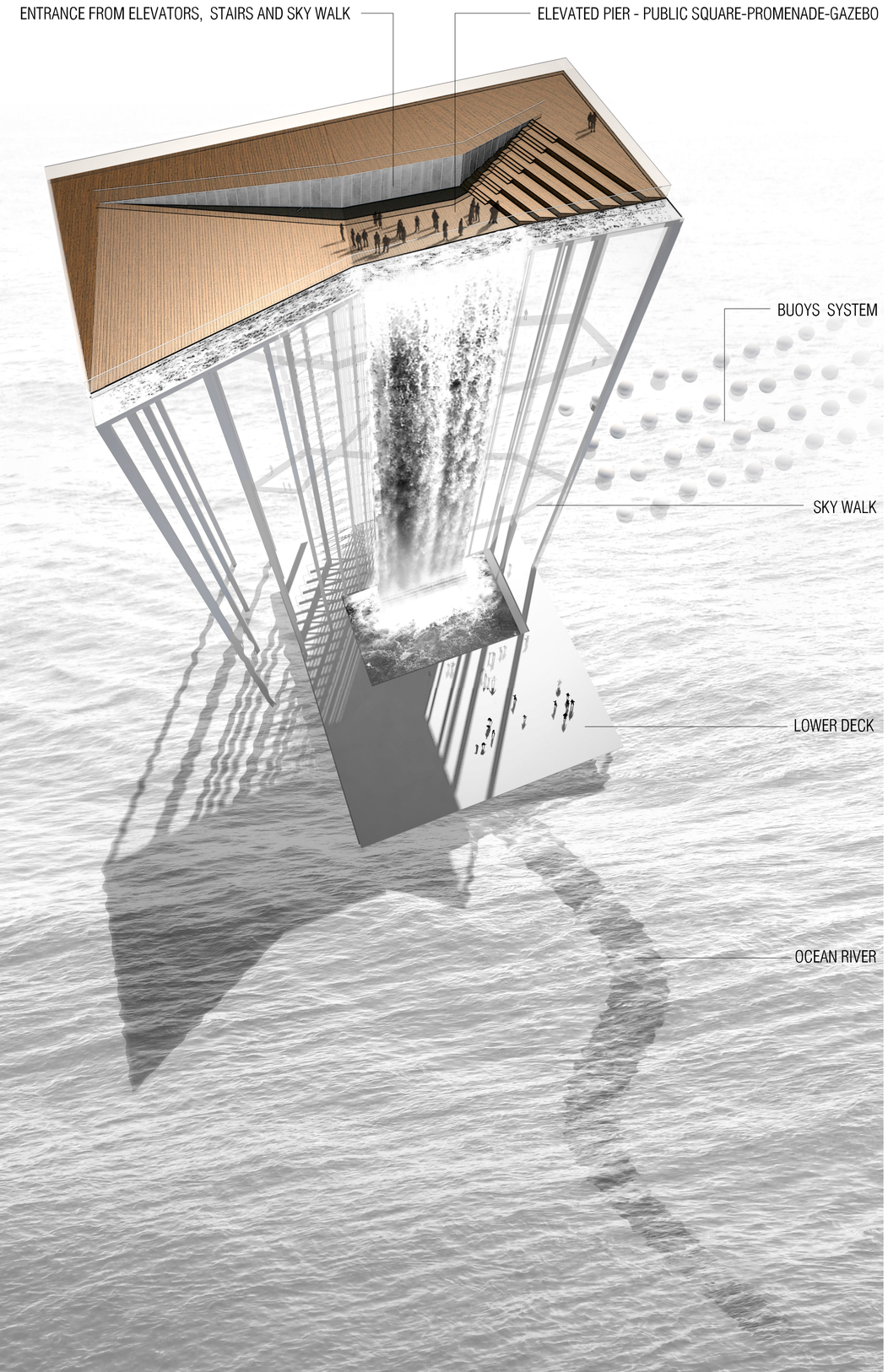
LAGI 2016 Santa Monica / OCEAN SPRING

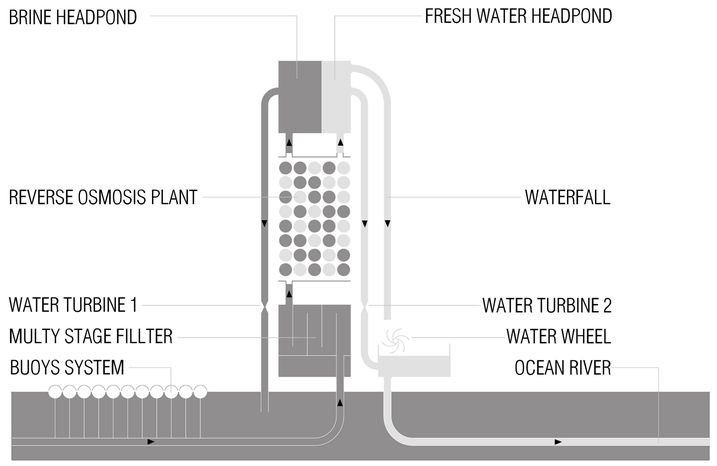


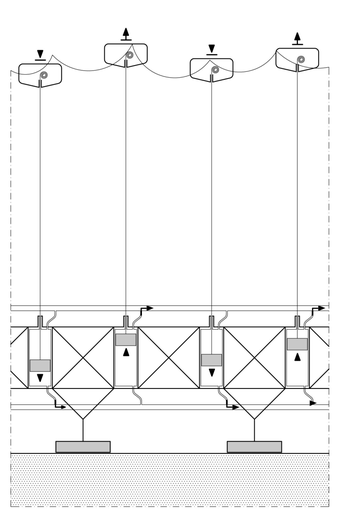
TECHNOLOGY AND ENVIRONMENTAL IMPACT

The Ocean Spring flow produced by an array of 196 pumps located 400m from shore, acting in ocean with various waves height and intervals, is estimated to generate 200 cubic meters per minute. Given the operating pressure of 200 psi, using the reverse osmosis technology, 6.864.000 cubic meters of fresh water can be produced per year.

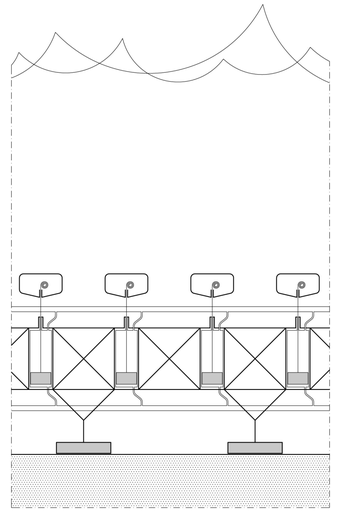
This system works to produce clean renewable energy and fresh water, leading to a decrease dependence on fossil fuels, while providing environmental benefits through the reduction of CO2 emissions. System requires a wave height of 0.5 to 2 m. Buoy will soak in waves greater than 2m, acting as a mechanism of self-protection, while still using the maximum stroke pump 2m. At extreme weather conditions buoys descend to the bottom in a safety position. Ocean Spring also has two systems for producing clean renewable energy powering the desalination process, thus making it a standalone system; An Oscillating Water Column (OWC) in columns of the structure and 2 water turbine + 1 water wheel for fresh water and brine from headponds. OWC is mainly used for powering seawater desalination process while water turbines and water wheel producing clean renewable energy for Santa Monica. Estimated production at the annual level would be12.800 Mw . As US typical household power consumption is about 11,700 kWh each year, Ocean Spring could provide clean renewable energy for 1160 homes.

The Ocean Spring structure will not have any negative impacts on the environment. the materials are mainly recycled steel, concrete and wood, protected with the ecological coatings material that would give him a long life in the sea water exposure conditions. In order to prevent waterfall noise impact on environment, constant air flow in columns of structure produce noise canceling fervencies . In that way forest of columns (tubes) become computer controlled pipe organ.

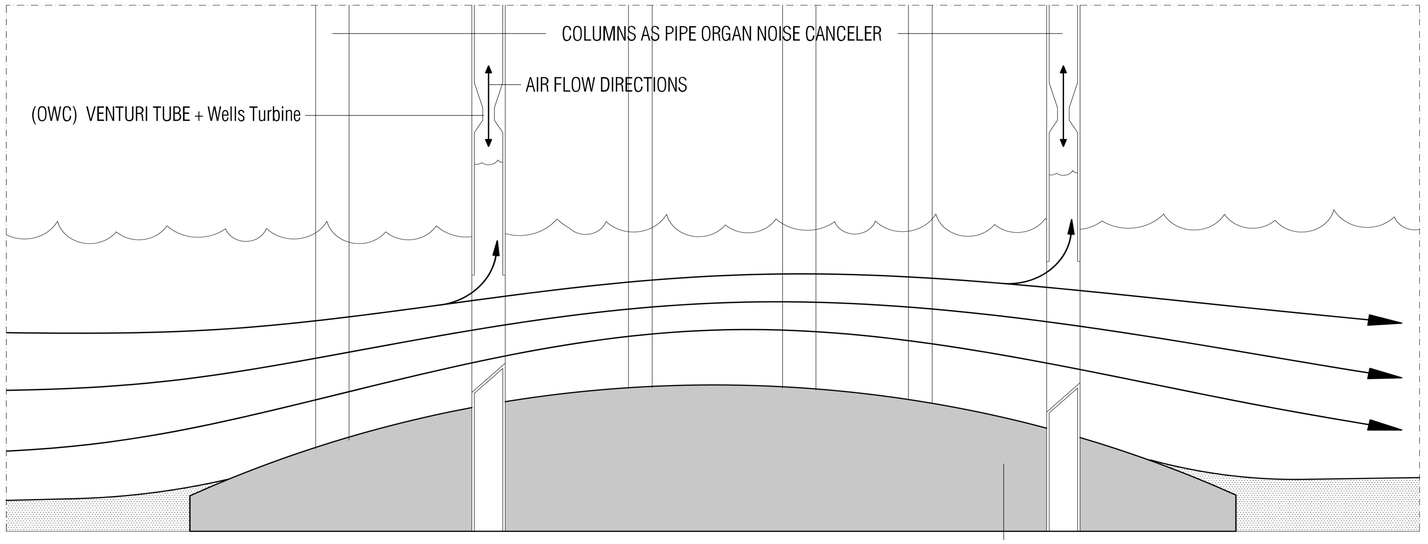




BIDIRECTIONAL PUMP SYSTEM



BUOYS IN SAFETY POSITION



FOUNDATION SHAPED FOR WAVE AMPLITUDE AMPLIFICATION