

CRICKET SHELTER

MODULAR INSECT FARM

LOW CARBON SOURCE OF
ESSENTIAL PROTEINS



EATING BUGS IS GOOD FOR YOU,
IT'S GOOD FOR THE PLANET AND IT'S
GOOD FOR OUR FUTURE



CRICKET

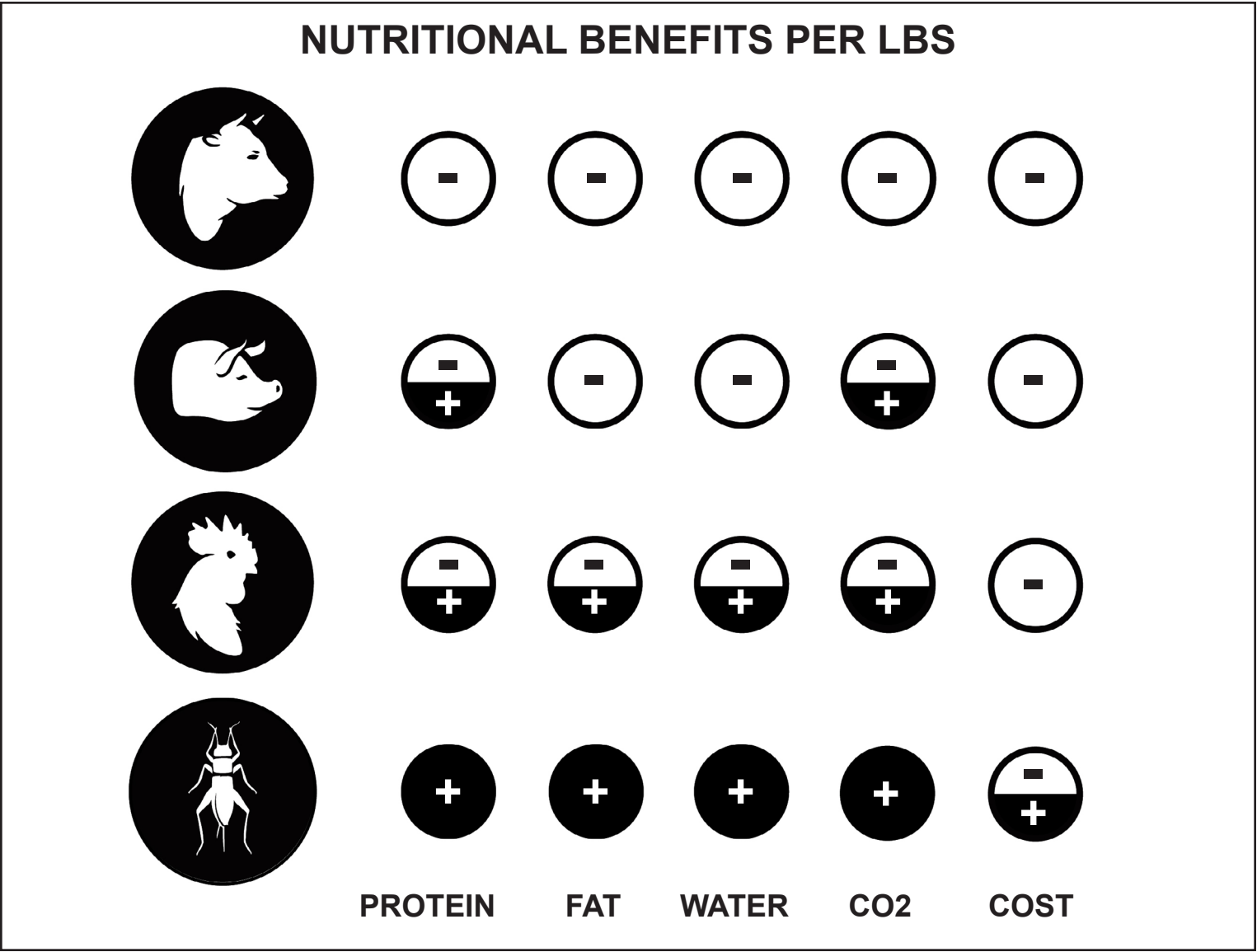


FLOUR



CUISINE

Cricket flour is an ecological source of proteins and amino acids.

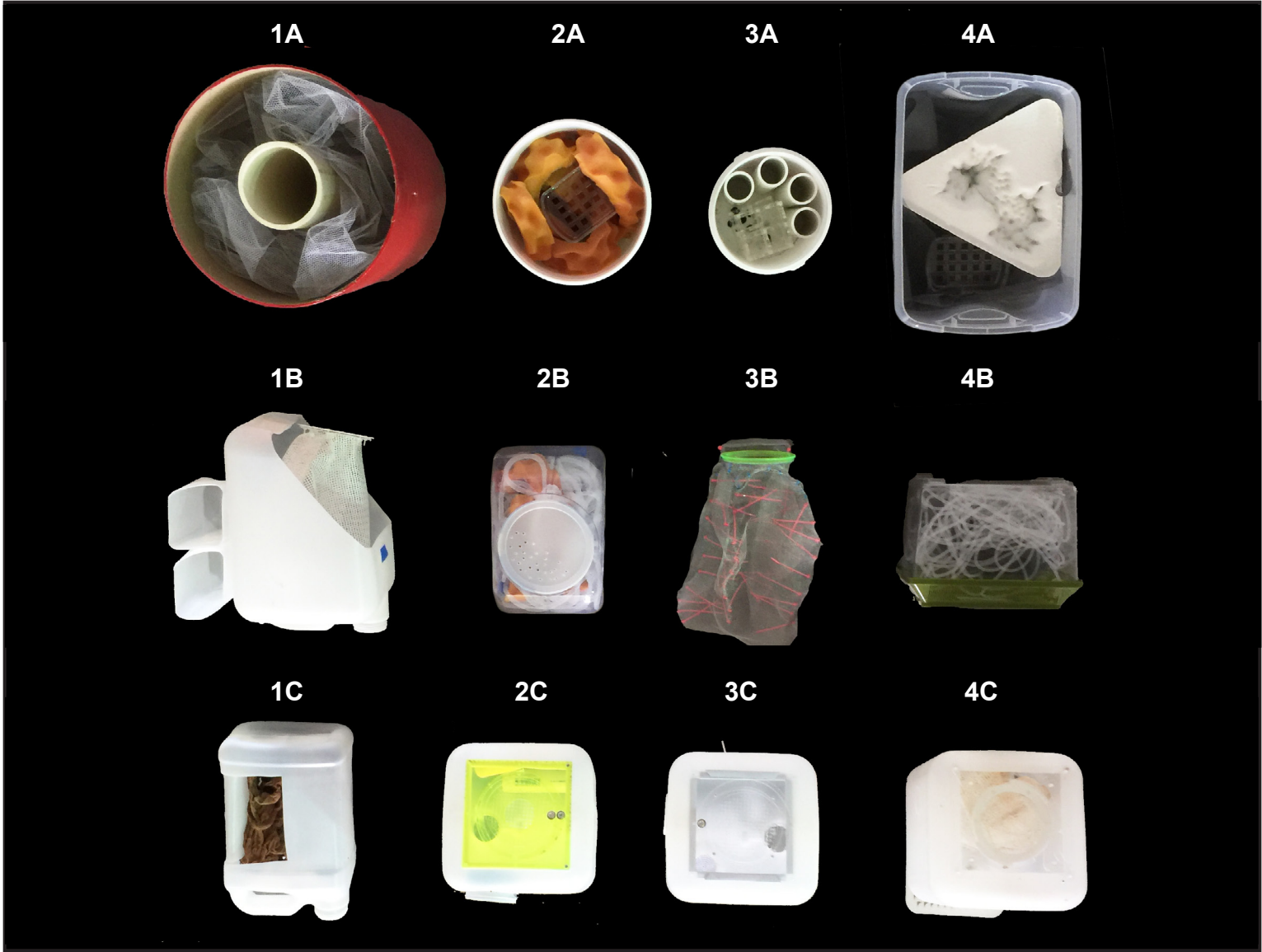


Raising cattle, pigs, and chicken for meat products all require immense amounts of fresh water. Harvesting insects for food typically takes three hundred times less water for the same amount of protein. Our project aims to maximize access to nutrient resources and to support local communities.

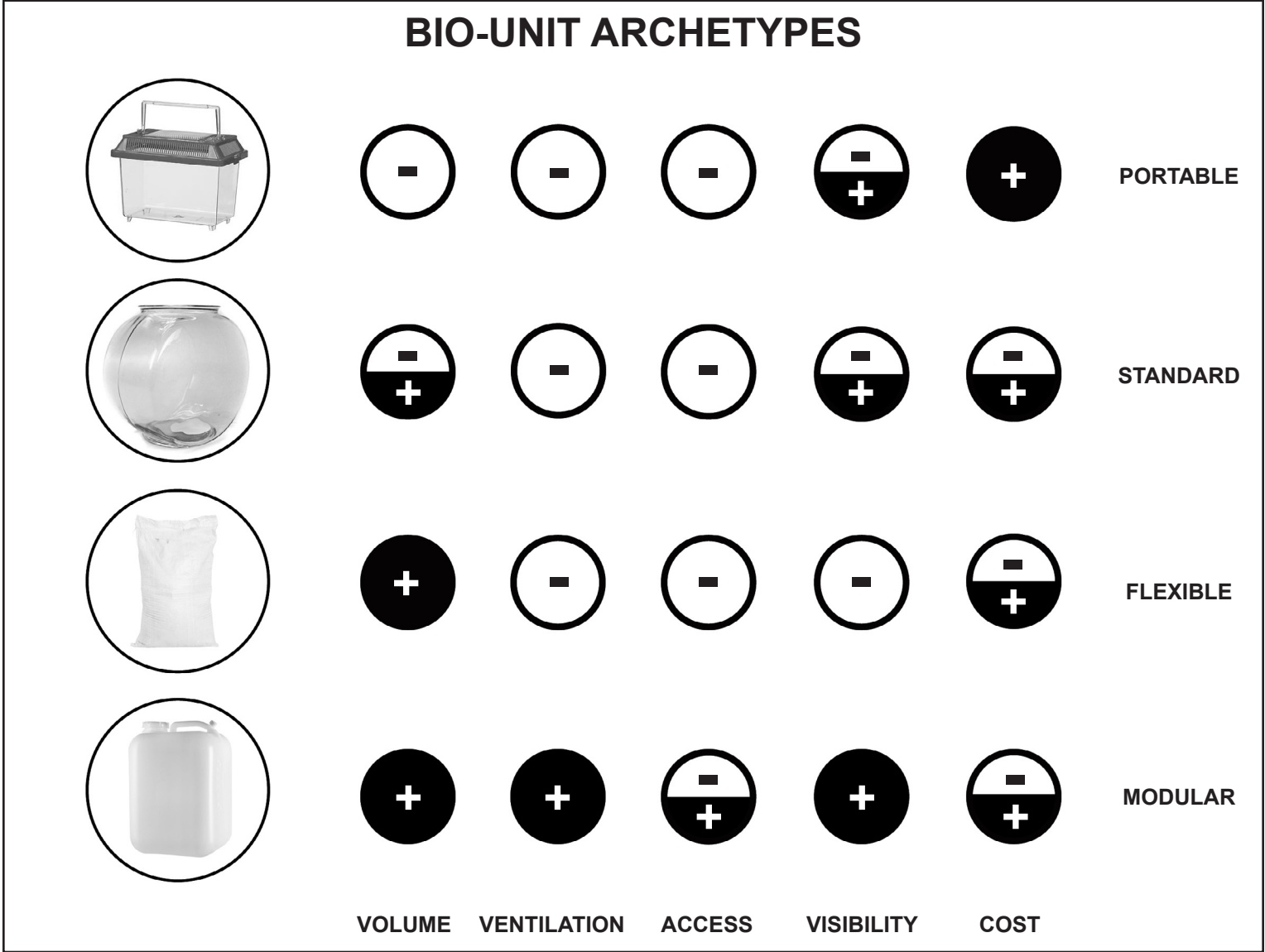
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HABITAT UNIT INVESTIGATION



Various studies of potential off-the-shelf components that were modified to support the insect's life cycle.



Cricket undergo 8 stages of growth from egg to adulthood. These preliminary designs sought to develop a building module that housed all lifecycle milestones.

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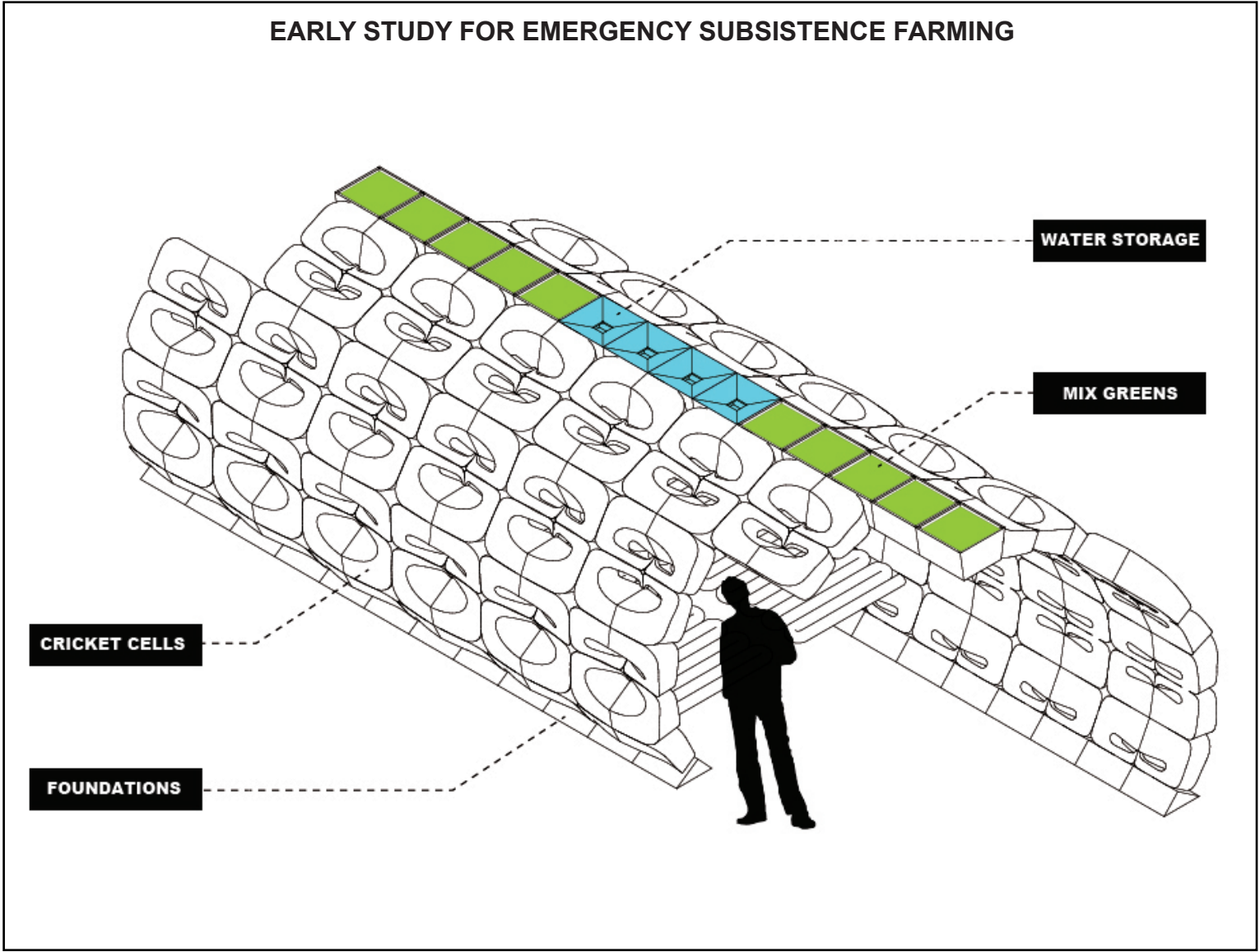
EXPERIMENTS WITH UNIT CLUSTERS



Multiple gates and access port studies.



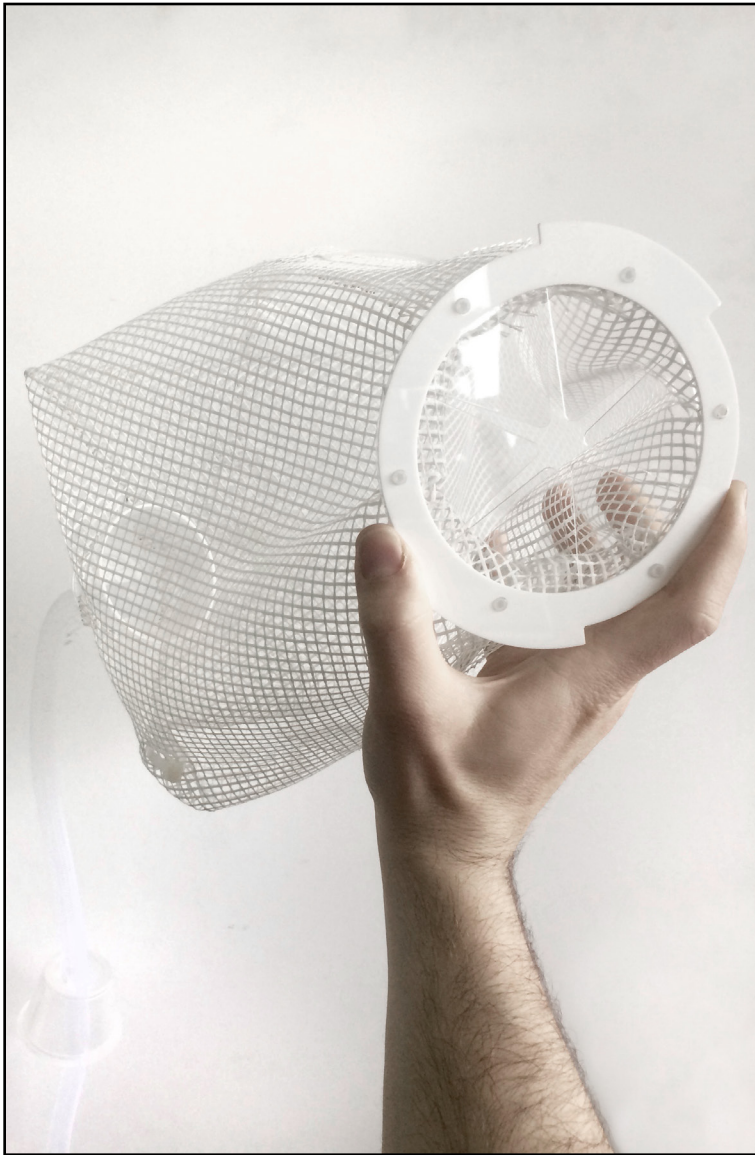
Unit clustering to optimize density.



Each cell would act as building module to produce simple archways, that could be replicated in post disaster areas. A more refined and articulated system must be deployed in stabilized regions.

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**FEEDER AND HARVESTING
METHODS**



Sack for easy harvesting of adult insects.



Studies of different combinations of modules and connections to ensure cricket mobility.



Soft nylon mesh tubing is used to increase circulation and mobility between bio-units.

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**TESTING FOR INSECT HEALTH
AND ENVIRONMENTAL NEEDS**



Research aimed to investigate the optimal surface, texture, and form for cricket vitality.



Nylon mesh tubing and sheets were used to provide the necessary cricket infrastructure that allows mobility from each pre-ordered jug to the next.



Their desire for dark spaces and porous surfaces led to manipulations of the inner containment sack.

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STRUCTURAL RIB FABRICATION AND ASSEMBLY



CNC plywood rib notches for bio-unit attachment points.



The structure is broken up into 3 sections for easy assembly and disassembly.



Each bio-unit is inserted between 16 profile ribs connected with structural horizontal fins.

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INSECT FARMING TYPOLOGIES



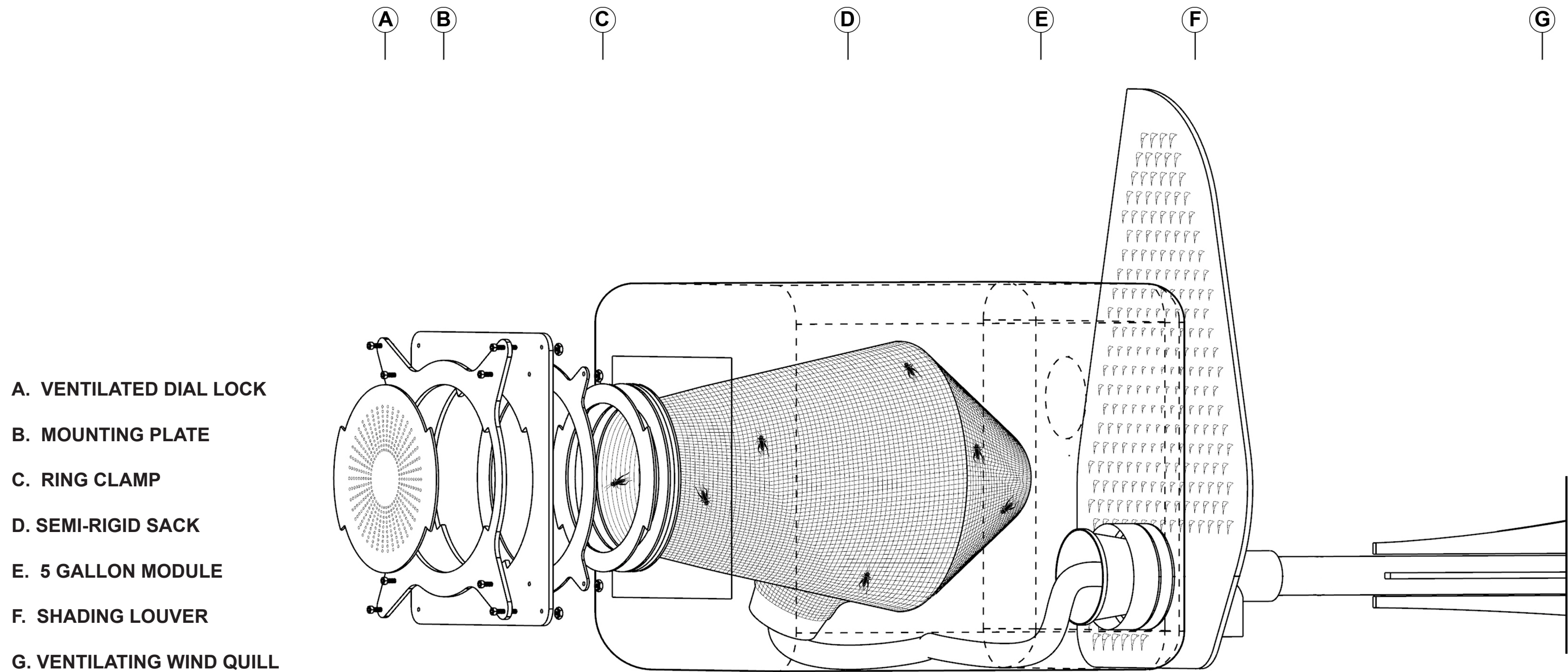
Existing low-grade farms using egg crates and make-shift feedings methods that raise questions of sanitation and health safety.



New individual containers were parametrically aligned to match the archway splines for added density, hygiene and multilayered control.

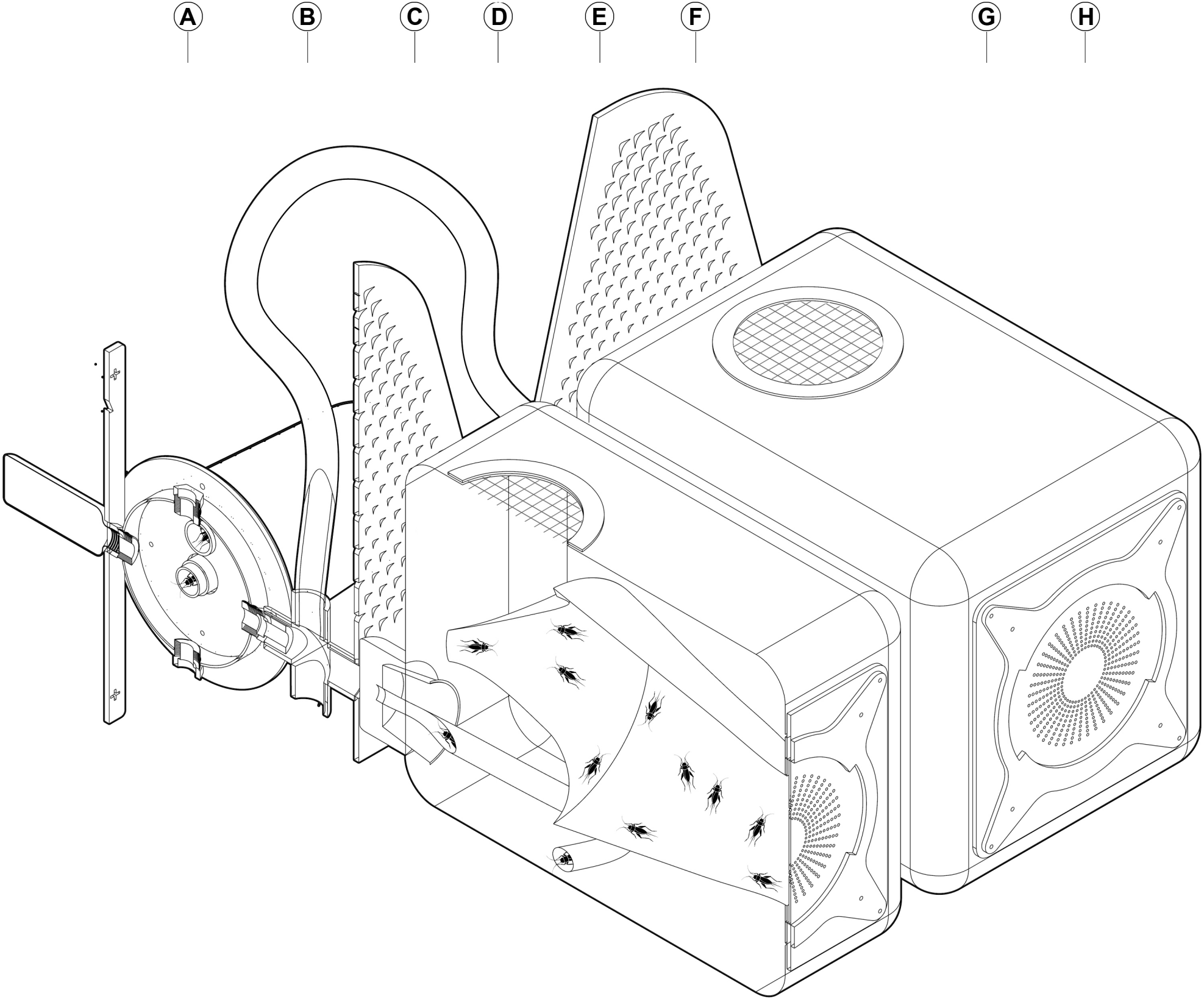
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BIO-UNIT ASSEMBLY



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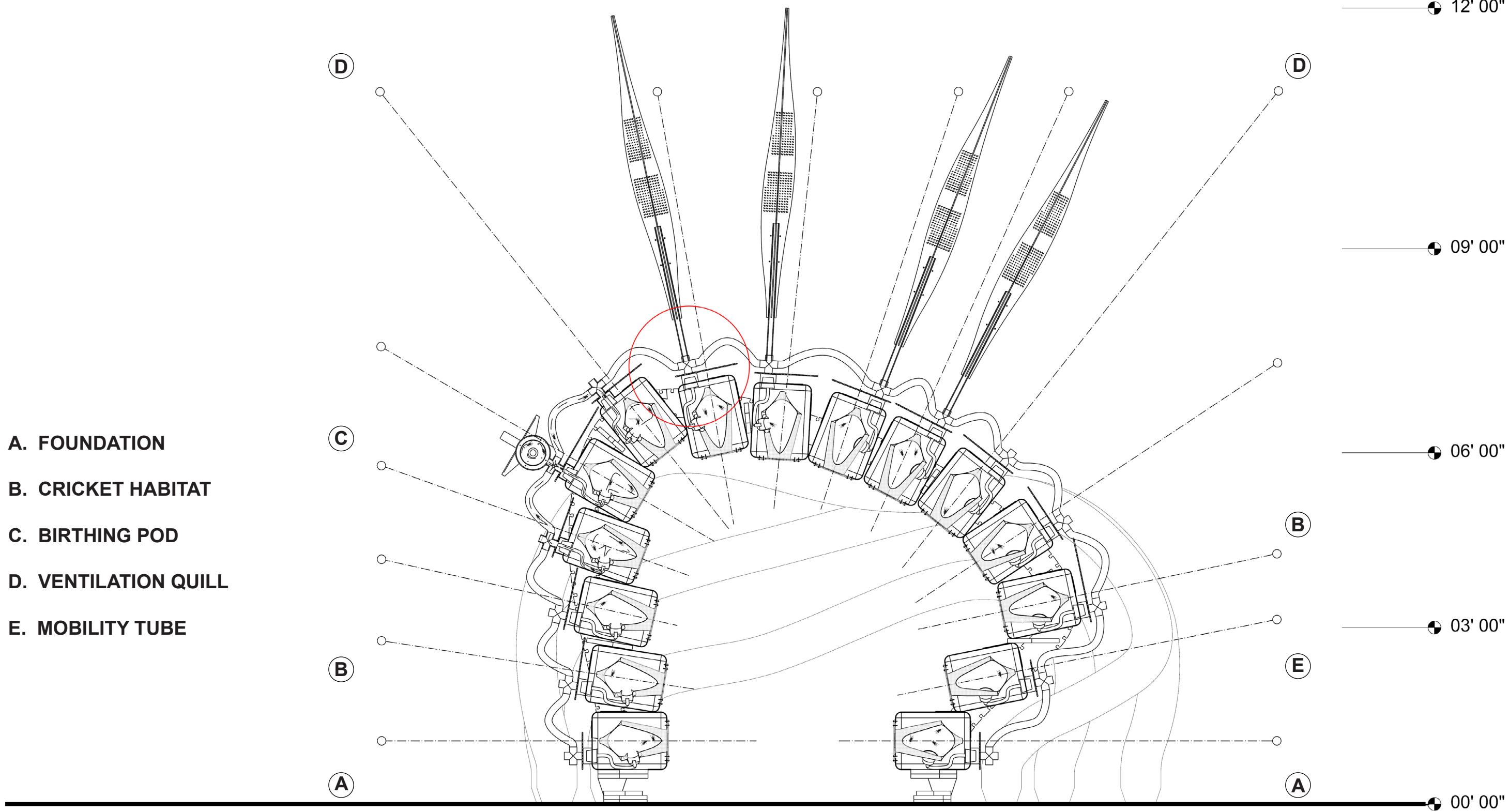
**LINKED SEX / BIRTHING PODS,
HABITATS AND LOUVERS**



- A. SEX POD
- B. MOBILITY TUBE
- C. SHADING LOUVER
- D. VENTILATION MESH
- E. NYLON MESH TUBE
- F. SEMI-RIGID WEAVE SACK
- G. 5 GALLON MODULE

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**SECTION OF LINKED BIO-UNIT
FOR CRICKET LIFE-CYCLE**

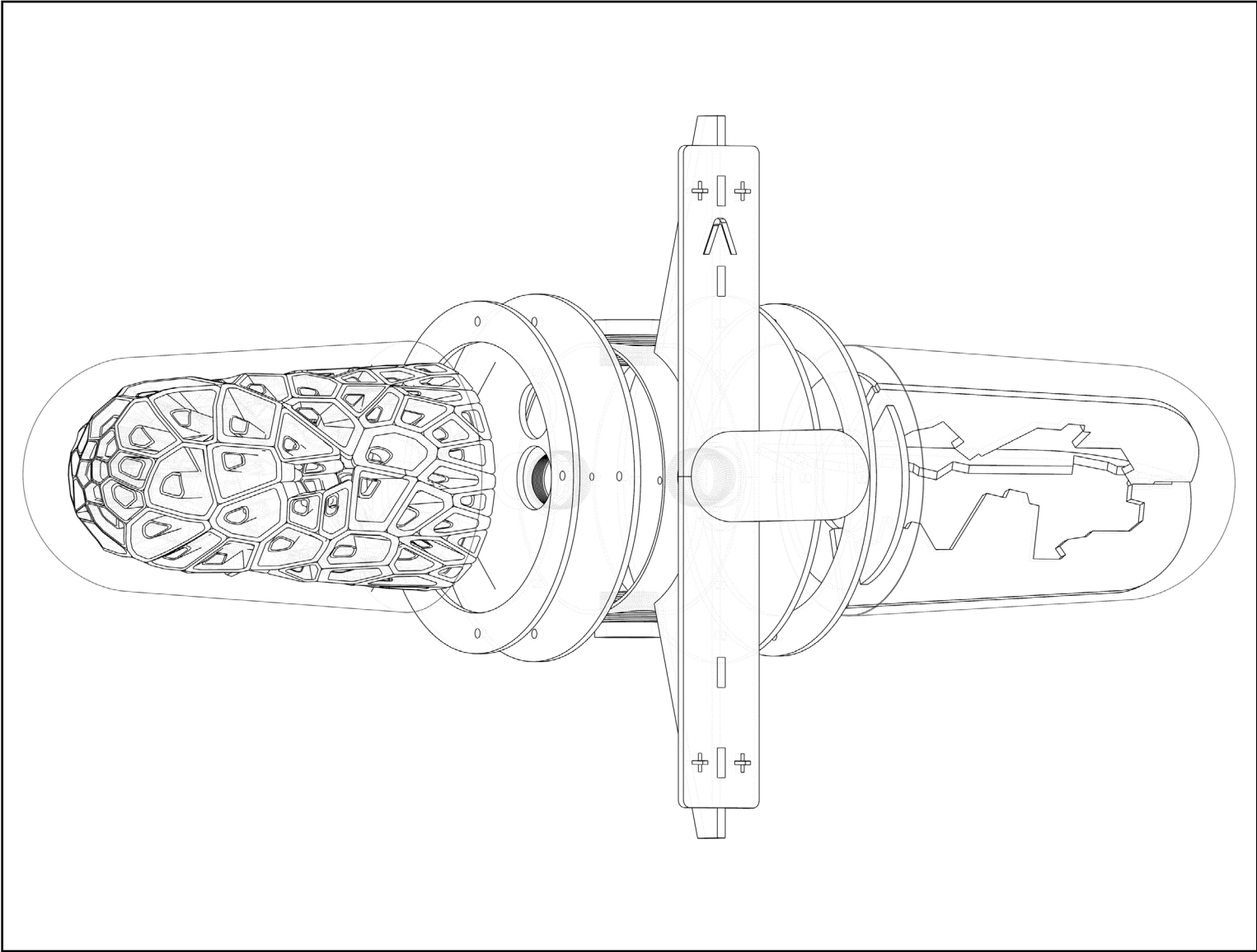


25 quills are attached directly to the bio-units allowing for natural ventilation of the cricket farm via the stack effect. This improves overall air quality and health for the crickets while magnifying the chirping sounds through vibrating columns of air.

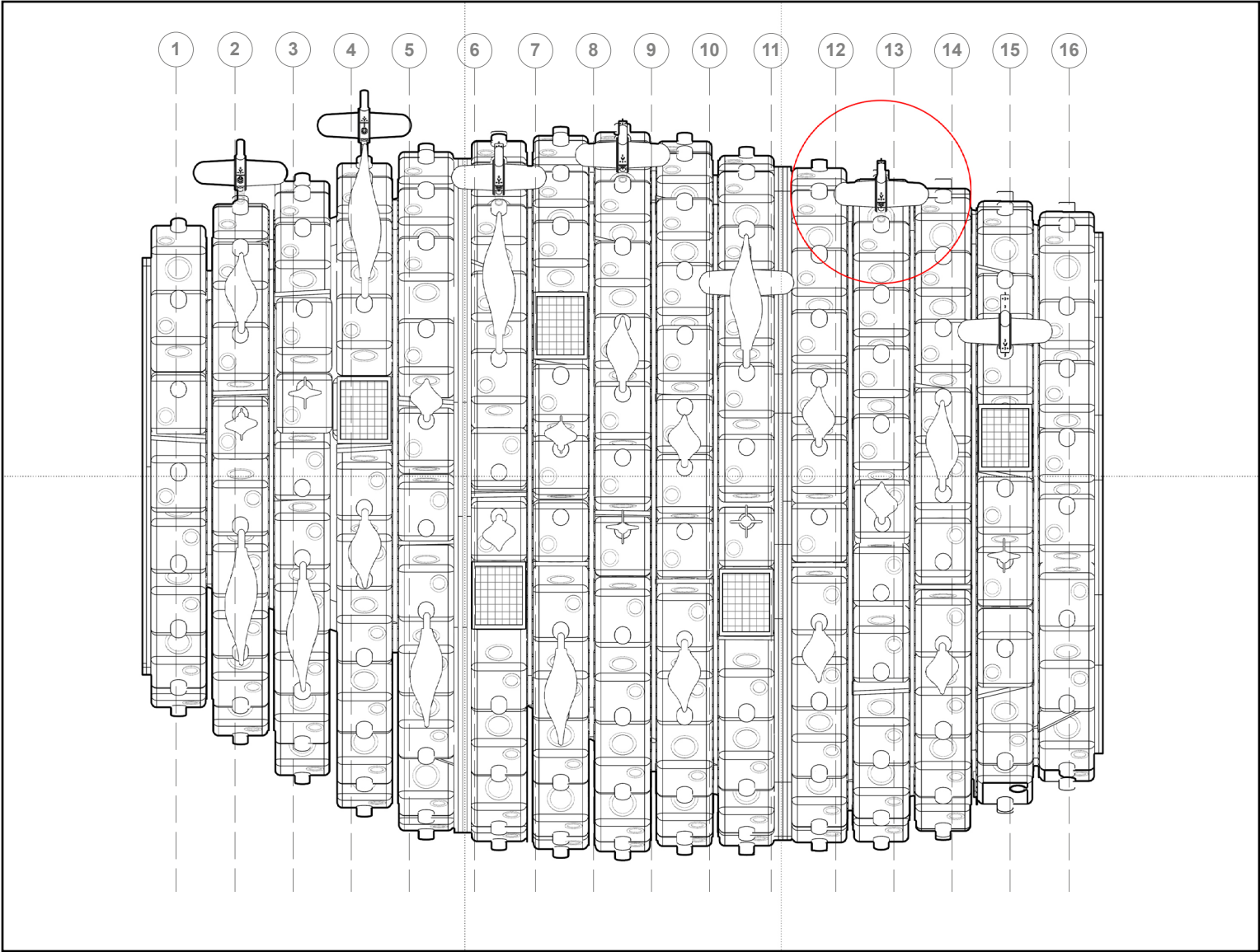
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SEX / BIRTHING POD AND UNIT DISTRIBUTION

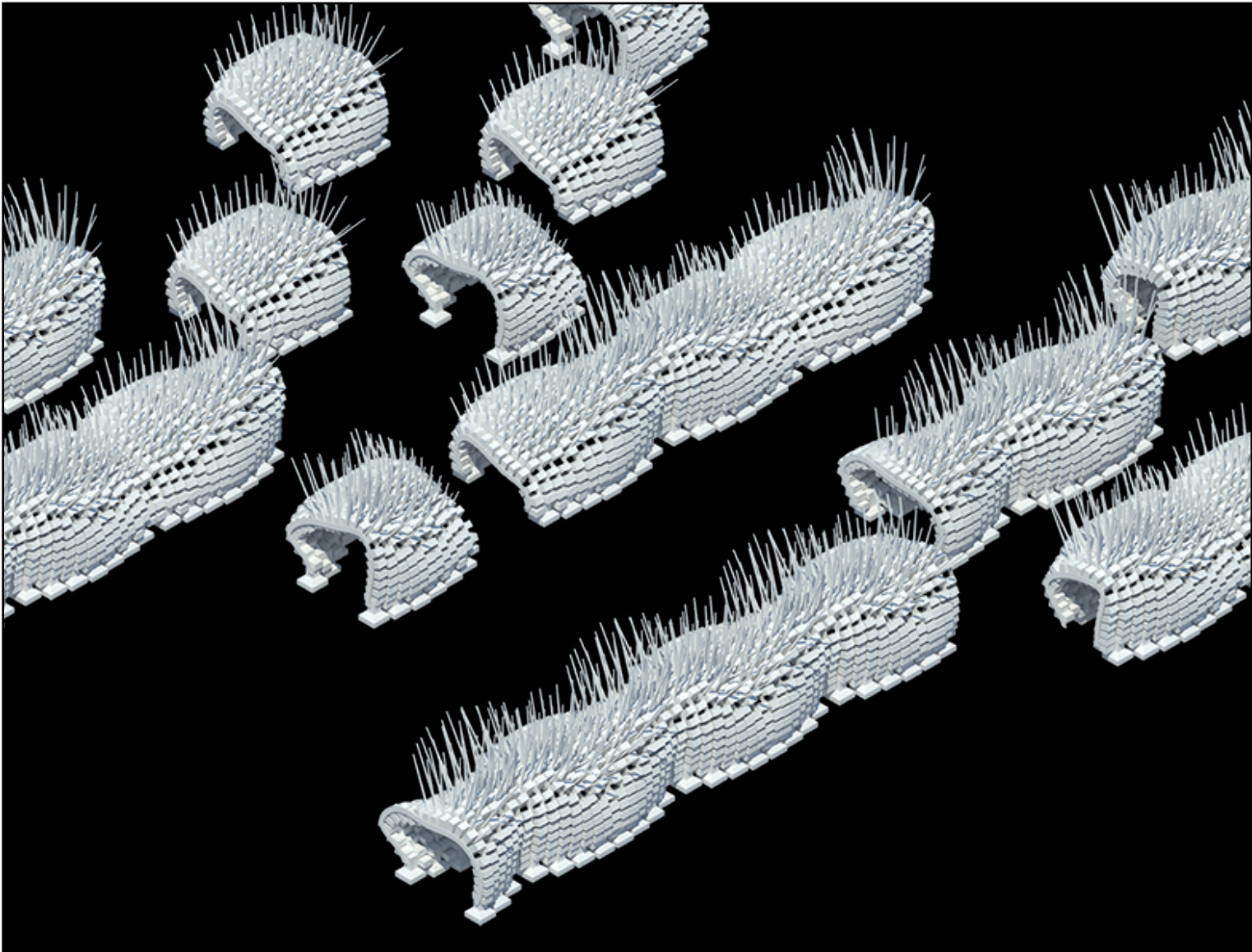


The shelter holds 7 self-contained birthing pods that house female crickets. Pregnant females lay eggs in wet soil beds and after birth the pinhead crickets reside in the pod to mature.



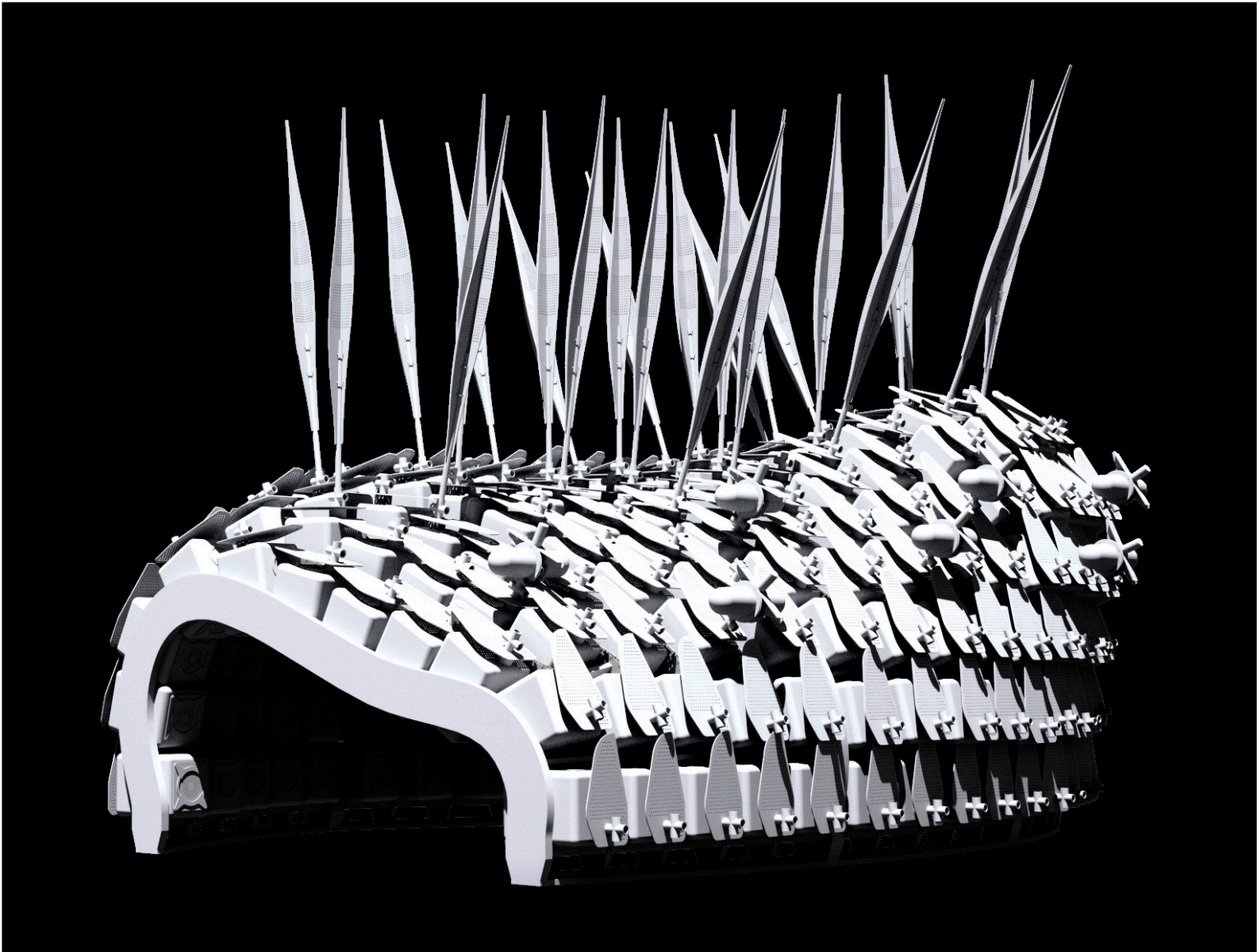
A total of 16 structural ribs support 224 bio-units to make a densely packed farm system with high yields.

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Farm system is extended to increase production and is designed for site specific orientation.

**COMPUTATIONAL MODEL OF
EXTENDED FARM SYSTEM**



Computational model that applies novel farming techniques to a multi-curved and compact surface.

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**COMBINED FEEDING AND
HARVESTING GATES**



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**INTERIOR VIEW OF 224 BIO-
UNITS FOR 22,000 CRICKETS**



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FRONT ELEVATION
BROOKLYN NAVY YARDS



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INTEGRATED CLUSTER OF INSECT BIO-UNITS





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**SOUTH ELEVATION
BROOKLYN NAVY YARDS**



ASSEMBLY / PROTOTYPE 19