



Project **ISLAND10**
System **ISLAND FRAMEWORK V1.0**
Spatial Development Framework
Recipient **The Eastern Province Municipality**
Location **Mujassam, Watan** **09-2025**
Subject **Primer I** **Prepared by jmp**
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Island Framework V1.0 – Spatial Development Framework

Island10 represents the first realization of the Island Framework V1.0 – Spatial Development Framework. This framework is based on a Voronoi logic derived from spatially even yet randomly distributed seed points. It is scalable and can be applied not only to public space but also to housing and larger-scale settlement structures.

From Points to Places

The design process begins with the definition of the planning area through a one-meter inward offset of the site boundary, which simultaneously determines the reach of the canopy. Within this area, ten spatially even but randomly distributed points (Seed 21) are placed, forming the basis for subsequent parametric operations. A Voronoi tessellation is then generated, dividing the site into distinct spatial cells that define the overall organizational structure.

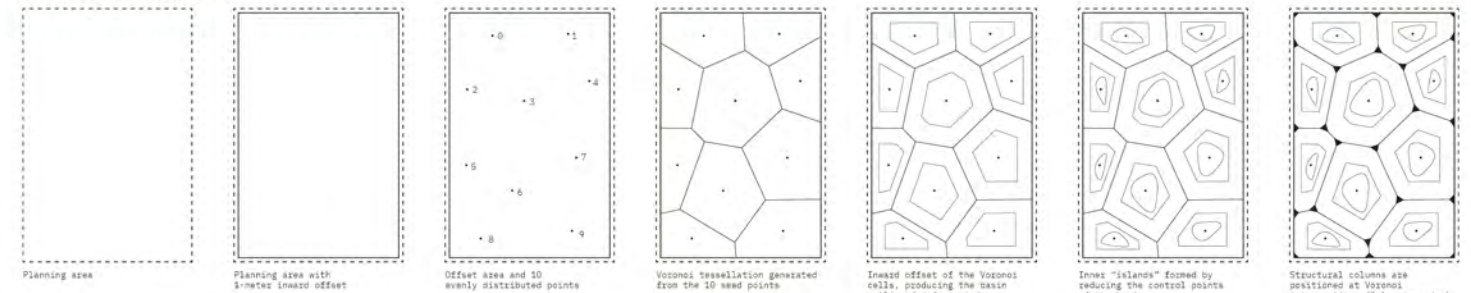
The cell boundaries are subsequently offset inward, generating the inner edges of the water basins, which also define the roof openings. In the next step, the control points of the basin curves are reduced, resulting in inner “islands.” These stand in deliberate contrast to the strict geometric logic of the tessellation, yet they derive directly from it.

Finally, downward-tapering columns with triangular cross-sections are positioned at the cell corners, providing structural stability and reinforcing the parametric logic of the system. The roof elements, randomly opening upward or downward, are likewise parametrically controlled – as are the seating elements arranged around the water basins, which vary in height between 15 and 50 cm, while their depth is defined by a 50 cm outward offset.

„[...]architecture is all too easily overshadowed by functionalist approaches and obscured by the dictum ‘form follows function.’“



Morphological Development



Watan – Studies on Alternative Settlement Forms

In a broader context, the project gains additional relevance. The protection of land from sealing has once again become a major concern in Europe. After nearly six decades in which the issue received little attention, it has re-entered the public discourse. Many voices now argue that new construction is unnecessary, that the existing building stock is sufficient, and that we should shift from a culture of “construction” to one of “conversion.”

What is often overlooked, however, is that the development of settlement forms – particularly their spatial structures – remains an area of significant deficit. This field of architecture too easily recedes behind functionalist approaches and is obscured by the dictum of “form follows function.” Yet it is long established that societal processes are strongly shaped by spatial preconditions. This raises fundamental questions: What forms should public buildings take? How can squares be designed to foster encounter and community? And how can new forms of housing be developed that, in turn, enable new forms of social life?

Against this background, the seemingly banal building task in Watan proves to be highly suitable for testing new structures at an experimental stage. Housing demand in the Middle East is far greater than in Europe, and the conditions differ dramatically. While the protection of barren desert soils is not a pressing concern, the central challenge lies in designing climate-responsive structures that provide natural cooling without the use of energy-intensive air conditioning.

In the immediate surroundings of Island10, the situation is evident: vast, undeveloped plots near the coast await transformation. Already nearby are a sprawling university campus and partially completed residential developments. Strikingly, these developments strongly resemble blueprints of European multi-family and mid-rise housing blocks. Considering the local climatic conditions, this is highly problematic: these imported typologies correspond neither to the traditional spatial structures nor to the historical design logics of the region.

For this reason, special attention must be paid to questions of spatial organization. Traditionally, Arab cities are structured into neighborhoods known as Harat, defined not by geometric subdivisions of land, but by complex spatial interrelations and social belonging. Here, space itself – rather than land ownership in the European sense – becomes the focus of appropriation.

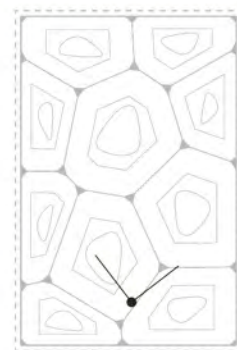
In this context, the structure of Island10 is to be further developed, not only in architectural terms but also in terms of settlement and urban structure. In particular, the Island Framework V1.0 is envisioned as a testing ground for alternative housing models and as a tool for exploring new urban structures.

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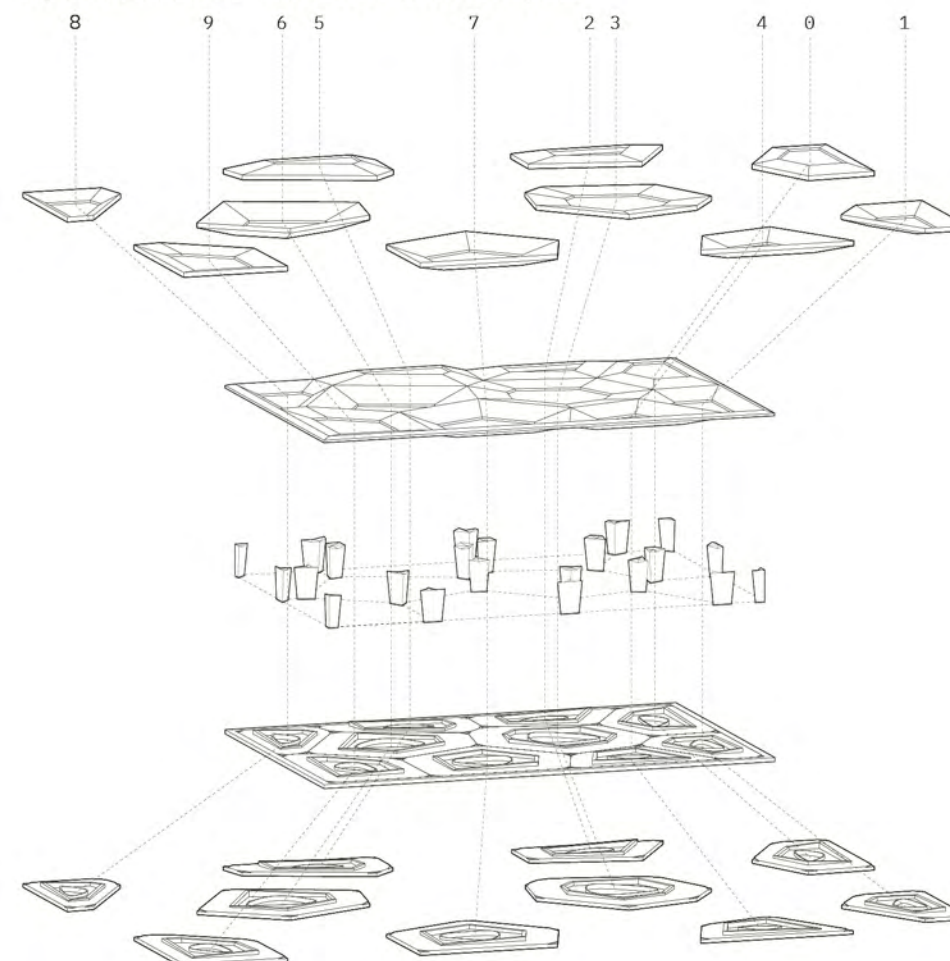


**Protecting Land
VS.
Development
VS.
Spatial Structure
VS.
Topos?!**





Exploded Axonometric - Parametric Structural System



Island10

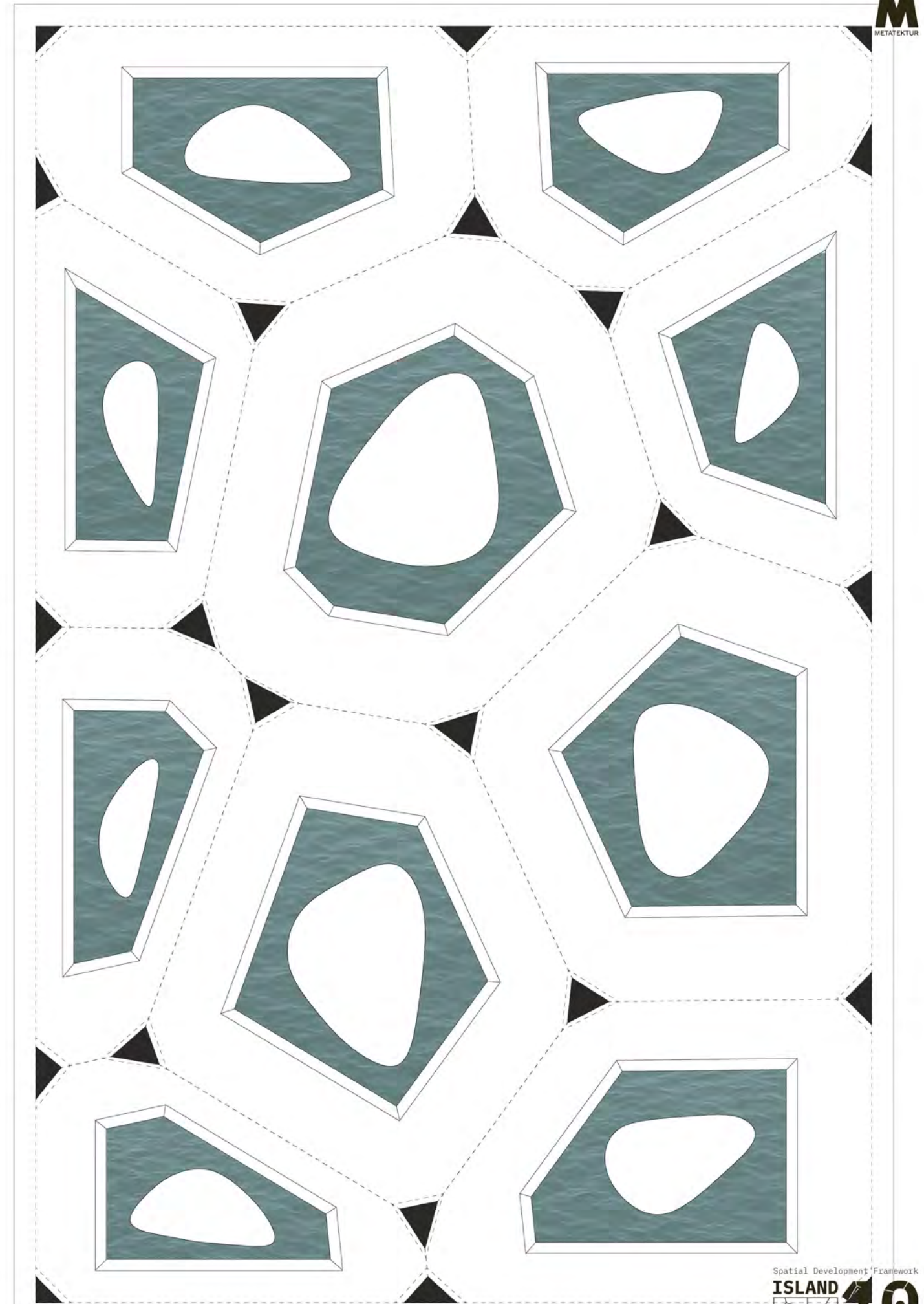
Island10 is a publicly accessible, covered park located directly adjacent to the shoreline. It functions both as a place of recreation and as a climate-responsive intervention. The roof geometry generates a natural chimney effect which, in combination with the ten water surfaces, produces passive cooling. In addition, the massive concrete construction acts as a thermal reservoir: during the day it prevents overheating, while at night it gradually releases the absorbed heat into the cool desert air.

The overall structure was conceived entirely parametrically. The process began with the placement of ten random points on the site, which served as seed points for a Voronoi tessellation. The resulting Voronoi cells defined the organizational and spatial logic of the project. From this, the individual components emerged, their reduced envelopes forming the “islands” within the structure. These islands are set in deliberate contrast to the clear and partly sharp-edged geometry of the overall complex.

The positioning of the columns results from the intersection points of the triangulated components. Their tapered-downward form was parametrically controlled, merging functional and design aspects: on the one hand, it references the structural logic of load transfer; on the other, it generates a spatial dynamism that emphasizes the transition between roof and ground.

A key design parameter is the focus on prefabrication, which allows for rapid assembly. All parameters—ranging from column height and tapering, to roof pitch and opening angles, to surface allocation and patterning—can be script-controlled and adapted to different requirements.

Beyond its functional dimension, the structure is conceived as a typological study of dense low-rise construction. With minimal interventions, the individual components can be transformed and interpreted as courtyard house typologies, positioning the project as a contribution to the discourse on alternative settlement and housing forms.



Reflection on Cells and Voronoi

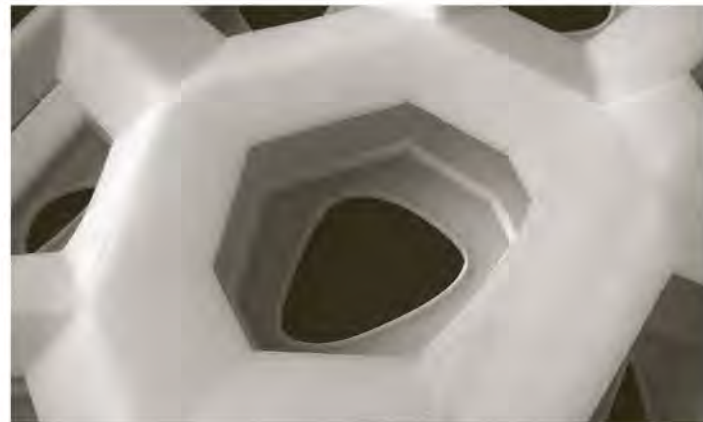
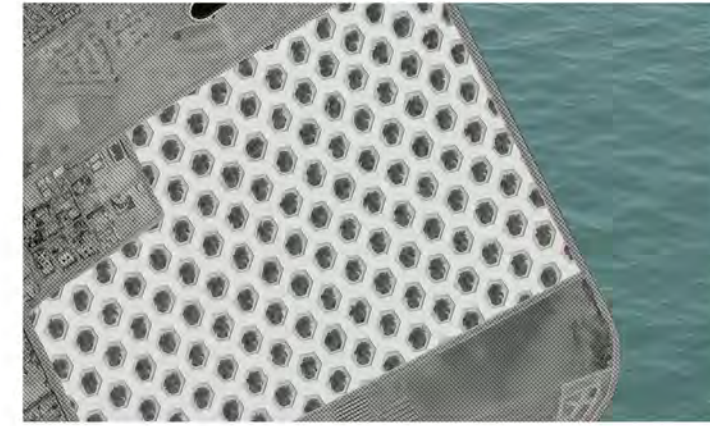
In the preliminary stages of the study, we explored a range of structural approaches: from the conventional orthogonal grid, through the diagonal grid, and finally to a Voronoi-based subdivision derived from spatially even but randomly distributed seed points. The studies revealed that this system responds most effectively to the expected fluctuations of pedestrian movement while generating a space that is both clearly defined and, at the same time, diffuse in perception – a space open to multiple possibilities.

It is important to note that the Voronoi structure is, ultimately, also a grid – only not a rectilinear one. This is where its quality lies. Where the orthogonal grid enforces discipline and subordination, the Voronoi system generates a logic derived from relationships between points – one that remains flexible and allows for openness. Points in space are not merely geometric settings; through moments of occurrence, they become places. A partitioning of space through points that are – like events themselves – non-linear, is therefore the more appropriate and logical form of spatial organization.

Despite these qualities, the decision for this system was far from self-evident. Too present were the doubts stemming from its recent history of use. In the 2000s, such geometries were often employed to excess – not out of intrinsic logic, but as decorative or concealing design elements. There are countless examples where cellular or honeycomb-like structures merely served to camouflage banal planning behind them.

Equally, we wanted to distance ourselves from the notion of architecture as an organism, or cities as being “in flux” – a conceptual figure that emerged with the rise of modern medicine and has repeatedly resurfaced since, following less a spatial logic than a projected image of organic processes, of a supposed vitality.

Added to this is our own professional conditioning: too often architects fall into the trap of pursuing what the inner eye suggests, rather



than what is evidently correct. It is perhaps due to a widespread cognitive dissonance that this decision was so difficult.

Finally, we were also skeptical of the severity of classical grids, which not only act as spatial constraints but can also subtly echo the formal language of authoritarian regimes and reinforce the mindsets behind them. Weighing all these aspects ultimately led to our decision in favor of the Voronoi system.

Further preliminary studies demonstrated that this structure is highly suitable for large-scale developments – not only for the subdivision of land at the urban scale, but also down to the level of the single housing unit, each organized around one of the generated islands. Ultimately, the developed system is congruent in both its formal language and structural logic: form follows structure, and spatial possibilities emerge from it while simultaneously influencing it. In the next phase, the study will be extended to explore courtyard-house typologies and to test its potential for dense low-rise developments.

