



# AQUAGON:

DELIVERING SAFE, DRINKABLE WATER WHERE IT'S NEEDED MOST.

Aquagon is a mobile water refilling and filtration unit engineered to address water scarcity and sanitation challenges in disaster-affected areas. Designed as a modular, transportable node, it integrates advanced filtration systems to ensure safe, potable water on demand. By mitigating reliance on centralized infrastructure, Aquagon plays a critical role in preventing waterborne diseases and promoting public health resilience.



## MAN'S EYE PERSPECTIVE



RURAL



RESIDENTIAL

## DESIGN PROBLEM

The design challenge is to create a mobile, modular unit that operates independently of power and water systems, remains stable during aftershocks, and is easily transportable across rough terrain. It must be intuitive to use, durable against debris, capable of serving low to high-demand communities, and modular to match community needs.

## CONTEXT / RELEVANT ISSUES



40 MILLION FILIPINOS WITH NO ACCESS TO POTABLE WATER SOURCES



CENTRAL VISAYAS, ZAMBOANGA PENINSULA, AND BARMIN HAVE SIGNIFICANT SERVICE GAPS, WITH UP TO 27% LACKING BASIC WATER SERVICES.

## UN SUSTAINABLE DEVELOPMENT GOALS

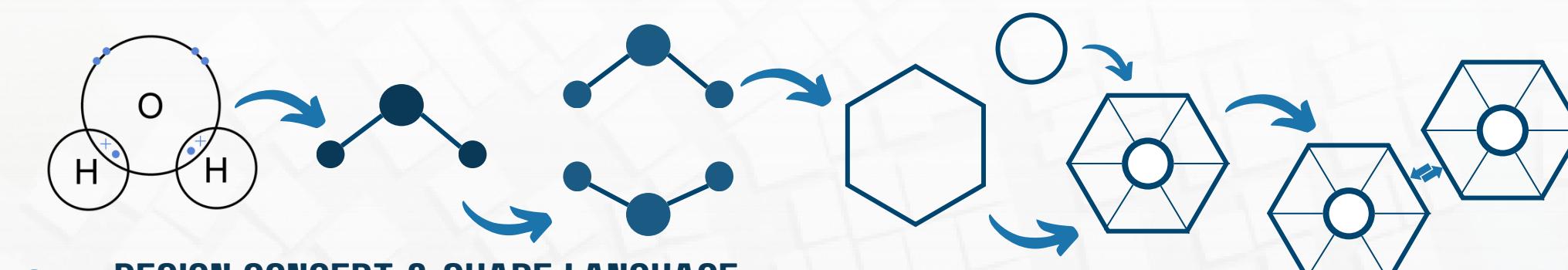
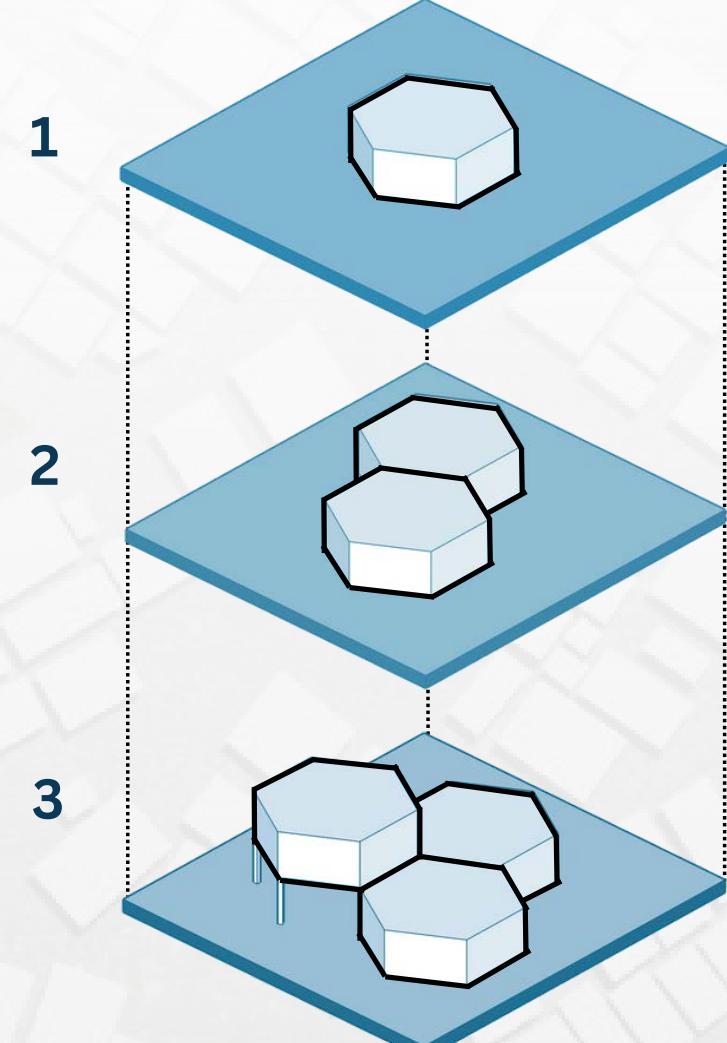
Aquagon directly addresses water scarcity and promotes access to safe, potable water, especially in disaster-hit and underserved areas.

By preventing waterborne diseases through advanced filtration, Aquagon contributes to target 3.3 (combat communicable diseases) and 3.9 (reduce illnesses from hazardous water).

## DESIGN STATEMENT & PHILOSOPHY

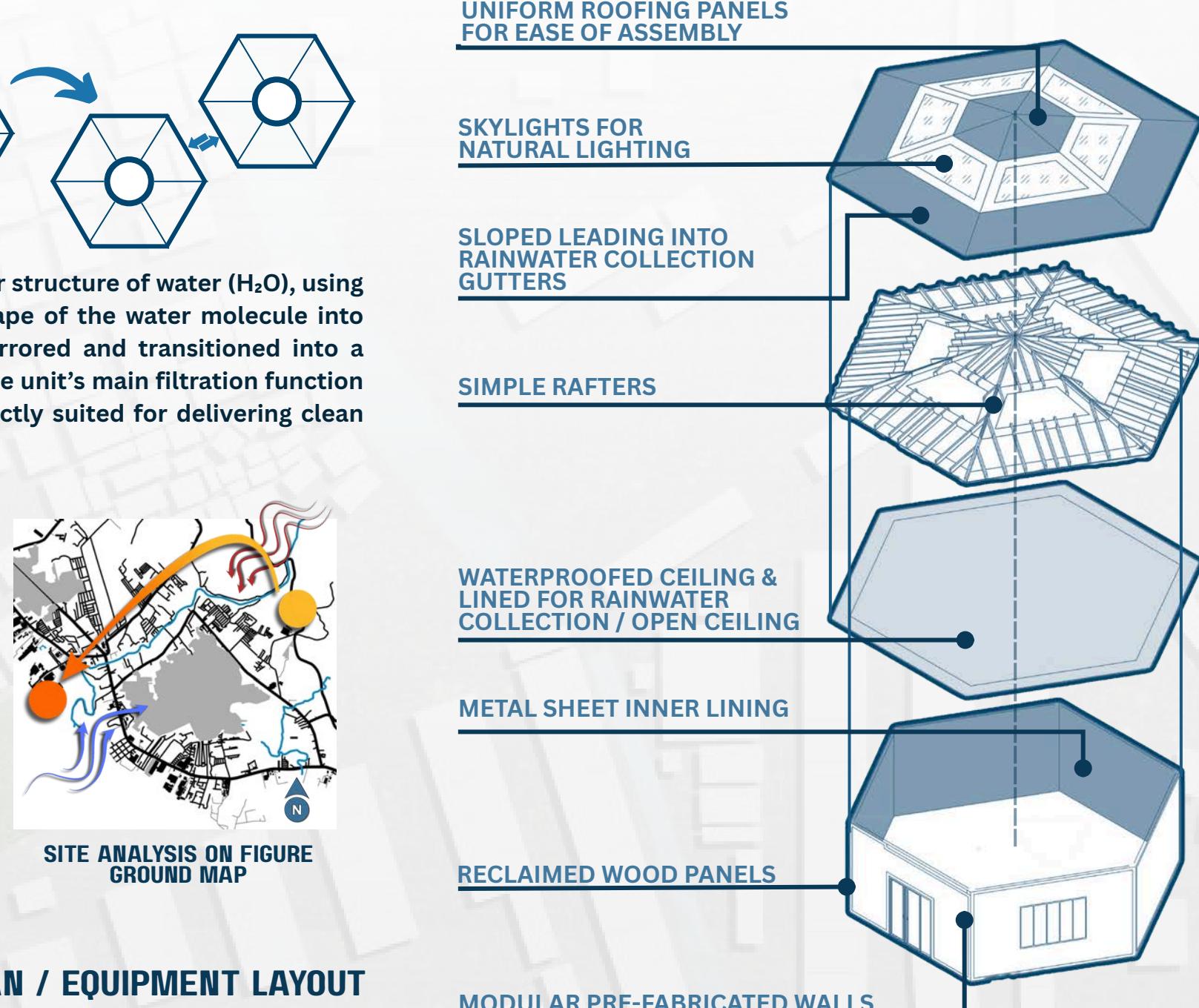
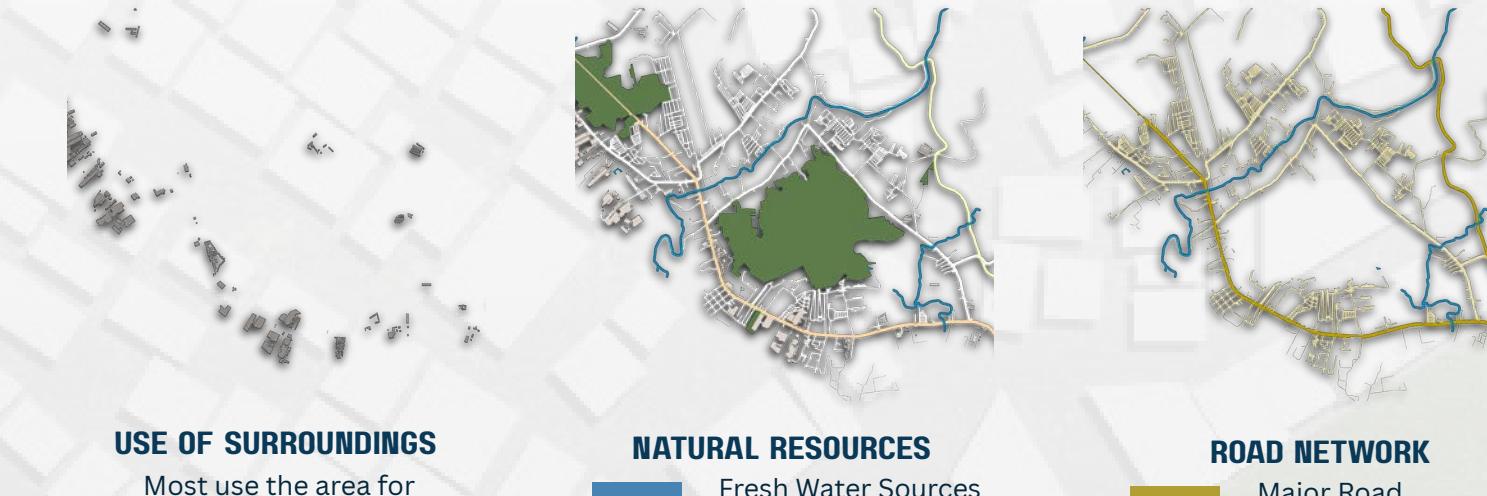
*"Architecture that sustains life through access, empowerment, and resilience."*

Modular architecture for mobile water access in crisis and rural zones.



## DESIGN CONCEPT & SHAPE LANGUAGE

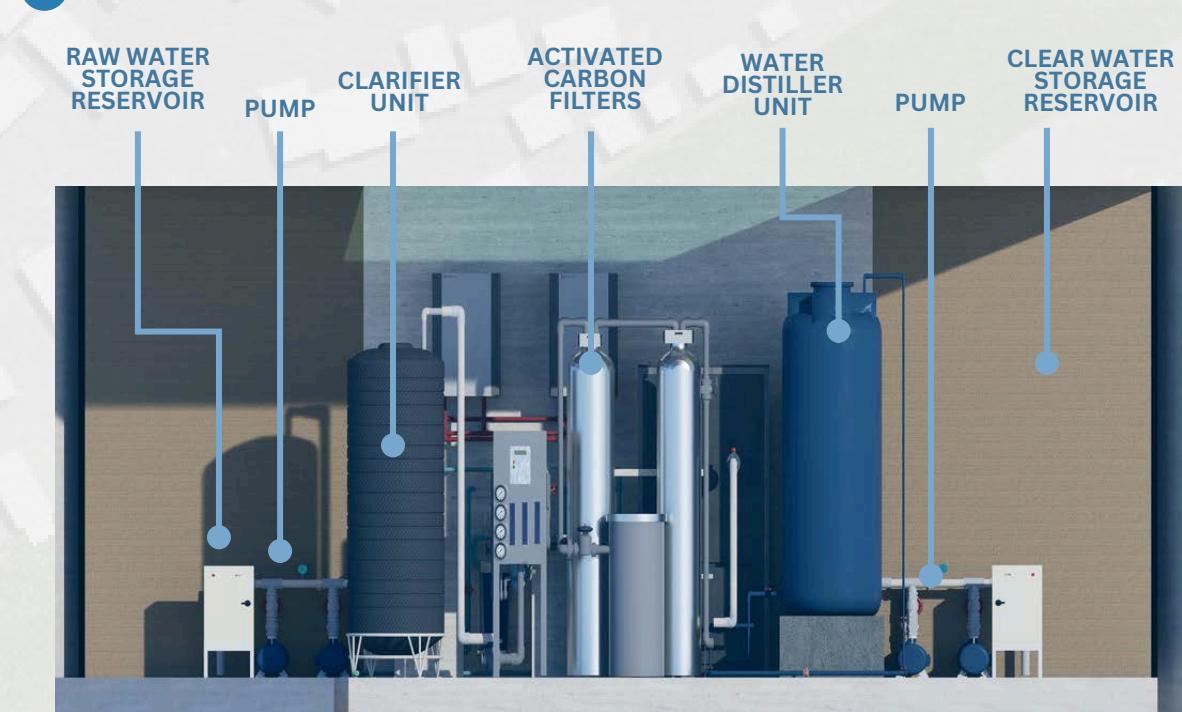
The design concept & shape language of the AQUAGON unit draws inspiration from the molecular structure of water ( $H_2O$ ), using it as the foundation for its form development. The concept evolves from the simple bent shape of the water molecule into abstracted nodes and bonds, symbolizing connectivity and modularity. The form is then mirrored and transitioned into a hexagon. This hexagonal shape is refined with a central core and radial divisions, representing the unit's main filtration function and structural layout. The final design reflects a modular, scalable, and resilient system, perfectly suited for delivering clean water in disaster-affected areas.



## FORM DEVELOPMENT

The form development begins with a folded quadrilateral panel that, when mirrored, forms one side of a hexagon. Six identical panels are stacked to create a complete hexagonal enclosure, forming the module's base and walls. This modular unit is topped with a structural roof system and canopy, as shown in the exploded axonometric view, which includes a radial roof framing, ceiling/floor plate, and fenestrated wall panels. The system is designed to be modular and prefabricated, allowing easy replication and assembly. Finally, these hexagonal units can be aggregated horizontally to form larger clusters, demonstrating scalability from a single unit to a network of interconnected spaces for broader community use.

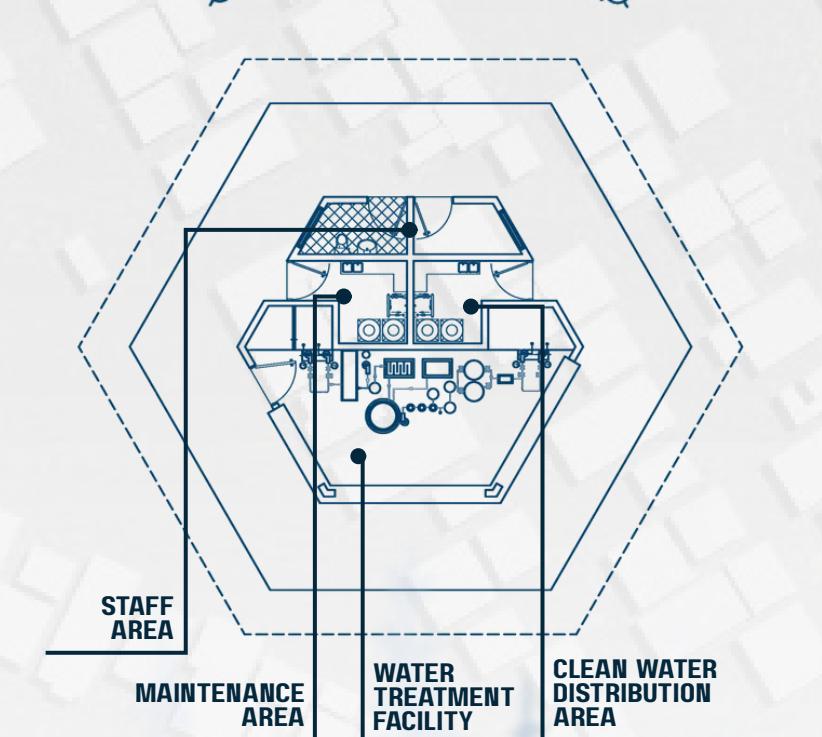
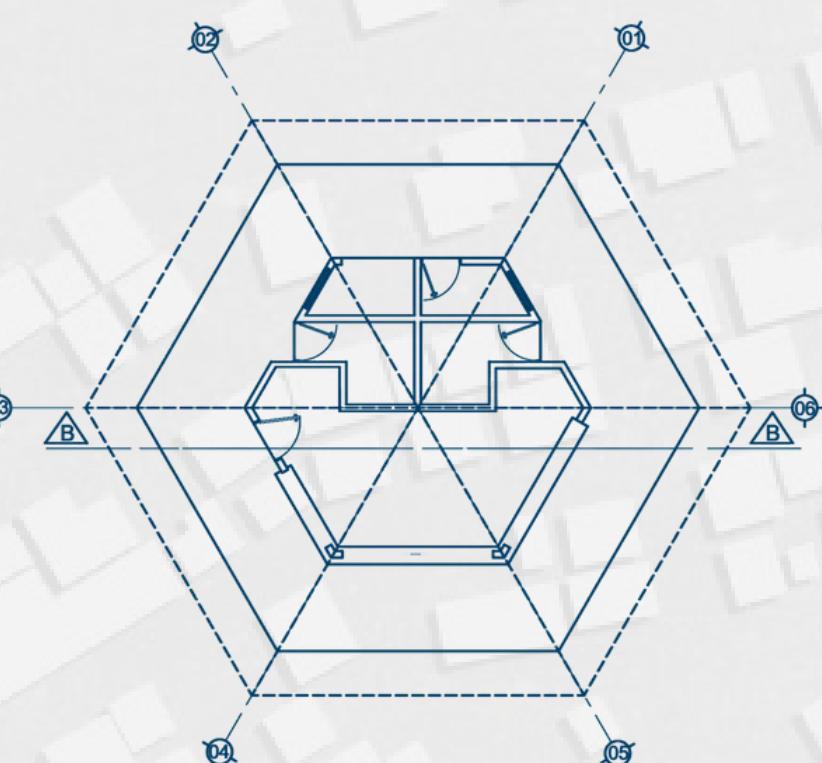
## WATER TREATMENT FACILITY SECTION



The water treatment facility is a well-organized and hygienic space designed to support efficient operations and maintenance. Its interior emphasizes durability and cleanliness, using robust materials and finishes suited for wet environments. Natural lighting, clear zoning, and logical equipment layout contribute to a functional and easy-to-navigate environment.

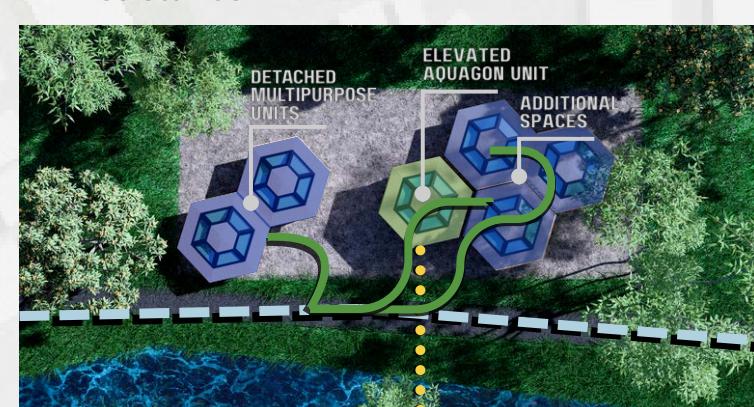


## FLOOR PLAN / EQUIPMENT LAYOUT



## MATERIAL INSPIRATION

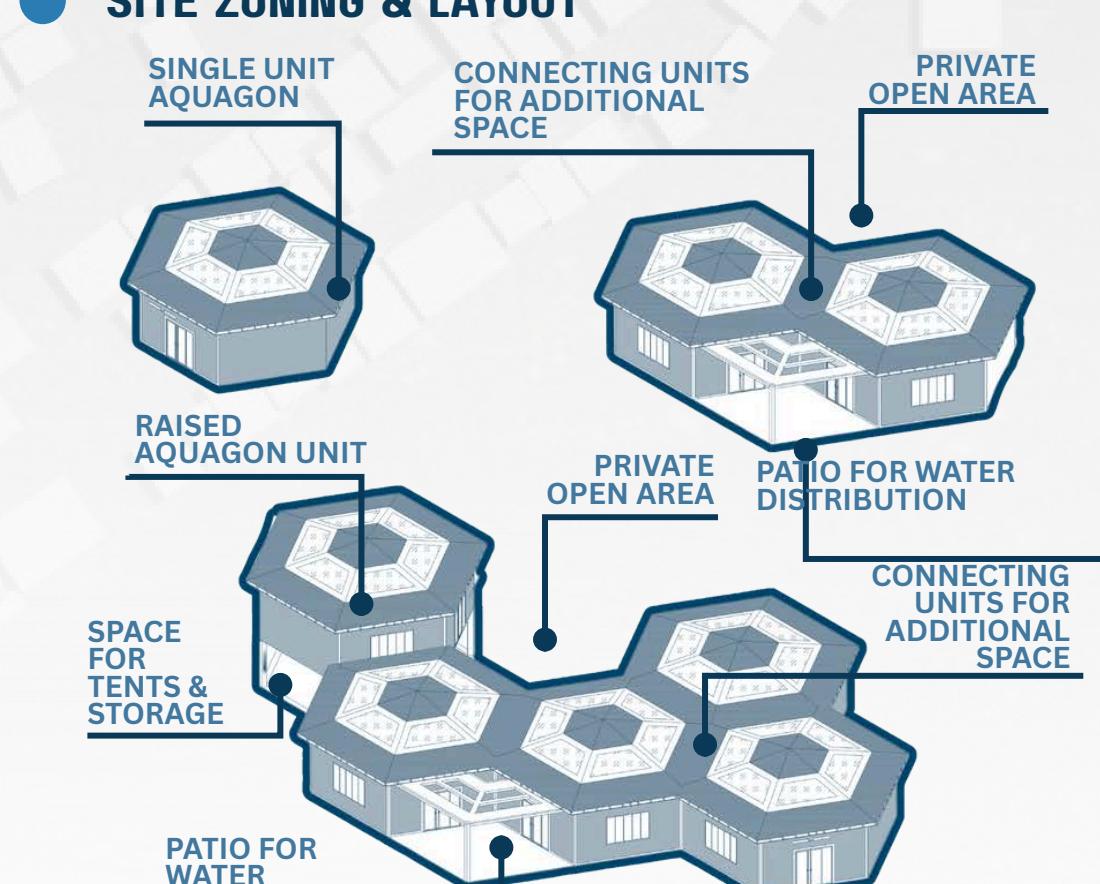
- Reclaimed wood may be used for panels, structural frames, or cladding.
- Laminated glass is easily cleaned and resistant to shattering. Ideal for protective enclosures.
- Thin stainless steel or aluminum sheets provide lightweight yet durable surfaces for structural support, protective casings, and modular joints. These allow for easy transport, corrosion resistance.



## CIRCULATION

WATER SOURCE, PERSONNEL, VEHICLES

## SITE ZONING & LAYOUT



## ENVIRONMENTAL IMPACT

1. Reduced Plastic Waste
  - By providing clean, refillable water, Aquagon minimizes reliance on single-use plastic bottles, helping curb pollution in crisis zones and everyday settings.

### 2. Sustainable Resource Use

- Aquagon reduces the environmental footprint of traditional water purification methods.

### COMMUNITY IMPACT

1. Rapid Response & Relief
  - In emergencies, Aquagon functions as a first-responder resource, addressing immediate water needs without waiting for infrastructure repair.

### 2. Improved Public Health

- By delivering safe, potable water, Aquagon helps prevent outbreaks of waterborne diseases, a leading concern during disasters.

### 3. Empowerment & Resilience

- Communities gain autonomy with access to local, on-demand water, fostering resilience in the face of infrastructure breakdowns or climate-related events.

## ELEVATIONS

### SINGLE UNIT AQUAGON

### DOUBLE UNIT AQUAGON

### RAISED & MULTIPLE UNIT AQUAGON

- Residential areas
- Smaller evacuation zones
- Mixed Commercial-Residential areas
- Mid-sized evacuation zones
- Greater number of evacuees
- Large scale evacuation zones
- Greatest number of evacuees
- Open areas for tents & makeshift shelter
- Raised units for additional storage & space



## ASSEMBLY

The Aquagon unit is assembled using two trapezoidal base modules that lock together to form a stable and transportable floor platform. Six modular wall panels are mounted onto the base, creating a compact, weather-resistant enclosure.

## FOLDING



## HEXAGON BASE

## 6x WALLS STACK

The reclaimed wood provides structural framing and natural insulation, while laminated glass is used in select panels for visibility and protection. Lightweight metal sheets serve as structural reinforcements and joinery, enabling quick assembly and disassembly.

## TRANSPORTATION OF MATERIALS

Aquagon's materials are lightweight and modular, allowing compact packing and easy transport by small trucks or trailers to disaster-affected areas.

