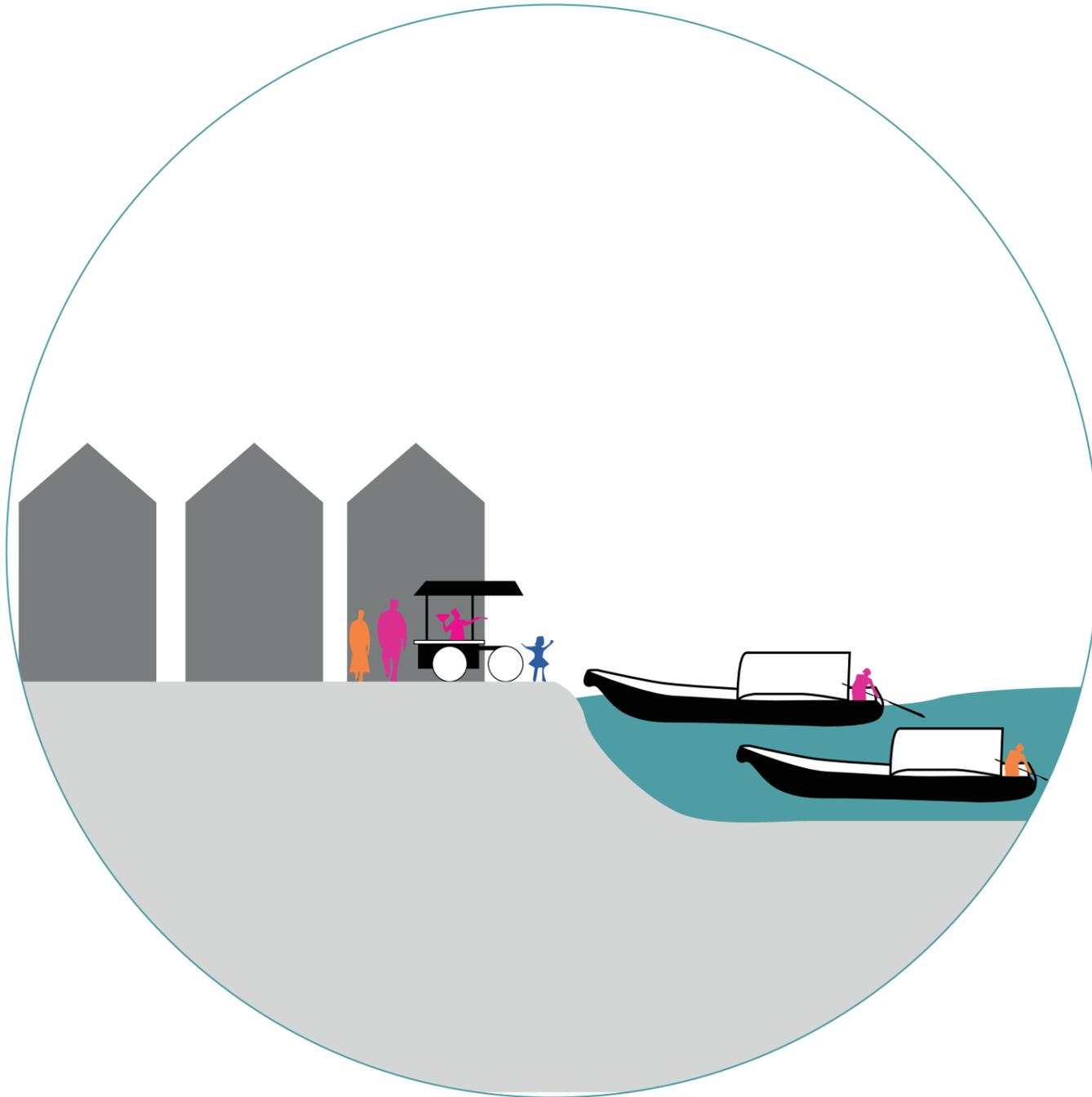
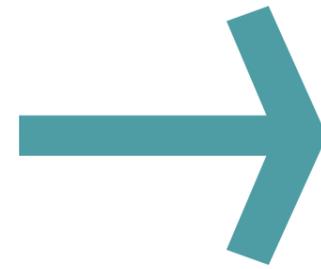


Historic Singapore



Singapore was built on an intimate relationship with the water.



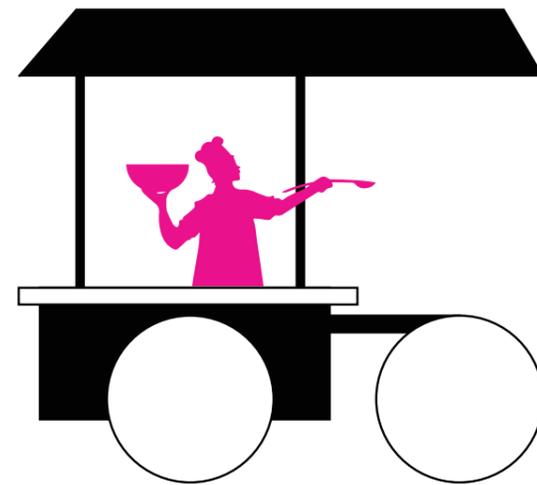
Contemporary Singapore



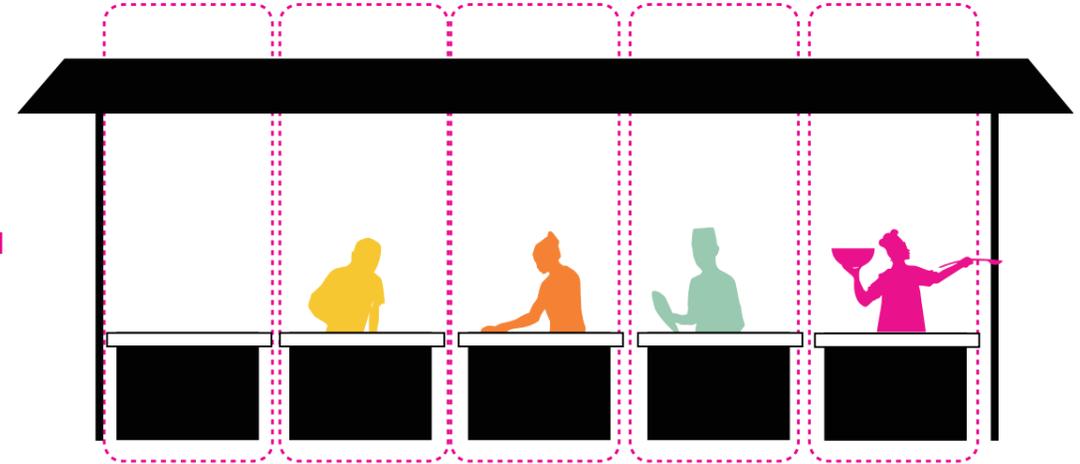
Singaporeans now have a distant relationship with the water



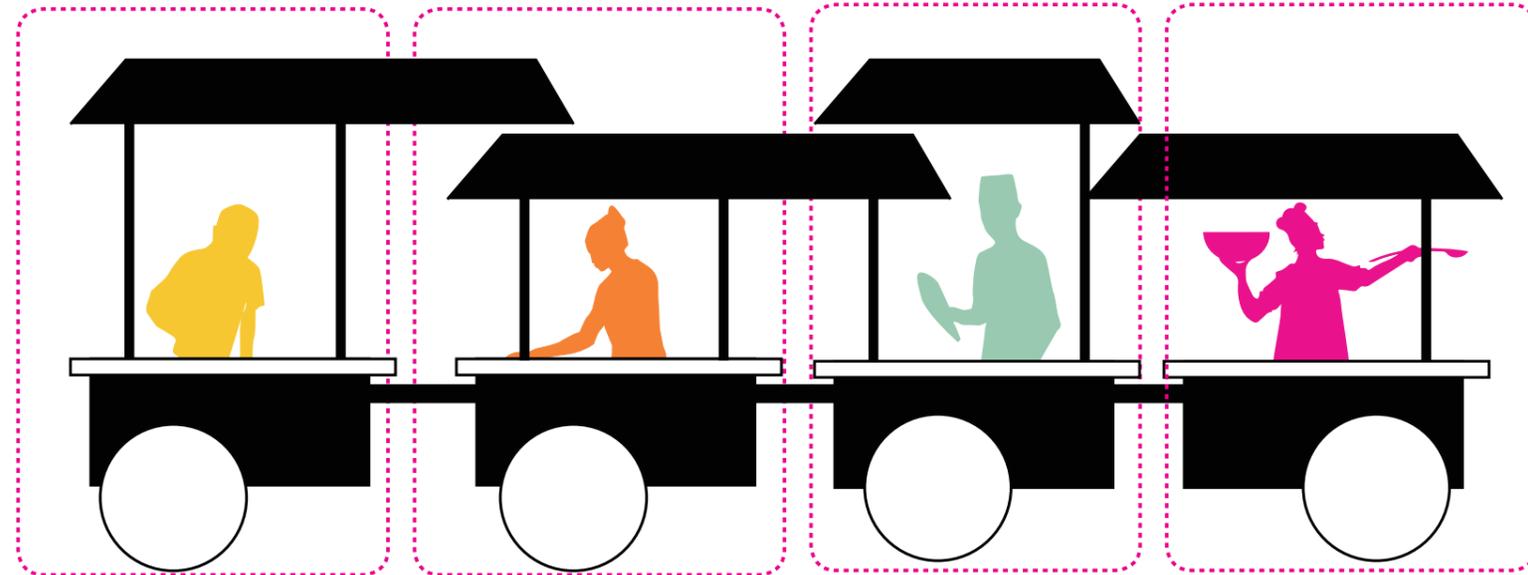
Street Vendor,
c1970



“Vendor Hawker”
Mobile individual hawker



“Hawker Centre”
A group of individual hawker stalls sharing ser-
vices and location



“Mobile hawker centre”
Individual hawker stalls banding together
While retaining the ability to be mobile

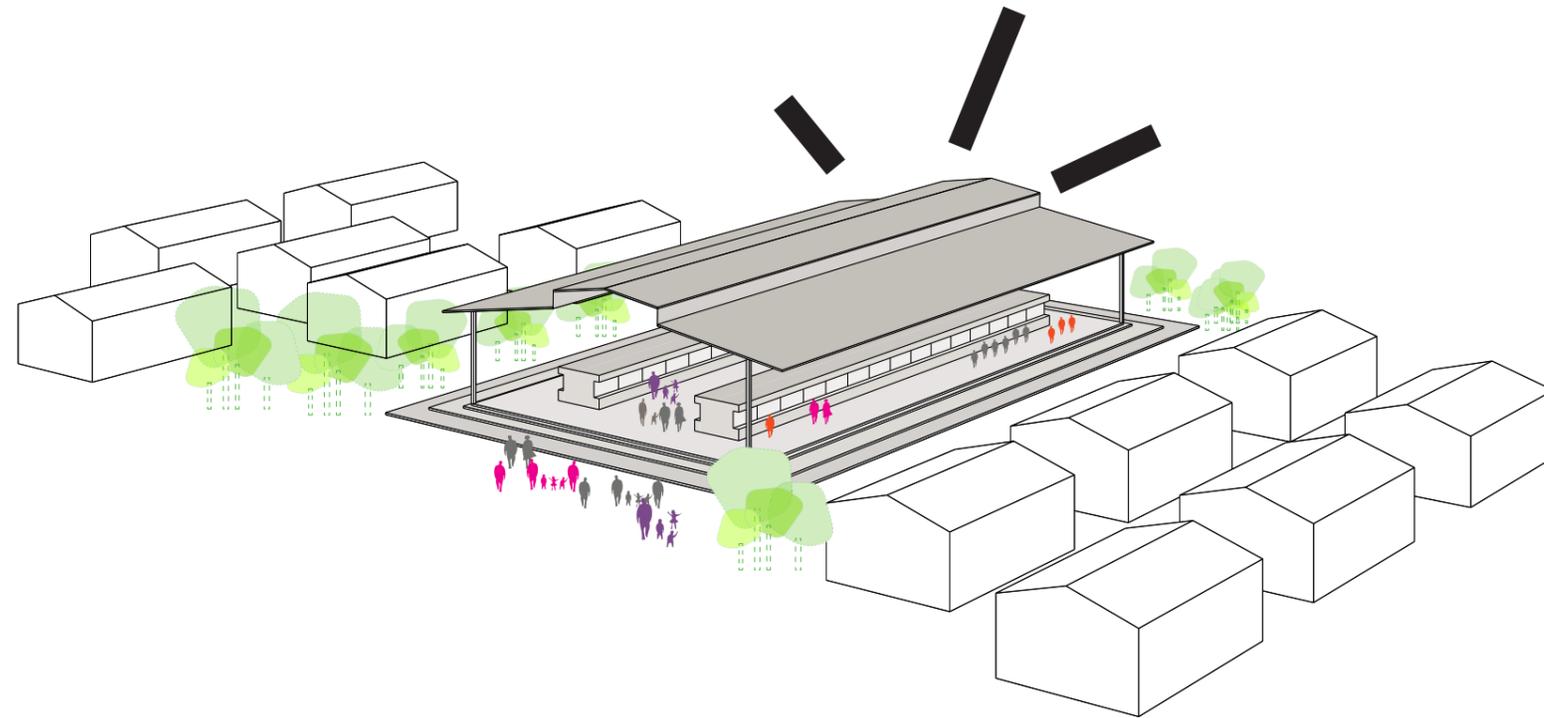


Ice ball vendor,
c1960

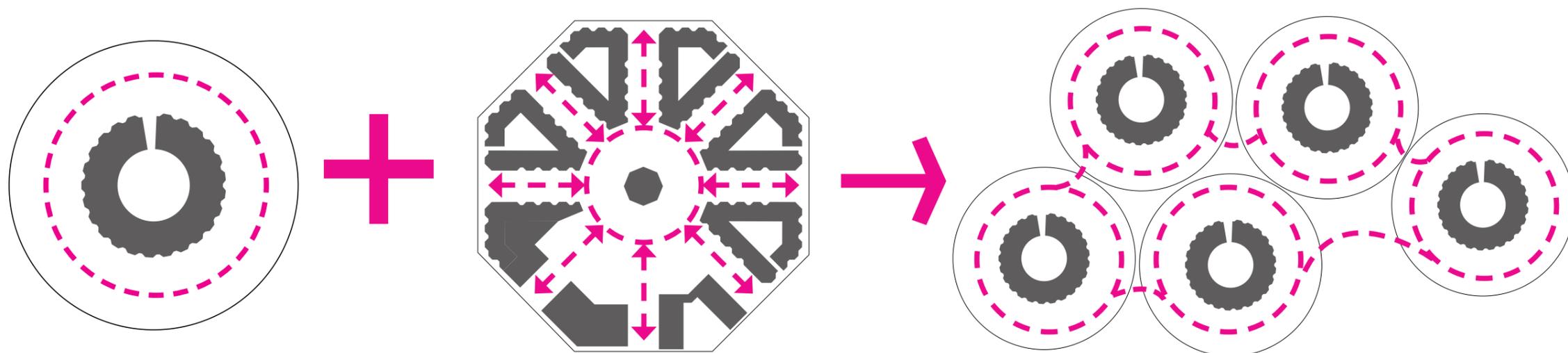


Hawker centre at Pasir
Geylang Serai, 1971

Hawker Centre as Neighbourhood Pivot



Layout Studies



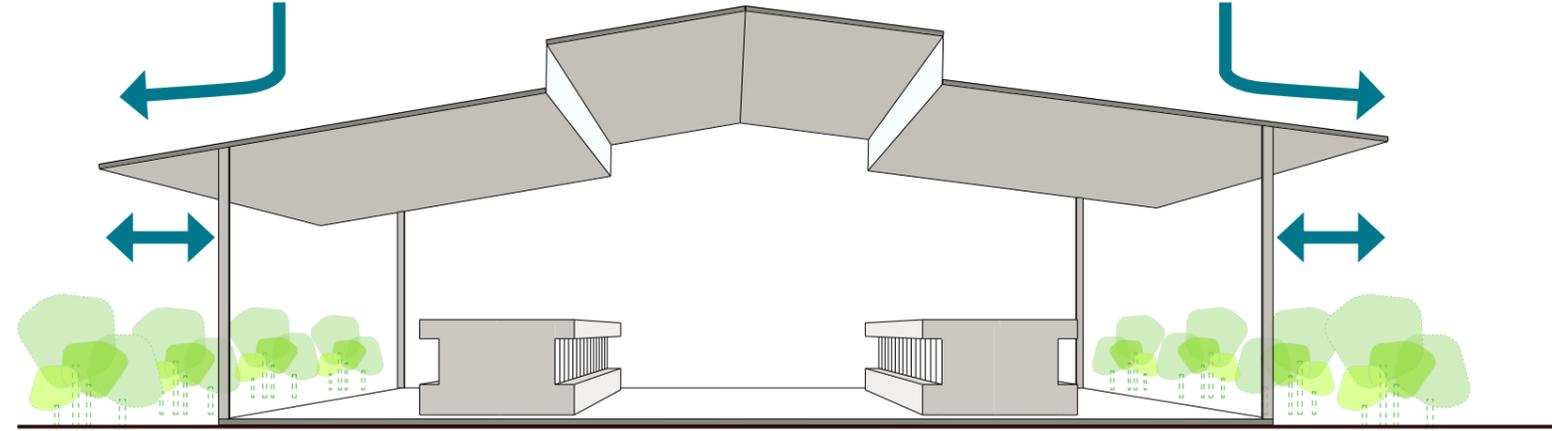
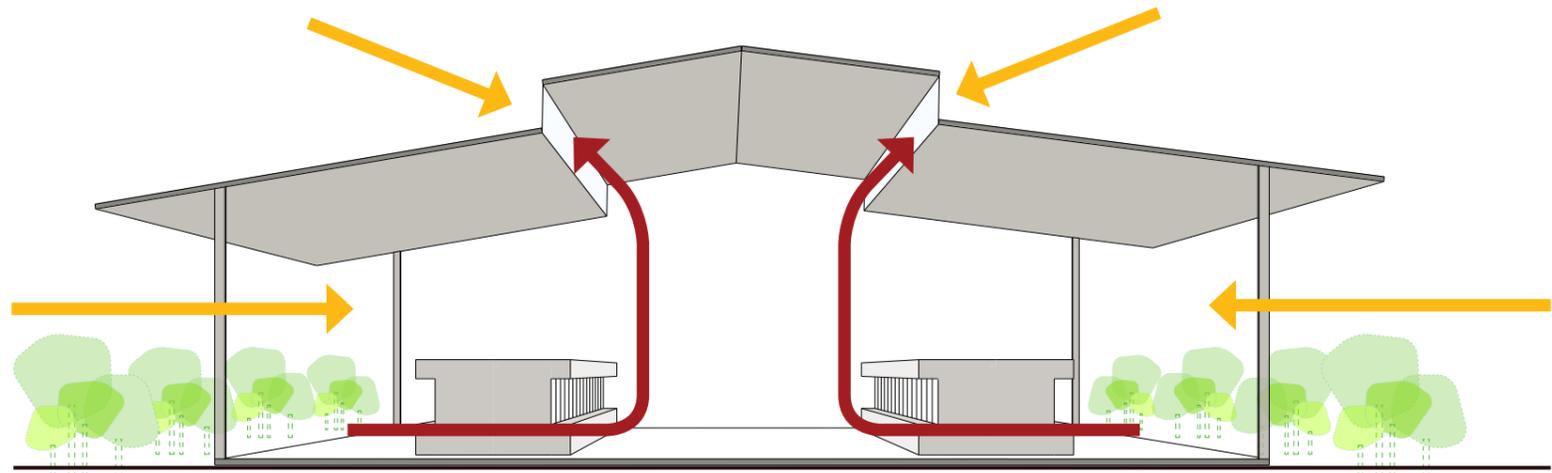
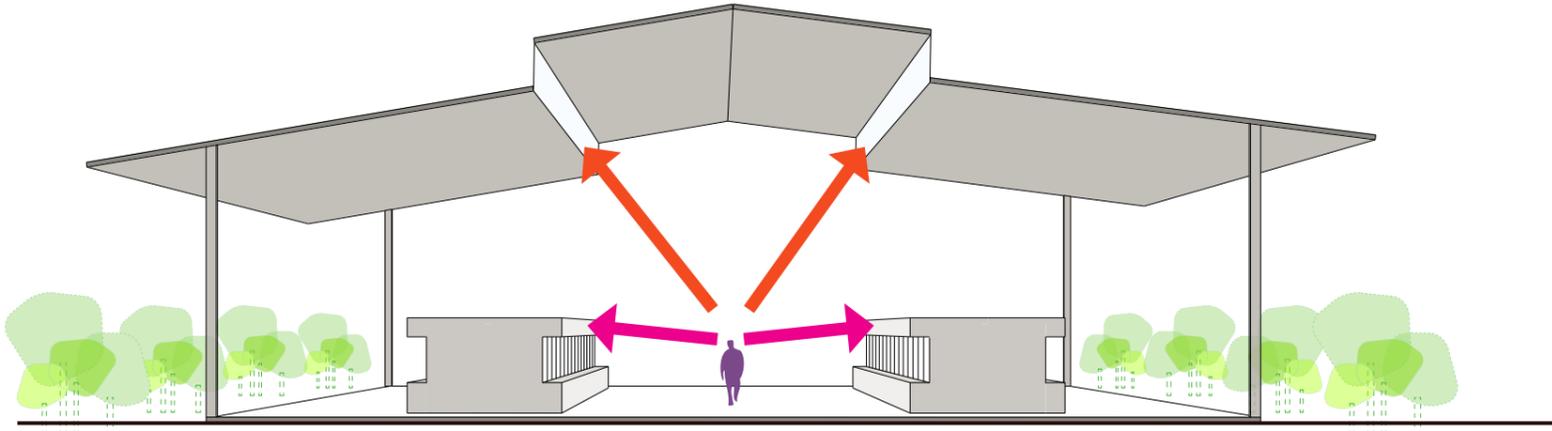
SATAY BY THE BAY

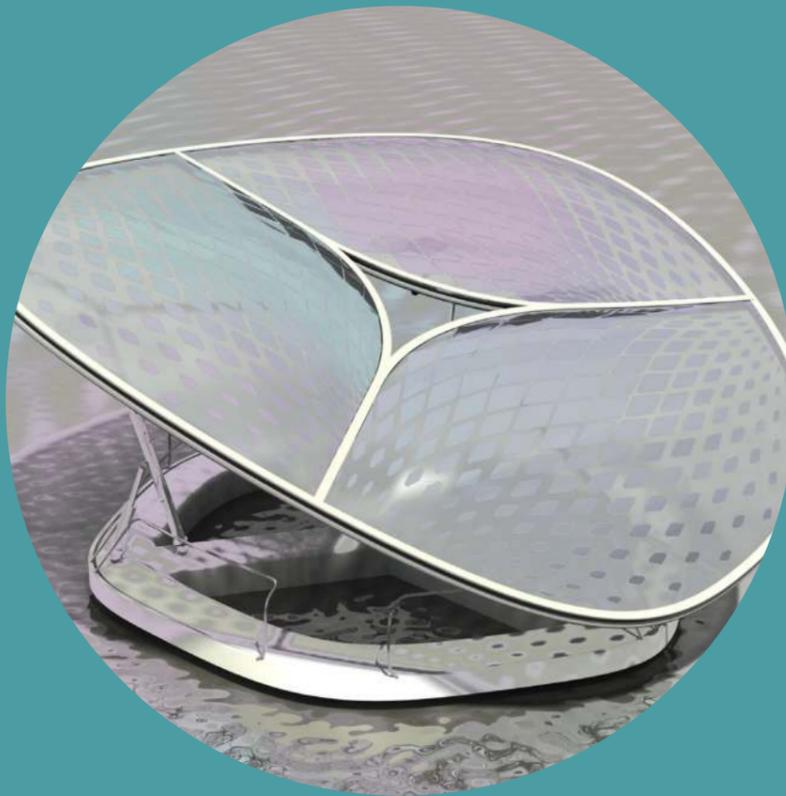
LAU PA SAT

PROPOSED LAYOUT

A circular layout, where multiple units can be arranged to 'plug' into their layout to create a linear journey.

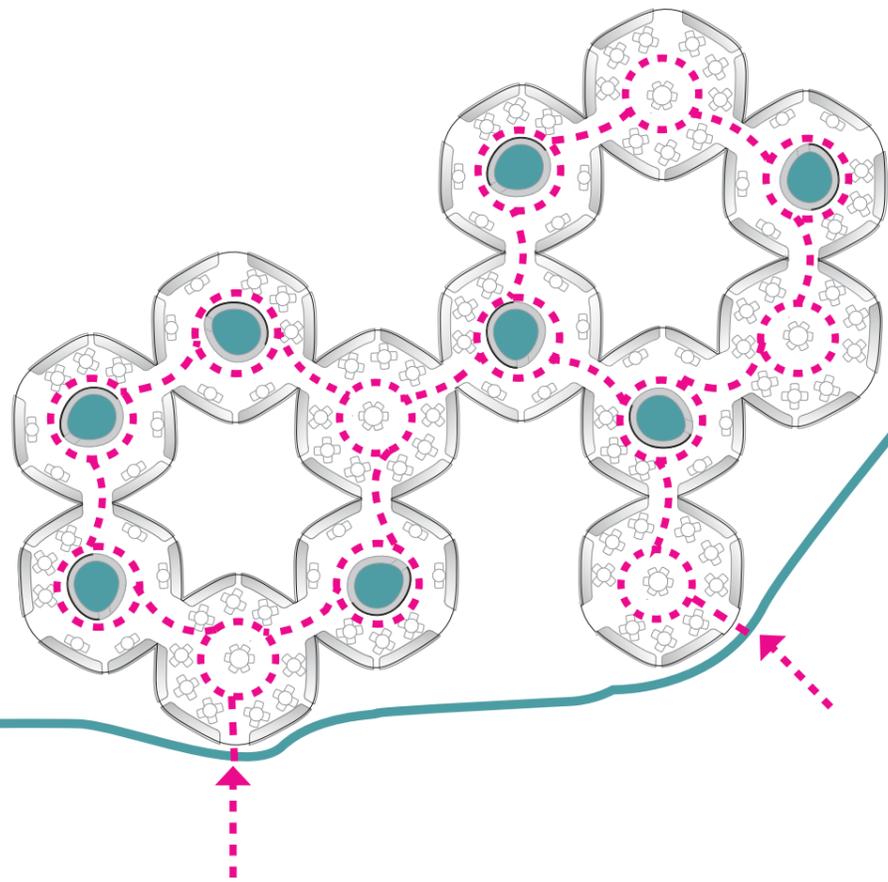
Elements of the Hawker Centre typology





SOLAR ORCHID

This visionary project imagines the translation of one of Singapore's most popular pass times (makan) into the water domain with a mobile and reconfigurable hawker centre architecture powered by the sun. We have drawn on our experience of the city, and all that we enjoy about it, to imagine a 'new' and culturally relevant mode of encounter with Singapore's waterscape.



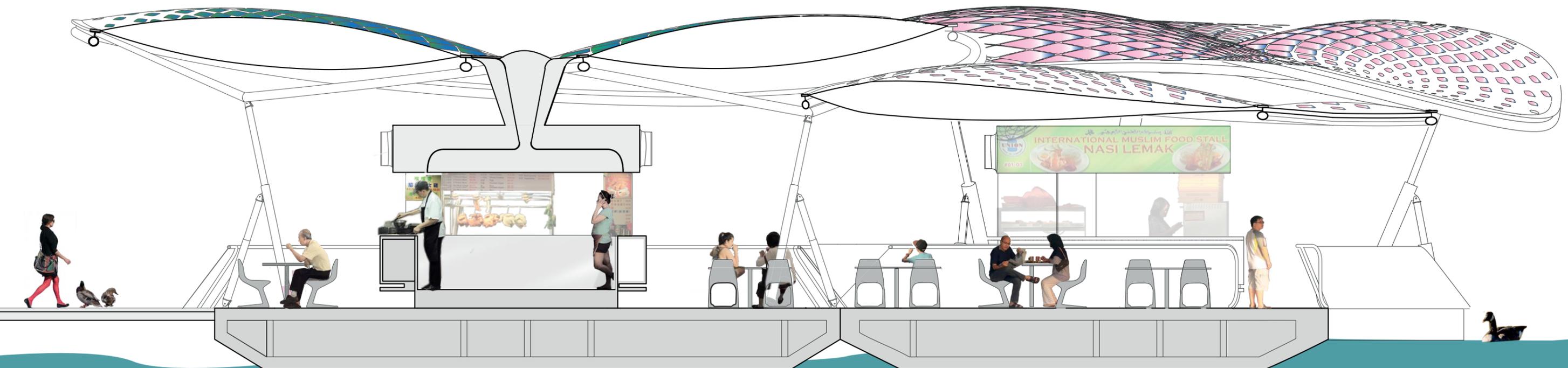
Section: A cluster of pods

Seeking to re-energise the hawker centre typology while retaining the soul of a very Singaporean dining experience.

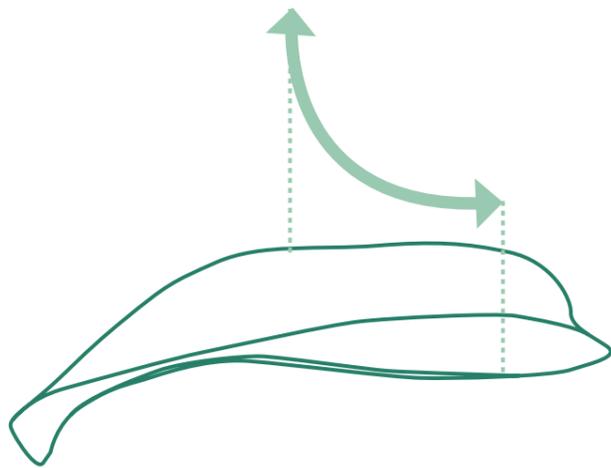
Plan Layout

The pods have a hexagonal pattern and can be arranged in an honey-comb shape. The pods are manufactured in three varieties.

-  Circulation
-  Hawker stall
-  Shared seating



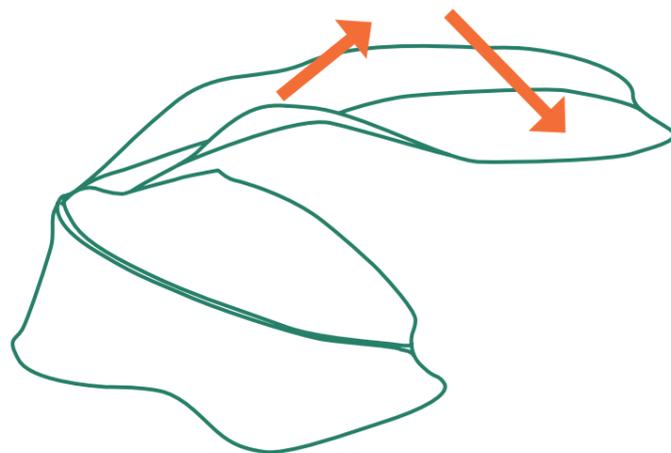
Orchid Leaf



Curved surface to maximise exposure to sun. Radiation from the sun is used through photosynthesis to nurture the orchid



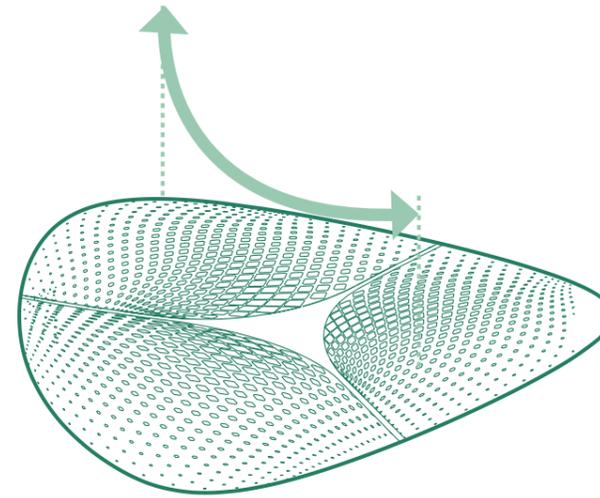
Curved surface creates natural canals to divert water run-off



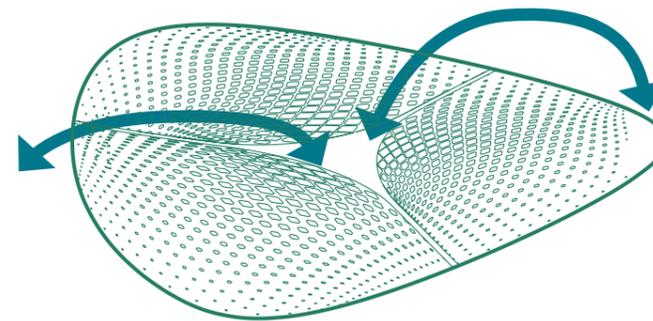
The Orchid Leaf responds to the position of the sun to maximise exposure to sunlight.



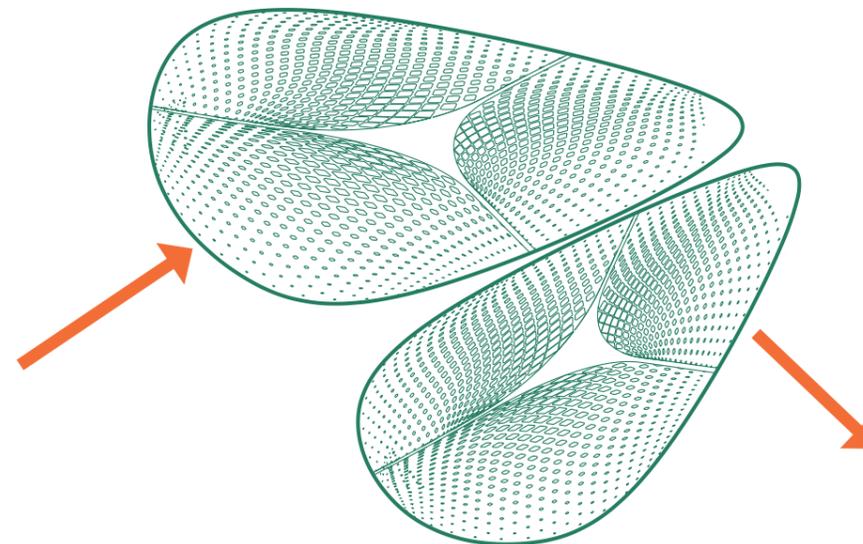
Hawker Canopy



Convex surface to maximise exposure to sun
Use of photo voltaic panels to power the hawker below



Curved surface creates natural canals that divert and collect rainwater



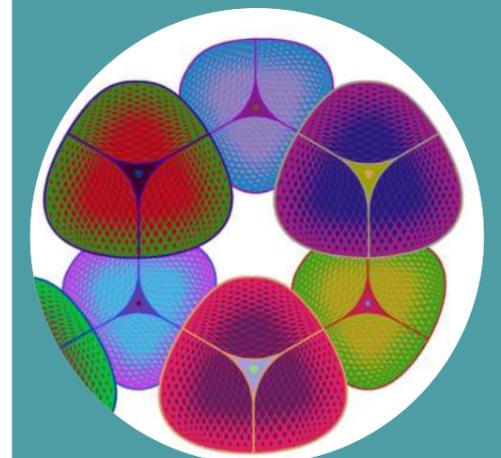
Mechanism allows the canopy to track the sun
Canopies are angled to allow an even distribution of sunlight to all other canopies in the cluster

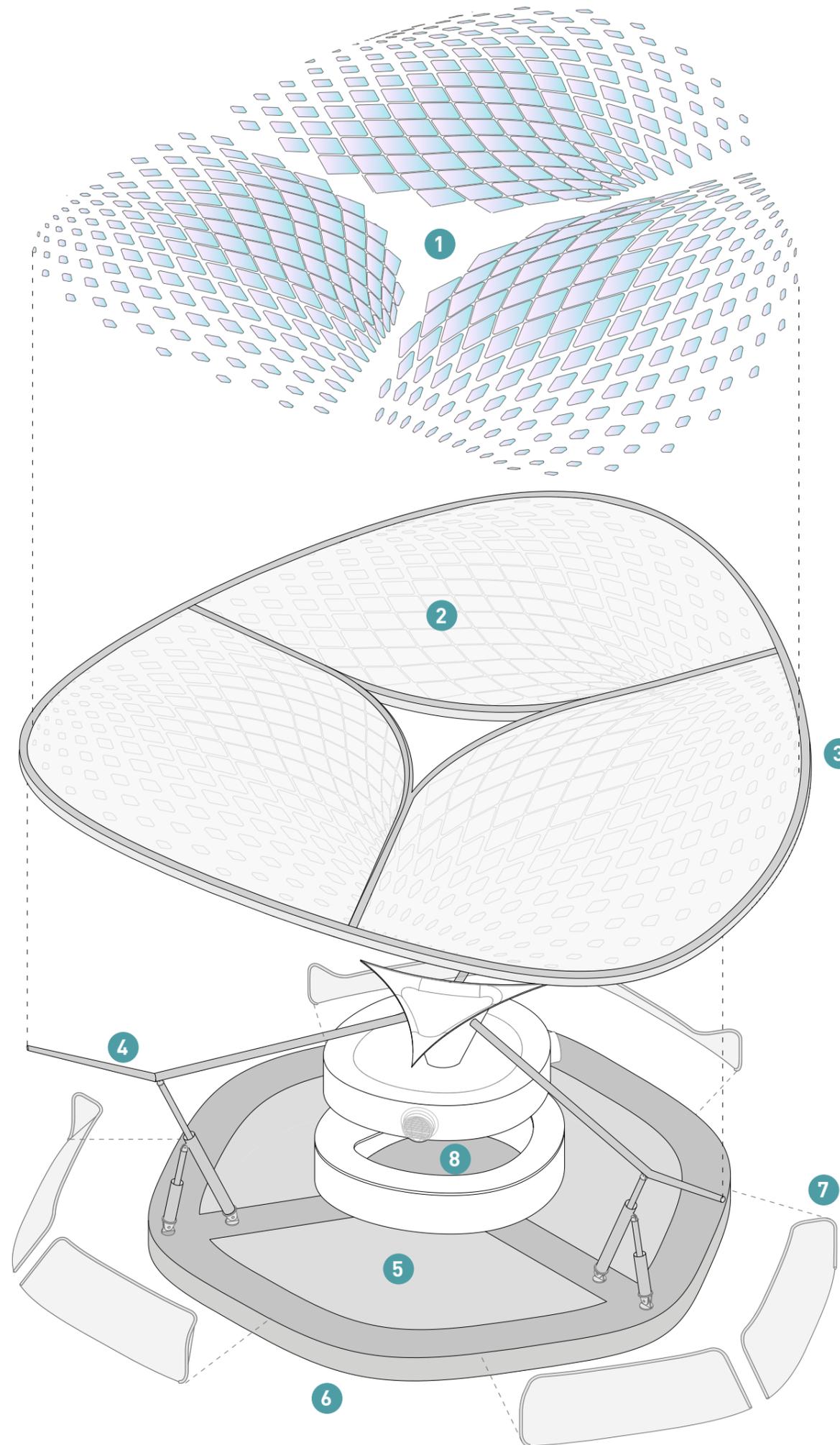
Geometry of the Roof Canopy



The Orchid is the national plant of Singapore. The Floating Hawker canopy is designed to mimic the attributes of an Orchard leaf.

Through emulating the principals of an orchid, a plant native to Singapore, we are able to design a canopy that adequately responds to the demands of Singapore's climate as well as create an appropriate visual representation of Singapore.

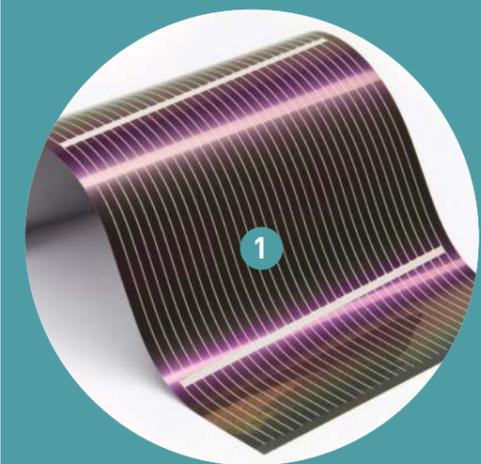




Components

The canopy of the Solar Orchid pod is a leaf-like sheath of ETFE film and solar-cell film in a cushion profile. It is supported by a trio of mechanical arms that can tilt it to track the sun. Like a leaf, the canopy has been designed to shed water and create maximum surface area with which to capture solar rays.

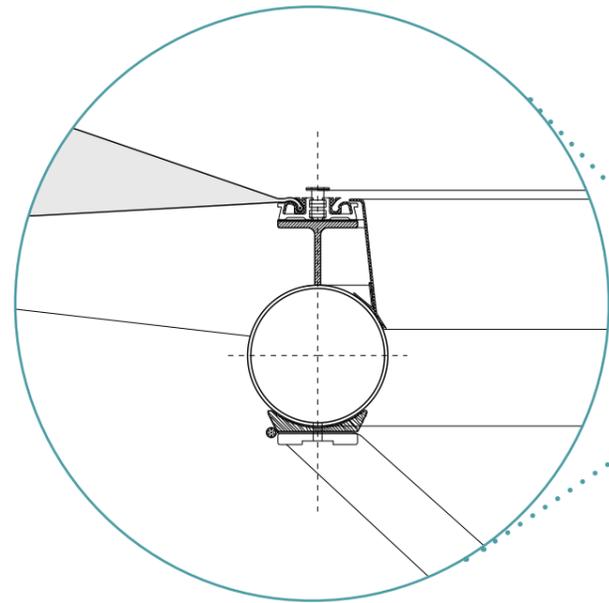
- 1 Flexible PV Solar Film
- 2 ETFE Canopy
- 3 Perimeter Beam
- 4 Adjustable Support Column
- 5 Deck Infill
- 6 Barge
- 7 Balustrade
- 8 Hawker Kitchen



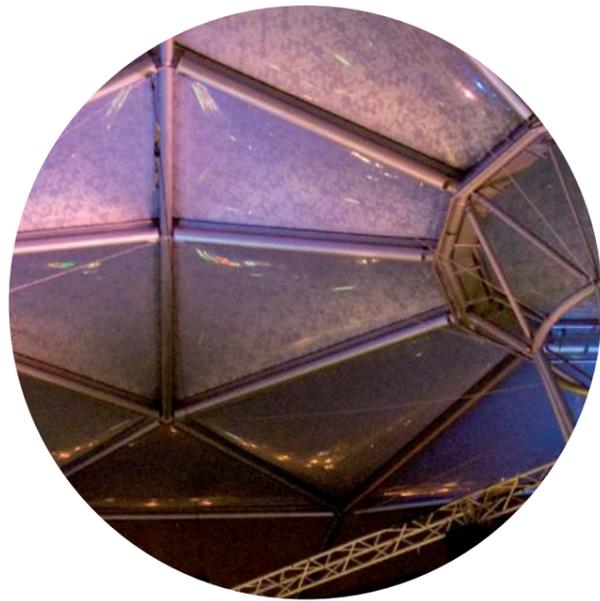
Structural Components

The pods have been designed with a lightweight structure, and could be towed across the water or lifted onto vehicles for land-based transportation.

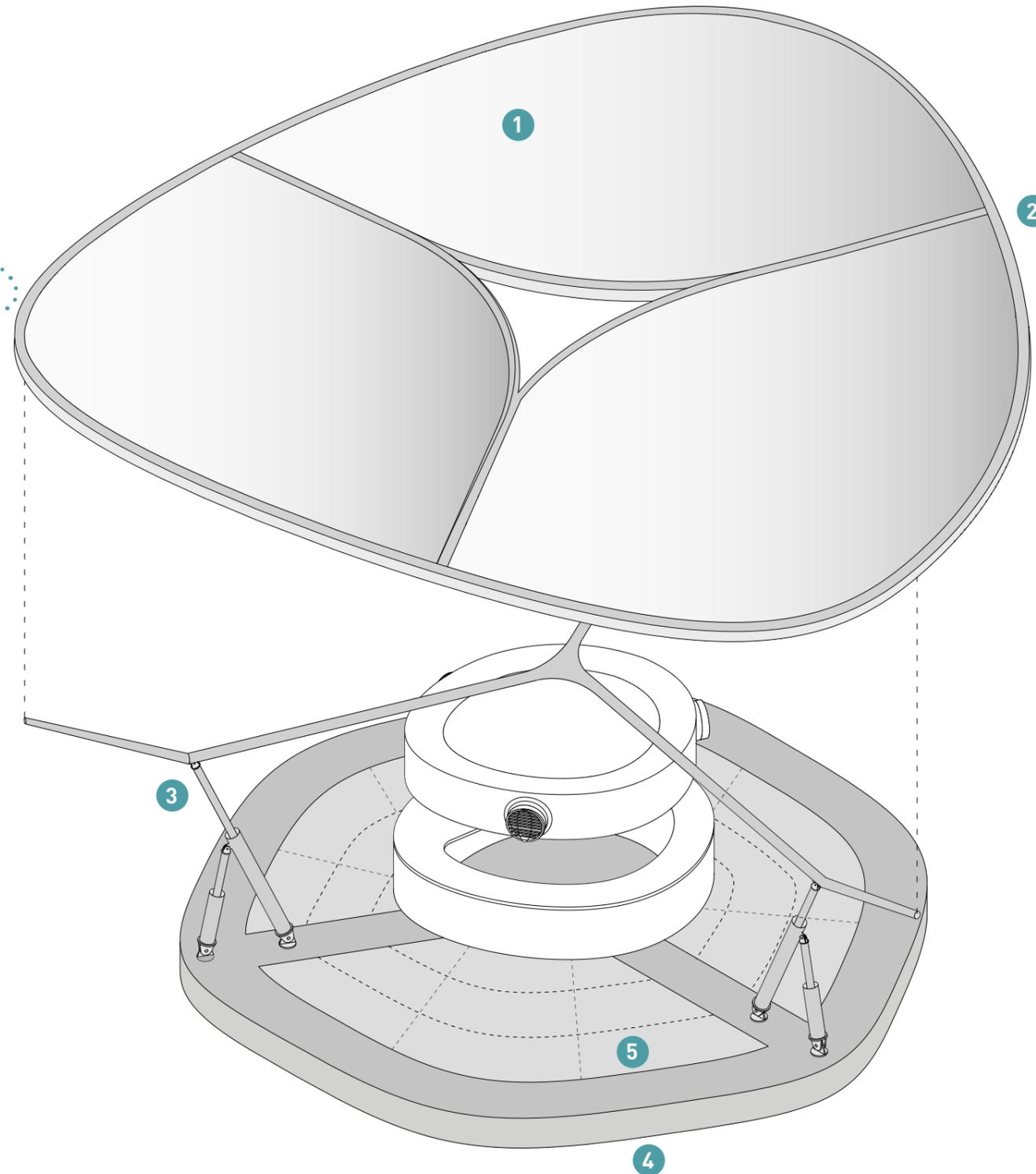
- 1 ETFE Canopy
- 2 Perimeter Beam
Composed of Aluminium extrusions and Steel
- 3 Adjustable Support Column
Steel columns function as mechanical arms that can tilt the canopy to track the movement of the sun and move it vertically to avoid overlap with neighbouring canopies
- 4 Barge
Concealed deck framing system within the Barge ensures uniform loading
- 5 Deck Infill
Removable timber deck infill conceals the ballast tank and solar power storage and converting facilities.



Detail:
Tubular frame with ETFE cushion

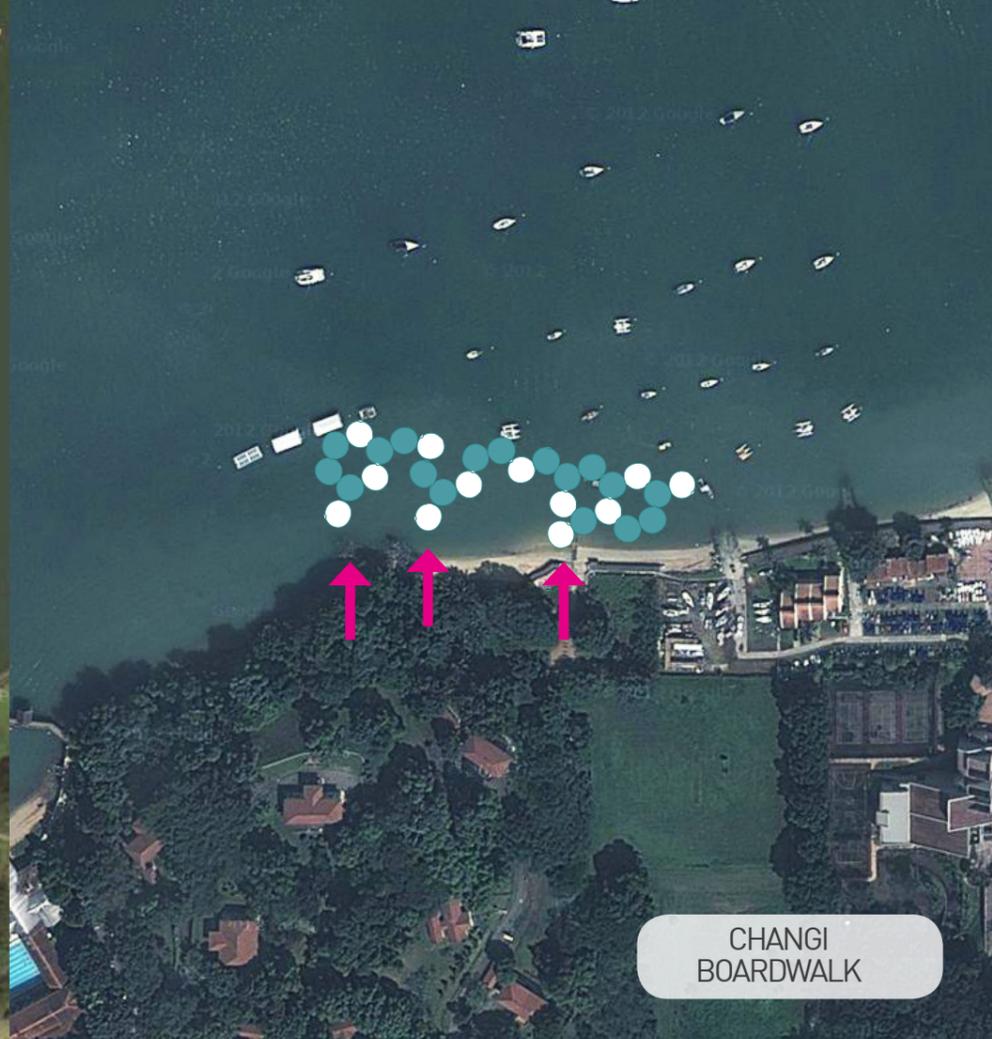


Clarke Quay: ETFE Canopy

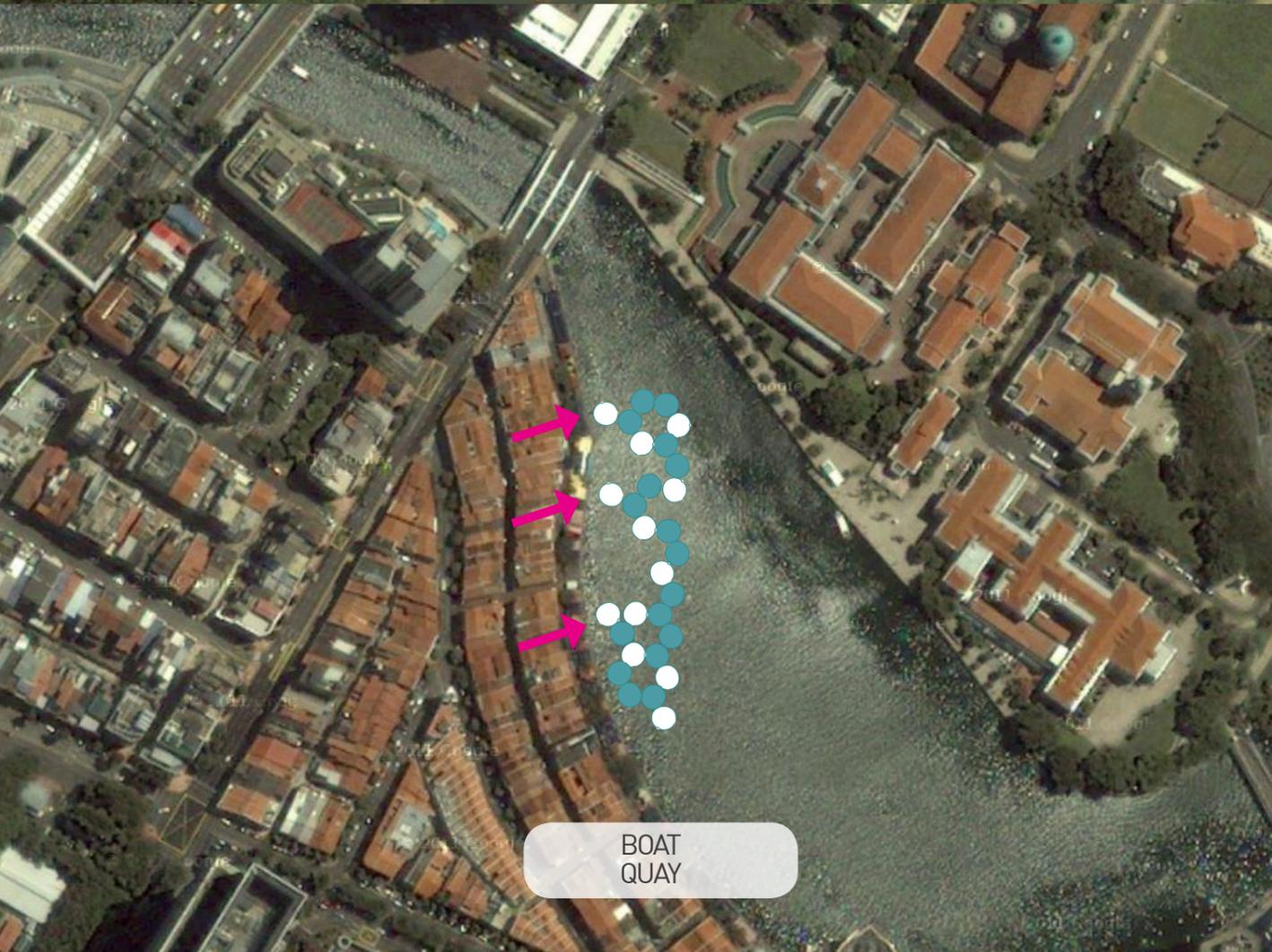




MACRITCHIE RESERVOIR



CHANGI BOARDWALK



BOAT QUAY



KALLANG BASIN

Network of Activation

Floating hawker centres are able to respond to the geographical conditions, atmospheric settings and demands of various locations.

- HAWKER STALL
- SHARED SEATING
- ➔ ENTRANCE

1km

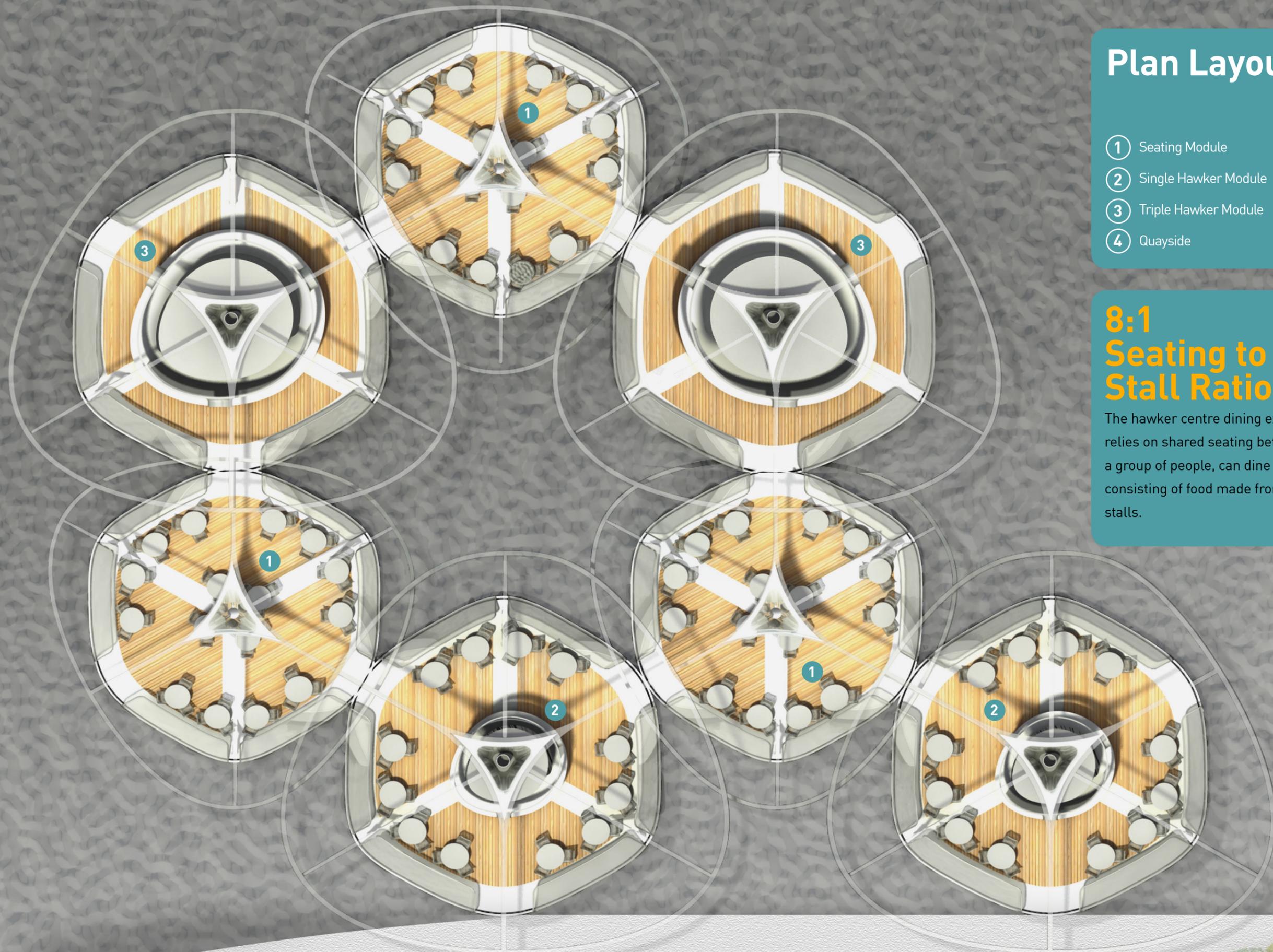
The pods have a hexagonal pattern and can be arranged in an honey-comb shape. The pods are manufactured in three varieties.

Plan Layout

- ① Seating Module
- ② Single Hawker Module
- ③ Triple Hawker Module
- ④ Quayside

8:1 Seating to Stall Ratio

The hawker centre dining experience relies on shared seating between stalls, a group of people, can dine on a meal consisting of food made from different stalls.





Sustainable

(a) SOLAR

ETFE Solar Canopy:

Flexible, amorphous thin-film solar cells embedded in ETFE laminates. Photo voltaic elements serve the dual purposes of generating electricity and providing shade. Insulation can be minimized, reducing the necessary cooling loads and energy consumption. It is supported by a trio of mechanical arms that can tilt it to track the sun. Hawker stalls can utilize energy produced and transfer surplus back to the grid.

(b) WATER

the geometry of the canopy directs rain-water to the central funnel, from where it is stored in the ballast tank and filtered for use in the Hawker stall. Grey water can similarly be stored, filtered and used for cleaning the stalls.

(c) WIND

Cool air from the surface of the water is drawn in and pumped out to maintain a steady flow of air without requiring provision for cooling. The geometry of the canopy directs air pumped out through the vents back towards the stall.

(d) EXHAUST

Cooking fumes are directed out through an exhaust chimney situated directly above the stall. The quality of air in each module is thereby unaffected.

