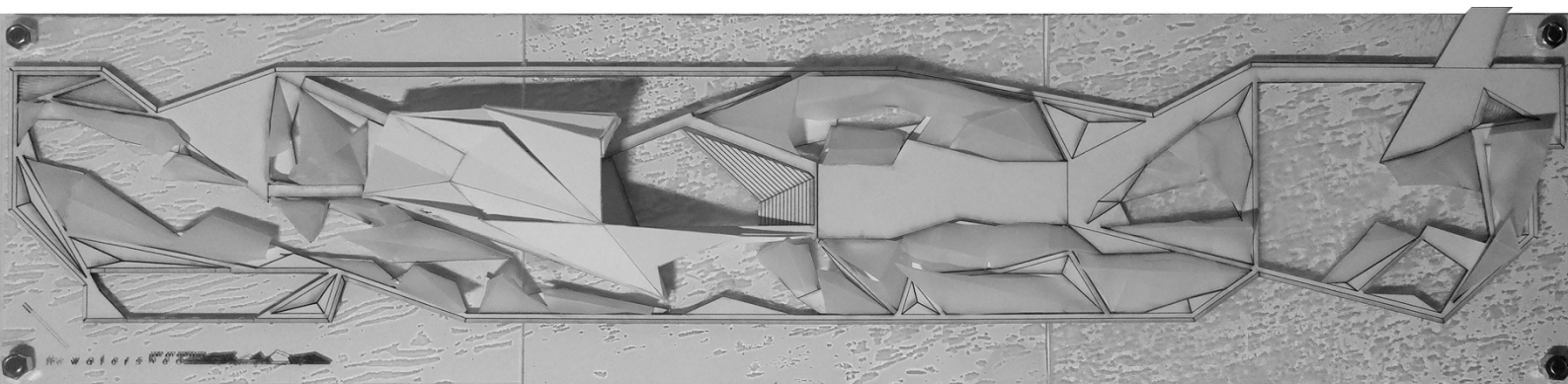
Watershed:	A region or area bounded peripherally by a divide and draining ultimately to a particular watercourse or body of water.
Core Rationale:	Reconstructing nature through architectural folding and surface manipulation.
Concept:	Processing of water inspired by the natural cycle of water. Form inspired by water (amplitude of water, waves and water ripples).
Processing of water:	A passive system, derived from evaporation.
Form inspired by water:	Manipulated planes create human-made landforms that facilitate the passive desalination process. The design is generated as a response to the landscape. In this proposal, the landscape refers to the geological profile that extends from the ocean floor to the hills and mountains. The tectonic resolution represents the reconstruction of nature. This happens through the folding and surface manipulation, creating artificial terrains that house desalination pods while simultaneously becoming places of leisure, education and contemplation.

Contextual Considerations:

Drought in California:	The main goal of the pavilion is to harvest and desalinate water to produce potable water in an attempt to provide in the water demand of Santa Monica.
Night lights:	The lights of the exiting Santa Monica Pier is a night time land mark. The illuminated desalination pods could contribute to this experience in a subtle manner.
Existing breakwater:	No intervention for the existing breakwater is proposed. This is to preserve the current biological community on the structure and the surrounding marine habitat.
Site and footprint:	Lightweight aluminium structures combined with steel barrels are filled with urethane pore foam. This should allow the entire structure to float effortlessly on the water, thus minimising the footprint of the pavilion. The structure is only anchored by means of columns which keep it from moving on the horizontal plane while allowing free vertical movement. Although the pavilion's footprint on the ocean floor is minimal, the surface area of the pavilion above sea level occupies a large portion of the proposed site to maximise water harvesting and desalination potential.

Roof plan view on physical model



Design Considerations:

Degrees of public space: The pavilion provides a variety of public spaces in between the desalination pods. These become places of interest accommodating a diverse audience at different times of the day and year. These spaces promote exploration (of the desalination systems) and serve as water harvesting planes.

Site connection: A narrow composite decking walkway from the existing Santa Monica Pier to the new Watershed Pavilion creates a transitional space without distracting from the poetic and sculptural qualities of the main pavilion. A visual link is created between the existing pier and platform along the new walkway. At the same time, it houses some basic facilities for users and the water delivery and purification system.

Educational zone: An introductory space to the Watershed pavilion informs the user of its primary function. This area accommodates an introductory desalination pod alongside a void to observe sea water in its natural state. A drinking fountain using potable water coming from this desalination pod demonstrates the success of the system.

Sea water channel: The sea water channel is placed on the same axis as the furthest point of the pier, creating a continuous visual link from Colorado Avenue through the existing Santa Monica Pier to the new Watershed Pavilion. This channel is ankle deep and allows visitors to the pavilion to walk through the water.

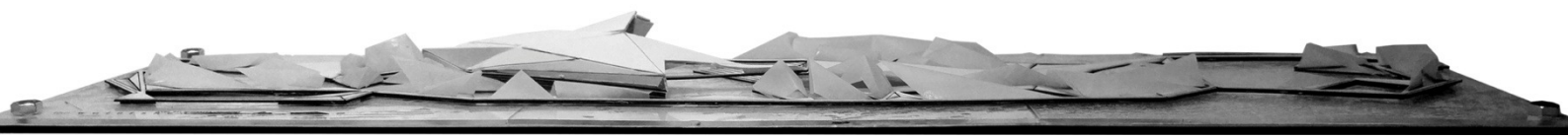
Promenade: The promenade slopes up at a slight angle towards the amphitheatre while the roof structure of the activity square is the focal point of the journey. At the top of the promenade the amphitheatre becomes visible and the large public space opens up to the user. The scale of the promenade creates an opportunity for a multipurpose space that could house markets, exhibitions and other outdoor activities.

Amphitheatre: The amphitheatre and the square transform into a large scale event space. This shaded space provides for the extension of other recreational activities.

Activity square: This space is enclosed by a large structure which is the highest point of the pavilion; this gives hierarchy to the pavilion at this important activity space which becomes the heart of the project. Photovoltaic material on this structure, where all the facilities will be housed, provides an independent and self sustainable source of energy for the project. A scenic view through this structure towards the largest pod and the leisure area creates a focal point from the heart of the pavilion placing emphasis on the subject matter.

Places of leisure: An infinity tidal pool with surrounding sundecks, is placed at the far end of the pavilion. Observation nets placed next to the breakwater allows the visitors to walk above the water and admire the marine life surrounding the breakwater. These spaces promote the further exploration of the pavilion.

Southwest elevation on physical model



Environmental impact statement:

The 33 desalination pods refer directly to California's 2020 goal of 33% renewable energy. The proposed desalination system will experiment with the technology on a scale unknown before. The pods, comprising of structural aluminium framing and polycarbonate panels are varying in volume, orientation and water capacity to determine the optimal dimensions of a desalination pod.

This technology depends on the surface area of water to be evaporated, the temperature inside and outside the desalination pod and pressure inside the desalination pod. External factors like wind, wet-bulb temperature, humidity and water evaporation rate also have an effect on the efficiency of the desalination pods. This natural evaporation process is accelerated in the 33 desalination pods.

The surfaces of the pods serve two functions. Firstly, water is pumped from the ocean into water pans to evaporate and condense on the inner surface of the pods. The desalinated water runs into channels on the sides of the pans and into a storage tank underneath the structure. Secondly, the external surfaces of the pods harvest rainwater. The pods are linked with walkways and other structures to create a large surface for rainwater catchment. The rainwater runs into channels on the outer edge of the desalination pods into additional storage tanks. From the storage tanks water is pumped to the delivery system located below the augmented part of the site connection walkway, where the water is purified before distribution.

Estimated water output:

The water surface area inside the desalination pods is calculated as 25 000m^2.
In ideal coastal conditions, 1m^2 surface area has a potential output of 10ℓ per day.
Estimate of desalination harvesting potential, using data above:
(10 ℓ/m^2/day) x 25 000m^2 x 365 days
= 91 250 000ℓ/year (24 105 698 US Gal/year)

The surface area of the pavilion is calculated as 45 000m^2.
Conservatively Santa Monica receives 320mm of precipitation per year.
Estimate of precipitation harvesting potential, using data above:
320mm/year x 45 000m^2
= 14 400 000 ℓ/year (3 804 077 US Gal/year)

Total harvesting potential, desalination + precipitation:
91 250 000 ℓ/year + 14 400 000 ℓ/year
=105 650 000 ℓ/year (27 909 775 US Gal/year)

The total water output of the pavilion is estimated to be 105 650 000 ℓ/year. The current water consumption of Santa Monica is approximately 16 580 125 000ℓ/year. The estimated contribution to the water system by the pavilion is 0,64% per year. Currently, this technology is experimental. The pavilion will assist in its development. Future stages of the project could yield a much higher return when lessons learnt are incorporated. This would then provide for a larger portion of Santa Monica's needs.

Tidal pool on physical model

Water channel on physical model