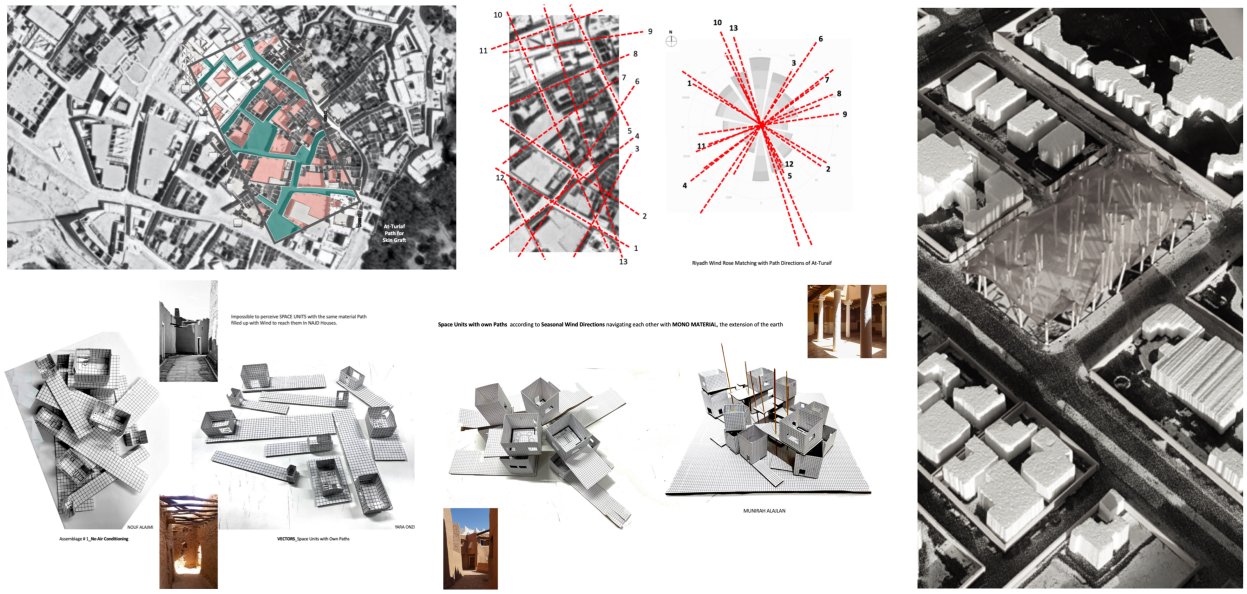


Figure 13. At-Turiaf Paths with Riyadh Wind Rose and House of Wings. Source: Author [27–30].

The directions of paths of various lengths and widths were extracted individually and collected on a point to study the maximized air circulations. When it was compared with the wind rose data of Riyadh, a hypothesis that the directions of paths might be relevant to the wind directions could be set up (Figure 13). In order to reduce the leftover and dead spaces for "privacy" between fence walls and the house body, the project started with one proposition: that air conditioning was not allowed, as well as no fence walls.

The separated space units from Najdi houses were designed with their own long linear paths to arrive and assemble on a plot according to wind directions. Vectors of flows were actualized with space units with wings in sequence. The clutter of winged space units generated numerous unplanned negative spaces filled up with various tones of shadows chilled by water ponds. Columns were added after positioning vectors to support wings

(Figure 13). By accident, traversing motions of users are embodied physically navigating space units with own paths in various directions; these were the main function of the courtyard [4] and were implemented in town planning as misaligned paths [10].

3.5. Maze Houses at New At-Turaif in Diplomatic Quarter, 2024_Topographical Spaces

At-Turaif town is located on a hill protruding into Wadi Hanifah, which is a deep valley with a narrow river running through from northwest to southeast. This geographical peculiarity in the hot and arid land experiences gushes of wind up winding paths in the town. Considering the disappearing natural land features, the project started with designing an artificial topography from monthly wind rose data from Riyadh (Figure 14).

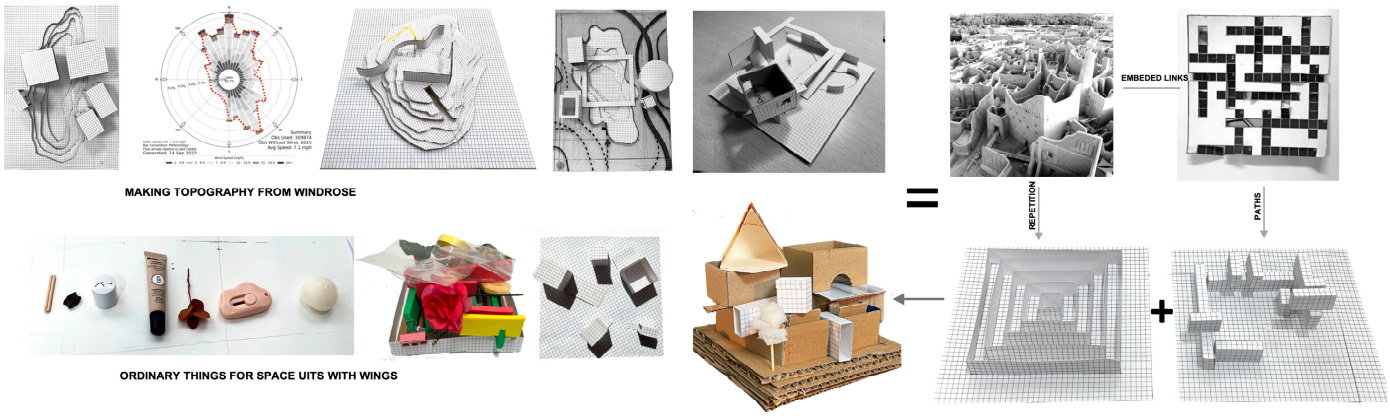


Figure 14. Maze House Design Process. Source: Author [5,31].

The Diplomatic Quarter in Riyadh is filled with embassies, and is located in an area in Wadi Hanifah in northwestern Riyadh. The pan shaped district layout towards Wadi Hanifah is different from Doxiadis's grid but is similar to At-Turaif. This topological setting was selected for a residential design studio with eleven students. An empty plot of 100 m × 100 m facing down Wadi Hanifah was selected to simulate At-Turaif's land setting. The simulation strategies were related to topographical setting, mono material, and densely repetitive walls like a maze of Najdi architecture experienced at At-Turaif.

Design rules were given to students; 'Bring five layers of walls', 'Select a crossword', 'Name words with actions such as reading or sleeping', 'Bring five ordinary things representing home not house', 'Select the month of Riyadh to generate a topography', and 'Transform a monthly wind rose to a topological feature'. Additional rules included 'Decide the level according to climate condition of the month', 'Locate ordinary things at the colliding area of five layered walls and crossword', and 'Determine the location space units and path according to users' scenario (Figure 14)'. Representing five prayer times in a day, five layers of walls were proposed to secure any structural issues. Space units formed by ordinary things functioned as bridges interlocking five separated walls. The grid was applied to all surfaces to simulate mono material in tension. The activity mapping by crossword provided clues to locate openings. There was no specific note on shadows, but students constantly discovered them. Formation of space units were open to students as long as they related with ordinary things, site conditions, and environmental factors (Figure 15).

The experimental process was available to those students who agreed the hypothesis of simulating the topographical feature of At-Turaif by interpreting monthly wind-rose diagrams of Riyadh as topography lines for their own flat plots. There was a group of students trying to dictate what Najdi architecture should look like. Their insistence on not engaging with any relationship within the current context resulted in a simplified ARAMCO house style house with high fence walls around 3 m in height. House projects were located at the center of the plot. All building surfaces were painted brown, representing Saudi identity. The house body was distanced from fence walls and painted and designed in

the same manner, with the house body being camouflaged the presence of the walls. It confirmed dead spaces inside and outside with flower beds and trees along the walls. It stated an absolute isolation from the streets.

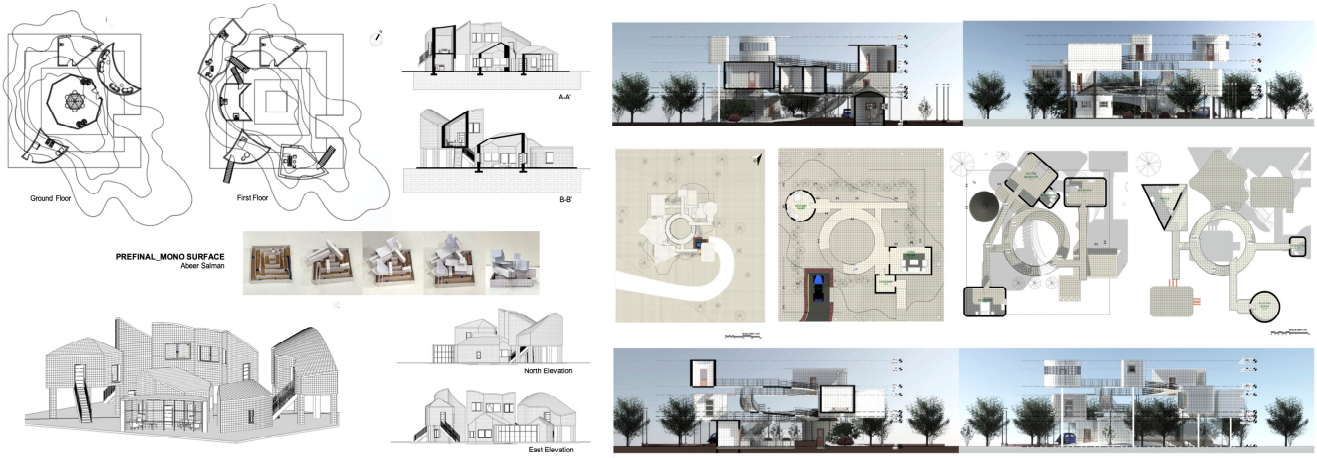


Figure 15. Maze House Final Panels. Sources: [9,32].

3.6. UN + NASA Center in Riyadh, 2019_The Porosity; From the Horozontal to the Vertical

The project was proposed to activate the Doxiadis's grid core located in the 2 km × 2 km block with universities and Ministry of Higher Education, for future generations (Figure 16). Diatoms [33] were studied and their structural systems were used to design porosity, like a sponge accommodating dynamic programs; this included the UN and NASA center for college students with parking from underground to the upper floor. At the site, the core experience, coded with ordinary things, offered clues to map out programing, with brilliant shadows collected by students (Figure 16).

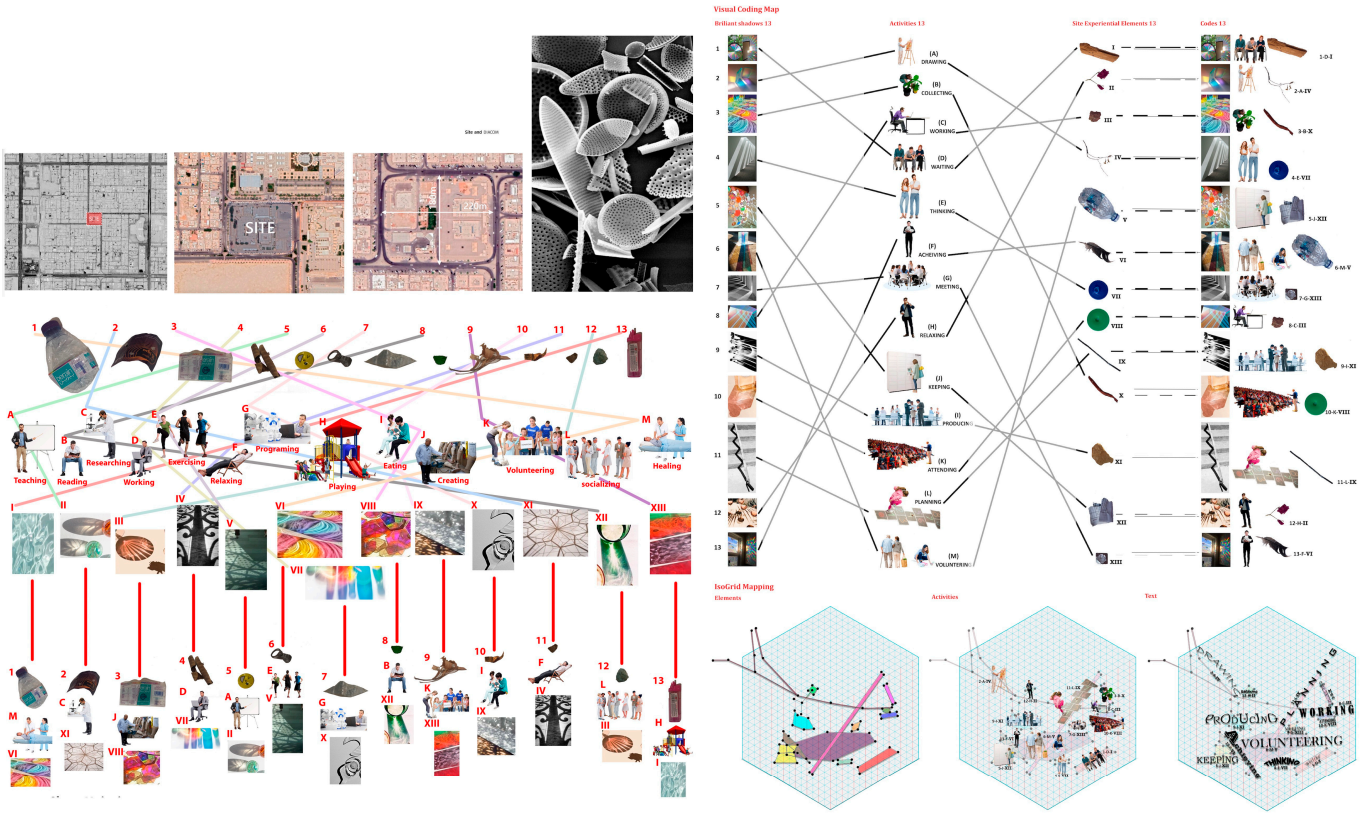


Figure 16. UN + NASA in Riyadh Site and Program Mapping. Sources: Author [33,34].

Contrasting to significantly busy inter-freeways, the widths of which vary from 60 m up to 90 m, there are massive but extremely inactive empty plots, the sizes of which are around 200 m × 200 m at the center of Doxiadis's 2 km × 2 km iron grid super blocks. These were planned to be community cores. A mosque, a school or a kindergarten, and a park were originally programmed for the core plot in 1972 [6]. An Institutional Design Studio selected the core located in the block with higher educational institutions, such as the Ministry of Higher Education, Prince Sultan University, and Technical College of Riyadh (Figure 16). The current core is fenced off from the pedestrians where would be busy with young college students, instead they are occupied with illegal parking. The collected ordinary things were positioned in the air as destinations to be reached by car or by walking. As Herman Herzberger desired when he pleaded for form and space with greater accommodating potential [35], students were encouraged to accommodate diverse and different situations to propose a visual vector for the core of the intellectual community (Figure 17).

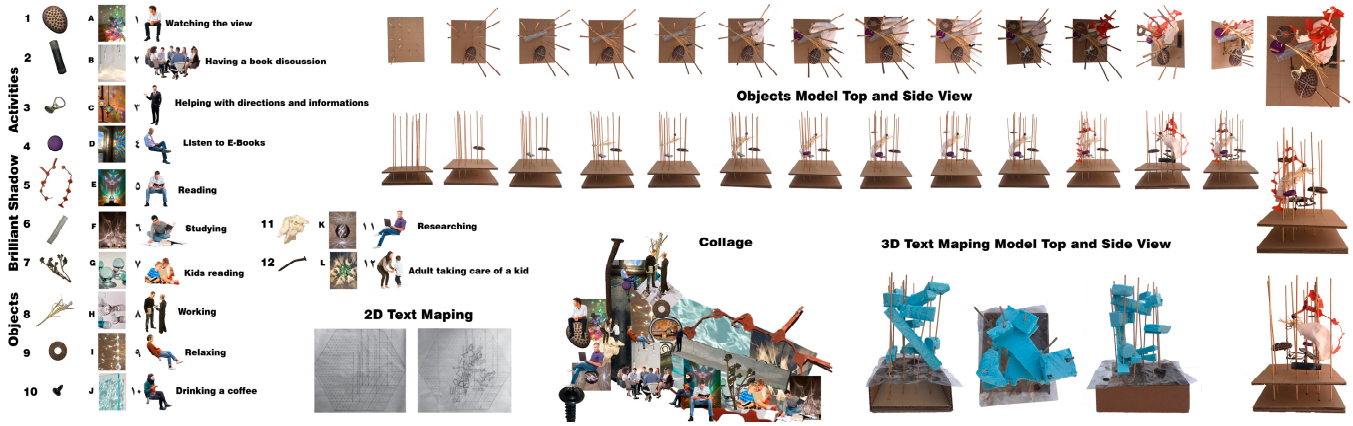


Figure 17. UN + NASA Center in Riyadh Programs Mapping with Ordinary Thing. Sources: [36].

The space units positioned according to the ordinary collage were supported by columns on a grid, which originated from the underground parking structure. They functioned as the clues and destinations from which to untangle the flows of cars and pedestrians from the underground space to the top floor. Students spent time figuring out how to untangle a car's path and a pedestrian's path vertically. Each student established their spatial organization and order in relation to the randomness with their own mixed circulation system. Brilliant shadows were proposed for the underground car park. The ground was folded like a piece of paper in order to generate an unevenly leveled surface with inevitable slits funneling light and air to the underground car park in various directions, as inside of a kaleidoscope (Figure 18). The project aimed to study and test how an inactive space becomes alive by accommodating all possible odds and ends in the collision of car flow and human flow. The project was designed to be receptive and open to otherness by scattering the porosities experienced at At-Turaif once in the air in order to reclaim the core for a community, akin to a large tree in a town that acts as a visual vector, gathering all community members. The botanist Colin Tudge comments on the tree as "one of the wonders of the universe. . .remarkably complex. . .minutely structured. . .and infinitely various [37]". The project inspired us to think of horizontal porosity at At-Turiaf; courtyards, dead end paths, and misaligned paths could be relocated vertically to accommodate the current density of living. The various movements become tangled in motion, generating an amorphous setting with less visual pretension, but vector field as in At-Turaif town. This was intended to assimilate the experience of the divergent flows of At-Turaif town in Doxiadis's core laid in static and symbolic pin wheel formation.

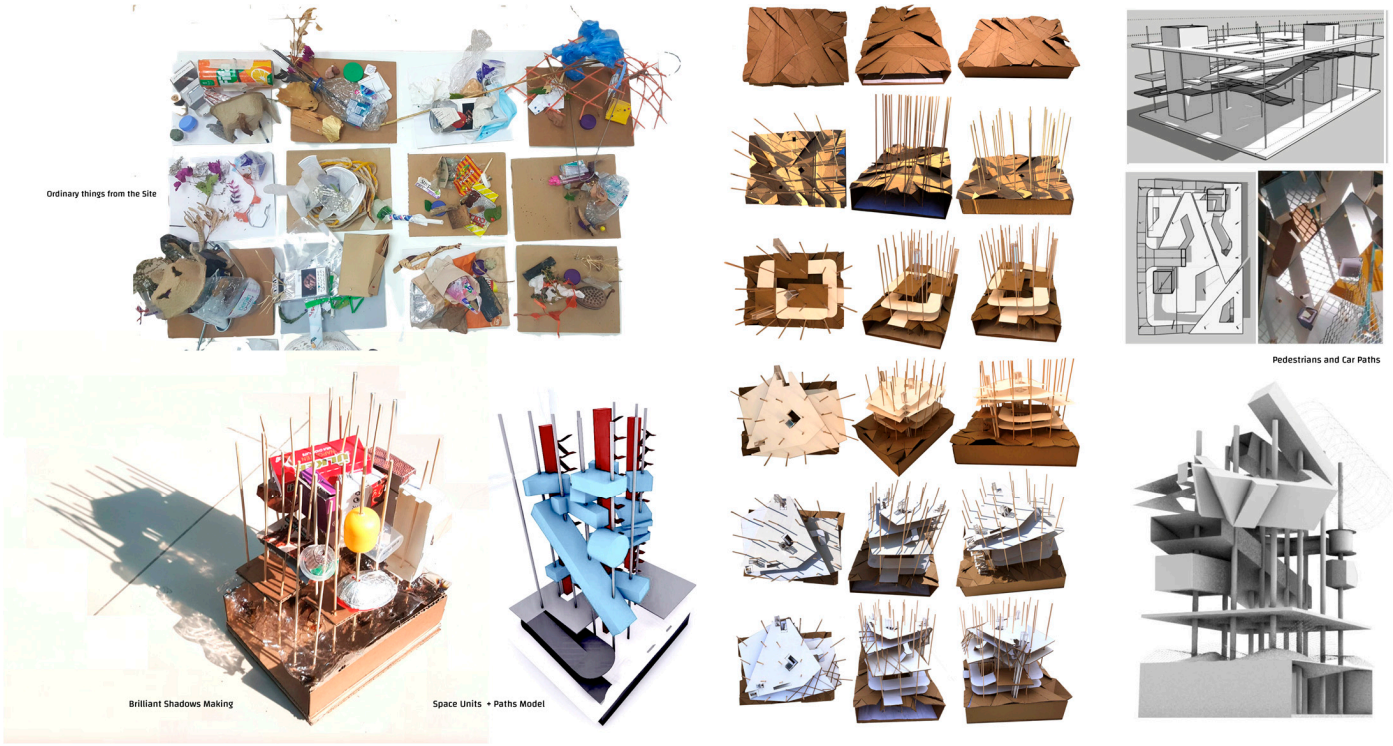


Figure 18. Model Making Process with Brilliant Shadow Ground. Sources: Author [38].

3.7. University Town in Riyadh; Back to the Ecological, 2017_A Future Community

The 2 km × 2 km iron grid planned by C.A Doxiadis has been successful in accommodating the unprecedented population increase in Riyadh since 1975. The layout, focused on private cars, compromised the natural land setting and the experiences of pedestrians (Figure 19). Numerous sand mounds have been flattened and people walk along and cross freeways designed for high-speed cars. To humanize the untamed speed of cars and exclusive but fancy fence walls, which intimidate pedestrians, nine students proposed a University Town in Riyadh, emancipating urban elements from Doxiadis's grid.

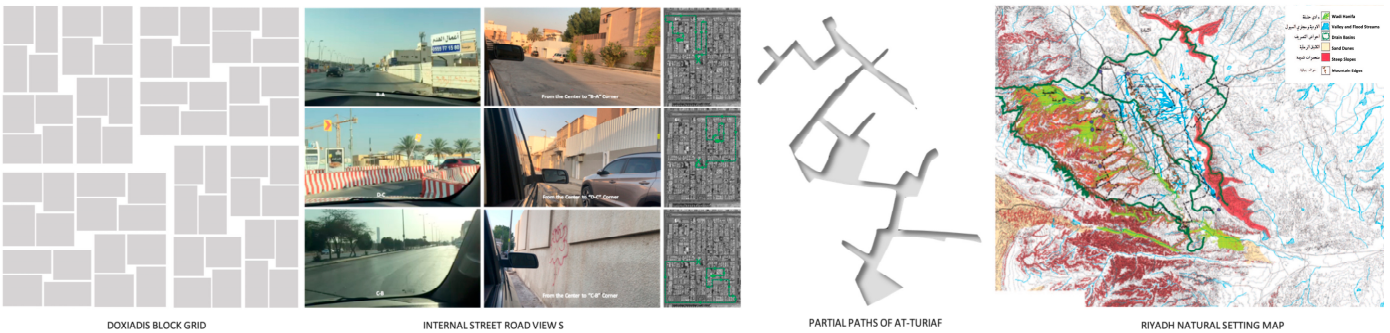


Figure 19. Doxiadis's Grid Documentation and Najdi Path, Land Feature. Source: Author [39,40].

Students documented a quarter block of the 2 km × 2 km grid by car to decide the location for their urban design project (Figure 19). Students selected their urban element from nine urban elements listed in the urban design guidelines of Riyadh [41]. Each student selected an object to diversify its condition based on its materiality. The process was called 'Monophony to Polyphony'. The five different conditions generated by various actions, such as burning, watering, pulling and pushing, cutting, weaving, and blowing, etc., were instrumental in exploring diverse urban situations (Figure 20). The polyphony drawings of each element were overlapped and combined as one layer. One by one, nine urban layers drawn in the same scale of the model were juxtaposed on the site model, 1 km × 2 km

in scale 1:1000. If an urban element collided with other elements, students discussed the problem in order to reach a communal agreement for the sake of the block's community. The freed urban elements cut through, covered, stretched, and intercepted the existing urban fabric physically [42].

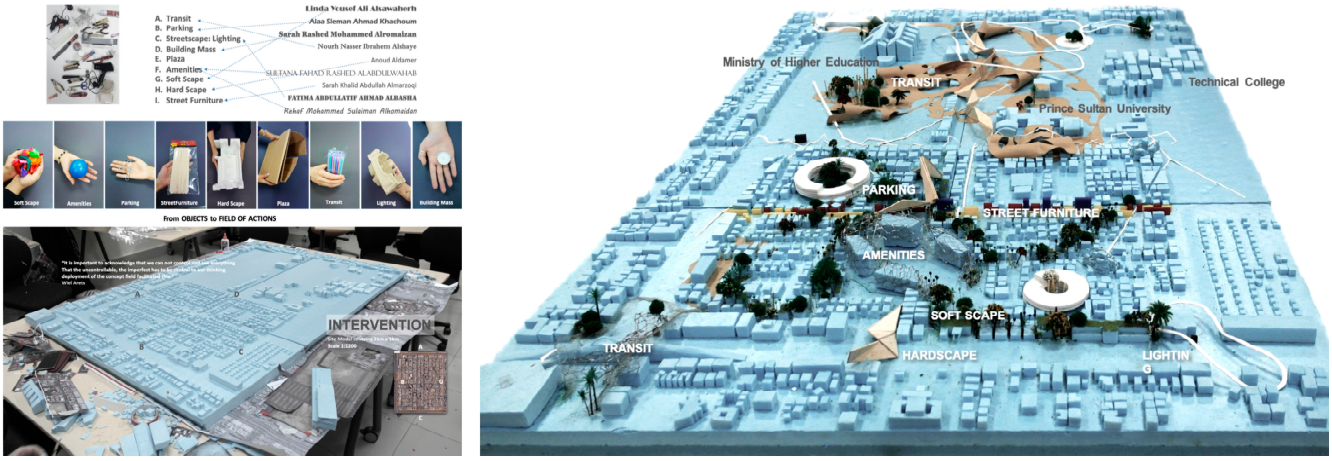


Figure 20. Mono to Polyphony Process and Final Model. Source: Author [9,27,40,43].

The uncertainty continued until the completion of the model. The solid urban neighborhood was disrupted, one by one, with new layers of urban elements. Students witnessed the process of how various urban elements could revive the dead and inactive skin of earth and generate a field condition on the iron grid. The functions of the nine urban elements were not decided. Their physical setting was left to be fulfilled by residents and playground equipment: see-saws, slides, jungle gyms, swings, etc. (Figure 21).

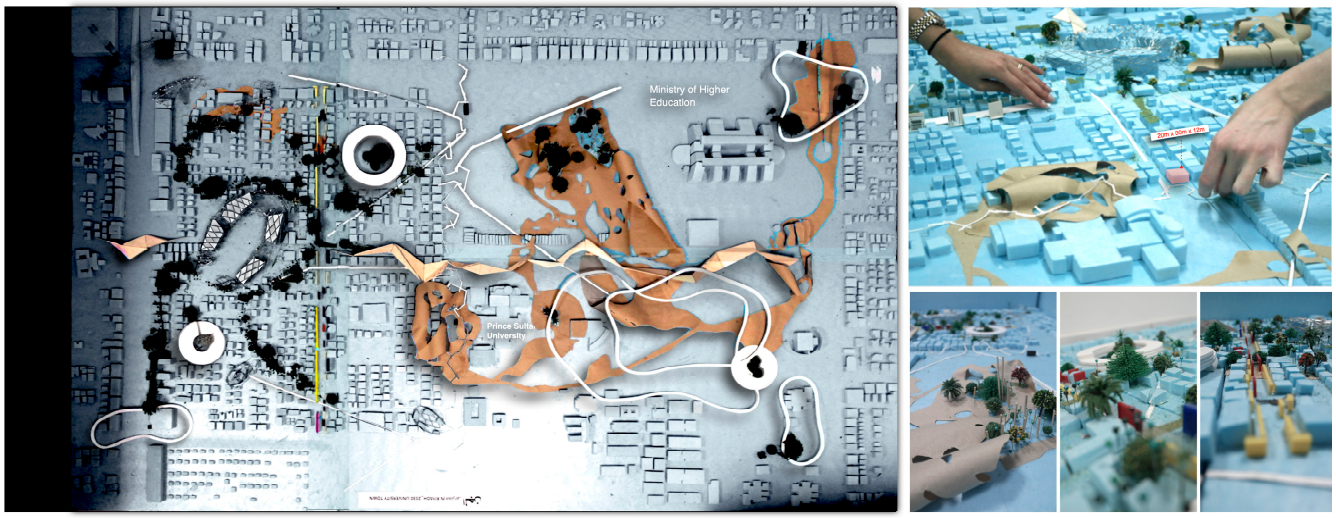


Figure 21. University Town and Adjusting Process in Detail. Source: Author.

The freed urban elements generated a new urban skin with a topography and brought inexplicable tensions to the existing flat land. The mixed features of social and environmental situations would have been ordinary at At-Turaif town, which had grown out from Wadi Hanifah but disappeared in the 2 km × 2 km political grid, the land of cars. The odds and ends stacked up and accumulated on the iron grid without the roaming imagination of programming to tame them. Human-centered modernity undermines natural features, while Najdi towns know exactly how to maneuver in a dynamic and unpredictable force field. Ironically, the project brought the wilderness of indeterminacy to the iron grid block. It offers an opportunity to live with it, which forms a sort of solidarity, as seen in At-Turaif.

"The most direct way to knit people's social lives together is through necessity, by making men need to know about each other in order to survive. What should emerge in city life is the occurrence of social relations, and especially relations involving social conflict, through face-to-face encounters. For experiencing the friction of differences and conflicts makes men personally aware of the milieu around their own lives; the need is for men to recognize conflicts, not to try to purify them away in a solidarity myth, in order to survive [44]".

4. Discussion

The intricate web of singularities transformed the harsh land into a living structure with no floor plans, but with environmental and social factors integrated with ecological sensibilities binding all works since 2016. It is the ontological value that is ephemeral but persists in a community; traversing motions linked to two entrances related to gender segregation, and majilis; a guest area, etc. With this recognition, ecological sensibilities responding to the land and other forces would be instrumental in seeking archetype. According to Carl Gustav Jung, the notion of archetypes is understood as universal elements of the collective unconscious. Because they are intangible, their existence can be perceived through their representations in behavioral patterns, myths, religions, or art [11].

The projects introduced in this paper could be translated with a series of experimentations on seeing archetype embodied by ecological sensibilities. The "collective unconscious" or "archetype" has opened up ways to study regional architecture in order to bring about new architectural paradigms instead of framing them as heritage.

As much as the modern environment is too efficient and overwhelmingly flat, the collective urge for the sense of belonging would be misguided to desire a representational identity with heritage and glorifying antique objects. If the joy of life in living structures, is lost, the archetypal creativity of Najd towns, which continues intangibly and ordinarily, even now, even in Doxiadis's grid, should be explored in various ways, more with its peculiar value of divergence. Then it would return the architecture of living beings, which do not need to claim to be an object of cultural identity and heritage (Table 1).

Table 1. Studio Projects Experimentations on Seeing Archetype of Najdi Architecture since 2017.

Projects	Modern Riyadh	Ecological Experiences from Najdi Architecture	Experimentations with Ecological Sensitivities
House of 20 Shadows 2018	High Fence Walls Exclusiveness Low Density	Wall Houses Inclusiveness Intensity	Mapping Space Programming No Fence Walls with Various Depths of Spaces Increasing Traversing Movements
House of Liminal Body 2022	Polarity Hierarchical Streets	Dead Ends Misaligned Paths	Tangled Circulations Accidental Paths by Interstitial Space
Historical Pavilions 2022	Digital Tools Construction System	Crafted Motifs Mono Material	Palm Trees and Tamarisks Discrete Architecture
House of Wings 2023	Air Conditioning Massive Preplanned	Openings for Wind loads Spatial Layers by Paths Sequential	Individualized Wind Directions Extended Floors for Access: Wings Accumulating Vectors for Divergence
Maze House 2024	Flatness Hierarchical Straight Streets	Topography Collaborative Layers of Walls Winding Paths	Wind Rose for Topography Maze Walls Radom Interventions
UN + NASA Center 2019	Inactive Empty Plots Symbolic	Porosities of Living Structures Amorphous	Vertical Porosities for Mixed Uses Tension Fields with Various Accesses
University Town 2017	Doxiadis's Grid Fixed	Natural Land Flows Rhizome	Diversifying Land Forms Interlinking Hybridity

Odin Lysaker introduced Axel Honneth's philosophy of nature to state ecological sensibility through emotional sensibility and empirical methodology; "a bodily capability through which humans sensuously can resonate, communicate, and interact–and through that morally engage—with nature in its entire complexity [45]". The ecological sensibility of community would reset the value system from capitalizing on to caring for the land with no propaganda, but instead with respect for all living beings.

Before the modern era, tribes managed their lands using the HIMA system in Arabian Peninsula, following their religious faith [27]. Communal will for the sake of a community could have been the origin of these ecological sensibilities. The sense of belonging as a tribe could be expanded to residents in 2 km × 2 km blocks with a situation where they can participate with each other and collaborate together (Figure 22). The highly practical but, for humanity, symbolic grid undermines human affairs on the streets and interactions with the land in the modern city. The extremely obvious modern environment, dominated by the speed of vehicles, inspired the series of ontological investigations for the lost in the land of cars. Oddly, the lost seems to be easy to detect, since people's daily living patterns are solid and intact with the religious faith. In architectural investigations of something lost or intangible, the archetype that emerged from projects in common revealed the ecological sensibility of a community by faith on land ethics. The HIMA tradition was the eye-opening finding that united all peculiarities examined as ecological sensibilities.

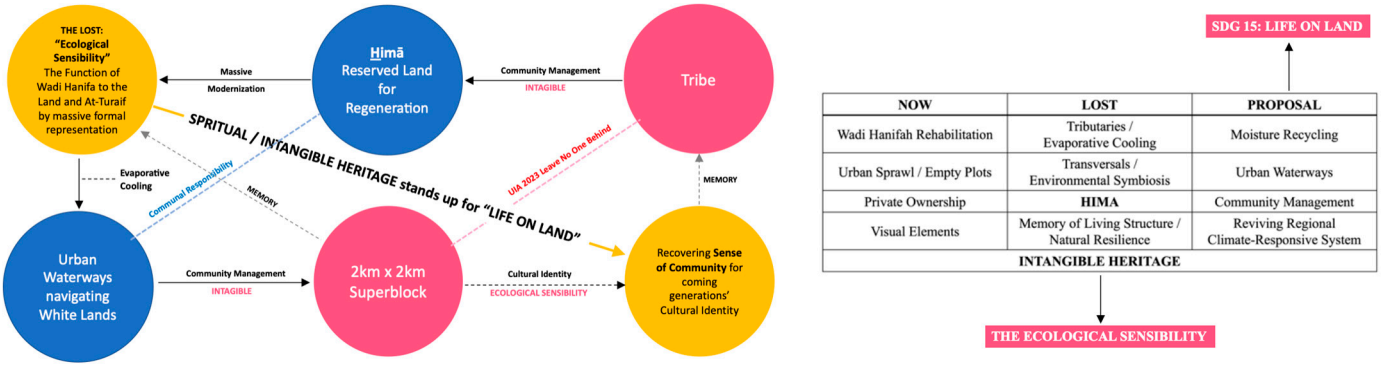


Figure 22. The Source of Ecological Sensibility for a New Community. Source: Author [9,27].

Studio works studied regional factors, revealing new identities [46]. The learning questions the dominant cultural paradigms, insisting that the national identity is presented with surface elements and framed in the typology of Najdi architecture projected by modern aesthetics without concerning the creative way of living with environmental constraints.

Ordinary or "site-specific" things picked up from the site visits facilitate the programming of projects. The "careful examination of the forms and spaces, shaped by time, use, and natural forces" offered new interpretation for the sites, programming of projects, and architectural language. The potential of materiality was explored beyond preconception or what we knew when it lost or was freed from its designed functionality. Rather, its becoming was fully imagined. The interstitial spaces emerged from the collision of the formal and the informal as if one could not be complete without the other, as the paths in At-Turiaf were.

One of the major shifts of modernity in Riyadh is the relationship between figure and ground in the built environment. Figures were built for making or generating voids or concavities [47] for shadows, airs, and all living things in time and space on the ground. Suddenly objectified figures dominate the world of no figures but voids. It demonstrates a collection of spaces and negative shadows, but spaces that are highly light with brilliantly positioned interstitial spaces.

Ground is cut out and flattened for heavily air-conditioned figures and voids or concavities are functioning at a distance from otherness in modern Riyadh. What Najdi architecture shows is that it has no figure but ground of living structure in nature with

unknown depth of spaces by monads and folds [48]. As in other regional architectures, self-organized and bottom-up geometrical features show a peculiar order at At-Turiaf. A set of rules result in the spatial complexity built in mono material; the extended earth responding to the layers of forces that are altered by chances and the social and natural order [49].

The empathy grown out from humility towards nature and the community was fleshed out in the earth skin as a pliable form structured by flows. It had been nurtured in the repetition of concavity made one after one, as in the way At-Turaif was grown out in vectors in spaces adjusting to the previously built in tension, not the additive masses (Figure 23). The built forms or extended earth skins are an instrument to concave, constant, accidental, and unpredictable forces in motion in space and time. Therefore, the variables induced by various forces in the repetition emerge out of the aesthetic control of architects. The collective figure and ground condition registers parts as parts accumulated into a living structure with an unpretentious wholeness or form of a community. Its incremental growth by vectoral forces, generating interstitial spaces. The intimate but omnipresent porosities state active environmental and social engagement.

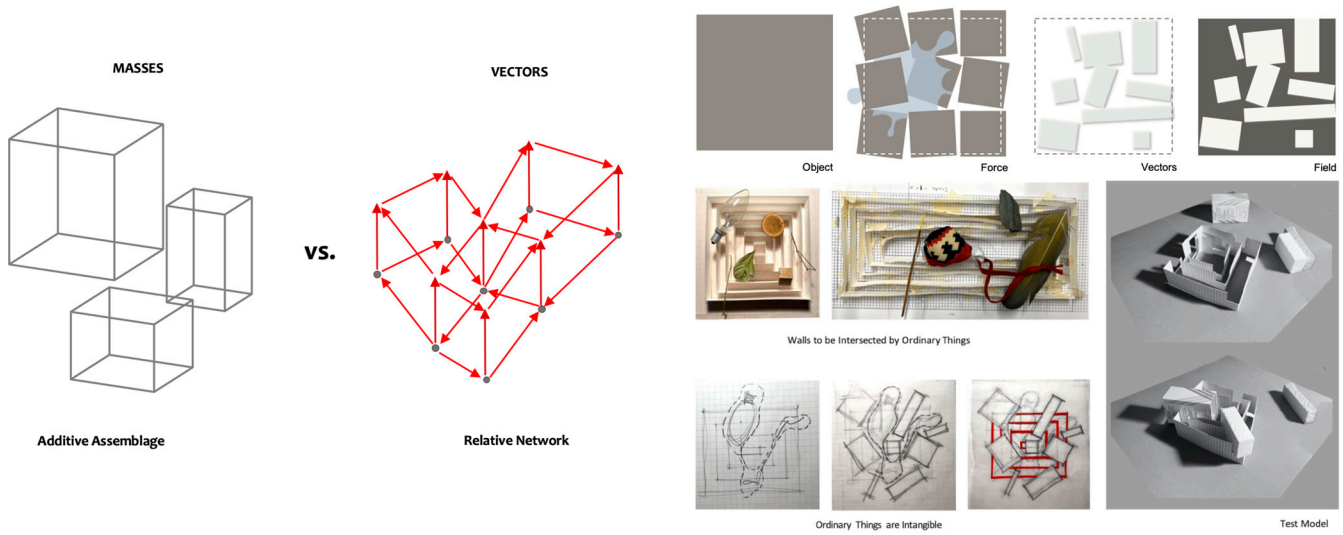


Figure 23. Tension Field Generation Diagrams with Maze Demo Model. Source: Author [8,9,26].

Najdi towns, including Al-Ula, state tension fields with numerous voids or interstitial spaces in earth as if they are underground. These findings, related to forces with vectors forming earth skin, require further study on a "field condition" in architecture, not in "cubist compositional syntax" [50].

5. Conclusions

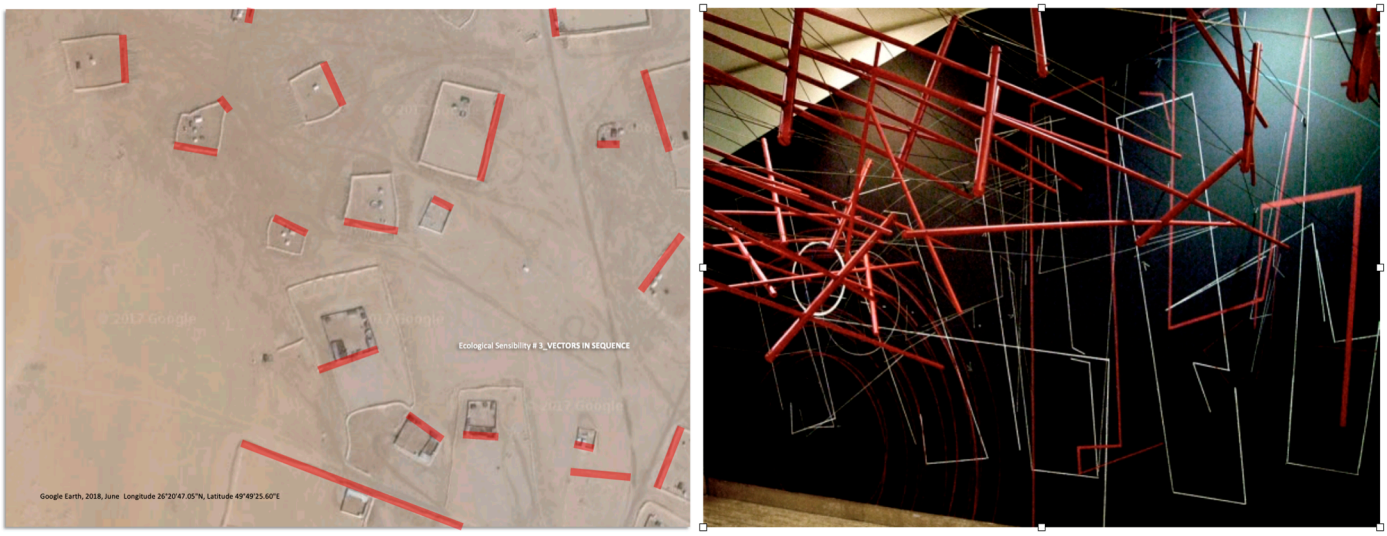
Projects investigated peculiarities based on regional factors at At-Turaif town beyond figure and ground perception and formal logic. The peculiarities have been neglected in favor of modernists' compositional syntax and conformity. The ontological construction was categorized and framed in the name of world heritage in the expeditious modernization. It has been valued and assessed mostly in terms of representational scene and visual images undermining an inexplicable logic grown out from the regional and social consolidation in the harshest land on earth. The inexplicable condition, with layers of directionality, independent parts, and undetermined wholeness, awakens us from modern frame when it is assessed with sensorial experiences. It takes us back to the land to live it instead of naming it. It seems natural to accept that the archetype of At-Turaif was derived from its ecological sensibility, which cannot be detected in human centered approaches.

Rather, it unfolds how much it was willing to be submissive to nature to accommodate its constraints. It might have been misunderstood as the lost since modernism sees it in

terms of figures. How to induce air in the negative spaces between walls, the extension of ground or earth, in nowhere just comes first. Condensation and expansion of negative spaces were ordinary at At-Turaif. It frees us from modernism with human centered anxiety and anthropocentrism to be in a pleasant breeze. The variables embodied by pliability of the building material, earth, and its acceptance of dominant forces, sun and wind, were once ordinary here. It becomes extraordinary in Doxiadis's iron grid designed for cars and modern utilities. Najdi towns are nothing but a field of forces securing living beings, not a form of grandiosity. Experiencing At-Turiaf town opens up non-anthropocentric architectures to lighten up the symbolic modern grid planned for accommodating unprecedent population growth in control to bring back or feel livability of tension field again.

Conclusively, experiencing architecture is spatial, which is three dimensional. The vernacular architecture is built with no architectural floor plans, elevations, and sections. The way it was built was also three dimensional in time. Ecological sensibilities teach us to grasp the senses, the procedure and situations, instead of framing built forms in modern aesthetic or desires. What it means at the corner of misaligned paths means more than one-point perspective empty streets bordered with flower beds and giant palm trees.

The ecological sensibility performed by a community on the inhabitable natural setting delivers the value of empathy and humility to students towards projects following empirical processes. Ironically, its endeavor uncovers the undermined archetype, opening up the logic of a genuine living structure. The struggle between the tangible and the intangible stopped their anthropocentrism executing the decorative and massive replicas of the past efficiently, but allowed them to gaze at the familiar and the undetected in the familiar (Figure 24). All presented experimentations between the past and the present could be placed in the 'new urbanism' stated by Rem Koolhaas in 1995.



(**a**) (**b**)

Figure 24. Amorphous Fields (**a**) Mapping sand walls of entrances from weekend desert camping sites, Source: Illustration on Google map by Author; (**b**) Storm Watch by Lebbeus Woods, Source: Lebbeus Woods [51].

"If there is to be a "new urbanism" it will not be based on the twin fantasies of order and omnipotence; it will be the staging of uncertainty; it will no longer be concerned with the arrangement of more or less permanent objects but with the irrigation of territories with potential; it will no longer aim for stable configurations but for the creation of enabling fields that accommodate processes that refuse to be crystallized into definitive form; it will no longer be about meticulous definition, the imposition of limits, but about expanding notions, denying boundaries, not about separating and identifying entities, but about discovering unnameable hybrids; it will no longer obsessed with the city but with the

manipulation of infrastructure for endless intensifications and diversification, shortcuts and redistributions-reinvention of psychological space [52]".

Experiencing At-Turaif makes us reckon with our over control of nature. Experiencing the amorphous living structure of monads and folds containing many negative spaces brings back the creativity in architecture by experiencing the ecological sensibilities of Najdi towns that had once and would be continued in Salmani architecture with its six core values–authenticity, continuity, human-centricity, livability, innovation, and sustainability [1]–for coming generations.

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References

1. KSCAU. Available online: https://archdesign.moc.gov.sa/en/kscau (accessed on 10 September 2024).
2. Al-Naim, M. Identity in transitional context: Open-ended local architecture in Saudi Arabia. *Int. J. Archit. Res.* **2008**, *2*, 125–146.
3. World, U. At-Turaif District in Ad-Dir'iyah. Available online: https://whc.unesco.org/en/list/1329 (accessed on 8 October 2024).
4. Al Naim, M.A. The Typology of Courtyard Space in Najdi Architecture, Saudi Arabia: A Response to Human Needs, Culture, and the Environment. *J. Asian Archit. Build. Eng.* **2023**, *4*, 91–110. [CrossRef]
5. At-Turaif. Available online: https://www.diriyah.sa/en/at-turaif (accessed on 17 October 2024).
6. Middleton, D. Growth and Expansion in Post-War Urban Design Strategies: C.A. Doxiadis and the First Strategic Plan for Riyadh Saudi Arabia (1968–1972). Ph.D. Thesis, Georgia Institute Technology, Atlanta, GA, USA, 2009.
7. Alshabib, A.; Ridgway, S. Aramco and Al-Malaz Housing Schemes: The Origins of Modern Housing in Saudi Arabia. *Hist. Postwar Archit.* **2021**, *8*, 147–166. [CrossRef]
8. Yun, S.; Yi, T. From the Rational Back to the Radical. In Proceedings of the Series 10. Cities, Communities Homes—Is the Urban Future Livable? AMPS, Derby, UK, 22–23 June 2017.
9. Yun, S.; Yi, T. Restoring Ecological Sensibility of Najd Town, At-Turaif, Beyond Figure and Ground to Bring Livable Communities Back in Riyadh. In Proceedings of the Livable Cities, London, UK, 20–24 June 2024.
10. Abd Allāh al-Sadḥān, M.I. Traditional Architectural Techniques in Popular Proverbs of the Najd Region. *Darah J. Arab. Penins. Stud.* **2023**, *1*, 48–73. [CrossRef]
11. Pieczara, M. Archetypes in Contemporary Architecture. *Czas. Tech.* **2019**, *4*, 71–84. [CrossRef]
12. Von Meiss, P.; Hakola, T. *Elements of Architecture: From Form to Place + Tectonics*; EPFL: Lausanne, Switzerland, 2013; ISBN 9780415831253.
13. Stoclet Frieze. Available online: https://en.wikipedia.org/wiki/Stoclet_Frieze#/media/File:Gustav_Klimt_031.jpg (accessed on 7 April 2024).
14. AlMohiza, L.; Baraka, R.; Fraij, A.; Hazzam, H.; Al Sulaiman, L. (Prince Sultan University, Riyadh, Saudi Arabia). Unpublished work, 2018; ARCH 211.
15. Yun, S.; Yi, T. Shadows as Fence Walls. In Proceedings of the 17th International Conference Architectonics Network: Mind Land Society, Freedom to Design! Architecture as Bridge between Nature and Culture, Barcelona, Spain, 29–31 May 2019.
16. Live, Shop, Stay, Work & Dine at Diriyah in Riyadh, Saudi Arabia. Available online: https://www.diriyah.sa/en (accessed on 14 May 2024).
17. Al Aqeel, A.; Eloud, A.; Al Saffar, H. (Prince Sultan University, Riyadh, Saudi Arabia). Unpublished work, 2022; ARCH 211.
18. Storefront for Art and Architecture. Available online: https://storefront.nyc/program/raoul-bunschotenchora-liminal-bodies/ (accessed on 5 October 2024).
19. Al Nakheel, J. (Prince Sultan University, Riyadh, Saudi Arabia). Unpublished work, 2022; ARCH 211.
20. Retsin, G.; Morel, P.; Koehler, D.; Claypool, M.; Menges, A.; Carpo, M.; Ago, V.; Trotter, M.; Leach, N. *Discrete: Reappraising the Digital in Architecture*; John Wiley & Sons Ltd.: Chichester, UK, 2019; ISBN 9781119500346.
21. Saleh, R.; Al Sagri, N.; Al Salam, F.; Al Ghunaim, J.; Al Saif, J.; Al Fayez, S.; Said, S.; Al Dudais, M. (Prince Sultan University, Riyadh, Saudi Arabia). Unpublished work, 2022; ARCH 212.

22. Saleh, R.; Al Sagri, N.; Al Salam, F.; Al Queflie, D.; Al Saaid, F.; Al Eissa, A. (Prince Sultan University, Riyadh, Saudi Arabia). Unpublished work, 2022; ARCH 212.
23. Said, S.; Al Eissa, A.; Saleh, R. (Prince Sultan University, Riyadh, Saudi Arabia). Unpublished work, 2022; ARCH 212.
24. Mohamed Historical Addir'iyah. Available online: https://www.rcrc.gov.sa/en/gallery (accessed on 8 October 2024).
25. X.com. Available online: https://x.com/khobar_history/status/841400270902951938 (accessed on 8 October 2024).
26. Yun, S.; Yi, T. Odds and Ends in Experiencing Heritage. In Proceedings of the Series 29.1. (IN)TANGIBLE HERITAGE(S): Design, Culture and Technology—Past, Present, and Future AMPS, Kent, UK, 15–17 June 2022.
27. Yun, S.; Yi, T. Hima as a Reversing instrument to Bring Communities Back to the Land. In Proceedings of the Design for Climate Adaptation, UIA 2023, Copenhagen, Denmark, 2–6 July 2023.
28. IEM:: Site Wind Roses. Available online: https://mesonet.agron.iastate.edu/sites/windrose.phtml?station=OERY&network=SA__ASOS (accessed on 9 October 2024).
29. Al Ajami, N.; Al Ajlan, M.; Onzi, Y. (Prince Sultan University, Riyadh, Saudi Arabia). Unpublished work, 2023; ARCH 211.
30. Dabailia-sherly English: The Traditional Buidling in Najd. Available online: https://commons.wikimedia.org/wiki/File:Najd_vernacular_architecture.jpg (accessed on 10 September 2024).
31. Al Ruwais, R.; Al Shammary, L.; Abdullah, N.; Salman, A. (Prince Sultan University, Riyadh, Saudi Arabia). Unpublished work, 2024; ARCH 211.
32. Salman, A.; Al Shahrani, T.; Al Marzoqi, S. (Prince Sultan University, Riyadh, Saudi Arabia). Unpublished work, 2024; ARCH 211.
33. Tiny Organisms with a Massive Impact. Available online: https://ethz.ch/en/news-and-events/eth-news/news/2017/02/tiny-organisms-with-a-massive-impact.html (accessed on 8 October 2024).
34. Mohammed, S.; Youssef, S. (Prince Sultan University, Riyadh, Saudi Arabia). Unpublished work, 2019; ARCH 411.
35. Hertzberger, H.; Rike, I. *Lessons for Students in Architecture*; 010 Publishers: Rotterdam, The Netherlands, 2009; ISBN 9789064505621.
36. Al Ru, N. (Prince Sultan University, Riyadh, Saudi Arabia). Unpublished work, 2019; ARCH 411.
37. Gussow, S.F. *Architects Draw*; Princeton Architectural Press: New York, NY, USA, 2013; ISBN 9781616891817.
38. Al Shudokhi, G.; Al Arfaj, N.; Al Mousa, F. (Prince Sultan University, Riyadh, Saudi Arabia). Unpublished work, 2019; ARCH 411.
39. Geospatial World. Development Strategy for ArRiyadh, Saudi Arabia. Available online: https://www.geospatialworld.net/article/development-strategy-for-arriyadh-saudi-arabia/ (accessed on 20 September 2024).
40. Yun, S.; Yi, T. Emancipating Urban Elements from Doxiadis Grid. In Proceedings of the 2018 ACSA/COAM International Conference New Instrumentalities, Madrid, Spain, 14–16 June 2018.
41. Mohamed, Metro Urban Design and Streetscape Manual. Available online: https://www.rcrc.gov.sa/en/publication/metro-urban-design-and-streetscape-manual (accessed on 13 September 2024).
42. Reiser, J.; Umemoto, N. *Atlas of Novel Tectonics*; Princeton Architectural Press: New York, NY, USA, 2006; ISBN 9781568985541.
43. Al Sawaherh, L.; Khachoum, A.; Al Romaizan, S.; Al Shaye, N.; Al Homaidan, R.; Al Abdulwanhab, S.; Al Marzoqi, S.; Al Basha, F.; Al Damer, A. (Prince Sultan University, Riyadh, Saudi Arabia). Unpublished work, 2017; ARCH 412.
44. Richard Sennett, the Uses of Disorder. 1970. Available online: https://www.panarchy.org/sennett/disorder.html (accessed on 10 October 2024).
45. Lysaker, O. Ecological Sensibility: Recovering Axel Honneth's Philosophy of Nature in the Age of Climate Crisis. *Crit. Horiz.* **2020**, *21*, 205–221. [CrossRef]
46. Bunschoten, R. *Metaspaces*; Black Dog Publishing: London, UK, 1998; ISBN 9781901033809.
47. Rasmussen, S.E. *Experiencing Architecture*; The Mit Press: Cambridge, UK, 1964; pp. 46–55.
48. Deleuze, G. *The Fold*; Continuum: London, UK, 2006; ISBN 9780826490766.
49. Jackson, J.B. *Discovering the Vernacular Landscape*; Yale University Press: New Haven, CT, USA, 1984; ISBN 9780300035810.
50. Allen, S. *Points + Lines: Diagrams and Projects for the City*; Princeton Architectural Press: New York, NY, USA, 2012; ISBN 9781568981550.
51. Woods, L. STORM WATCH. Available online: https://lebbeuswoods.wordpress.com/2009/12/19/storm-watch/ (accessed on 26 October 2024).
52. Koolhaas, R. Whatever Happened to Urbanism? *Des. Q.* **1995**, *194*, 28. [CrossRef]

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