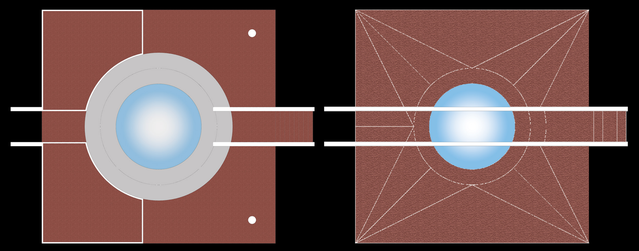
Water Treatment Plant (WTP Pavilion)

A Water Treatment Plant (WTP) is a facility designed to purify raw water by removing contaminants, making it safe for human use and environmental discharge. Through physical, chemical, and biological processes, WTPs ensure a reliable supply of clean water, supporting public health, sanitation, and sustainable urban development.



Water Treatment Plant (WTP Scheme)

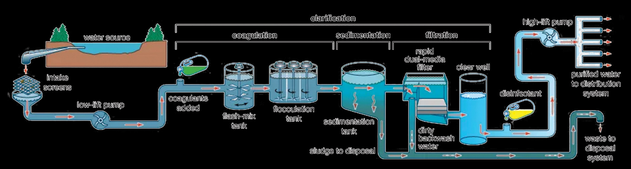
A Water Treatment Plant (WTP) schematic represents the systematic flow and processes involved in converting raw or untreated water into clean, potable water suitable for consumption and various applications. This schematic typically begins at the intake point, where water from a natural source—such as a river, lake, or reservoir—is drawn into the plant using pumps and intake screens that filter out large debris.

Once inside the facility, water is directed to the coagulation and flocculation units. In this stage, chemical coagulants like alum are added to destabilize suspended particles, allowing them to bind together into larger clumps called flocs. Gentle mixing (flocculation) promotes the aggregation of these particles for easier removal.

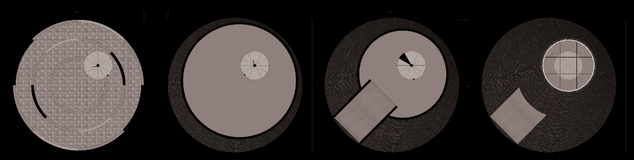
The next step is sedimentation, where the water flows into sedimentation basins or clarifiers. Here, due to gravity, the heavier flocs settle at the bottom, producing a clearer layer of water on top. This clarified water then enters filtration units, commonly composed of layers of sand, gravel, and sometimes activated carbon. These filters remove any remaining fine particles, pathogens, and organic matter.

After filtration, water undergoes disinfection, typically through chlorination, ultraviolet (UV) light, or ozone application, to eliminate any remaining harmful microorganisms and ensure microbial safety. Additional treatments such as pH adjustment or fluoridation may also be applied based on the intended use of the water and regional regulations.

The treated water is then stored in clean water reservoirs or clearwells before being distributed through a pumping station and piping network to homes, industries, and public services. Waste



Photovoltaic Tower (PV-Tower)

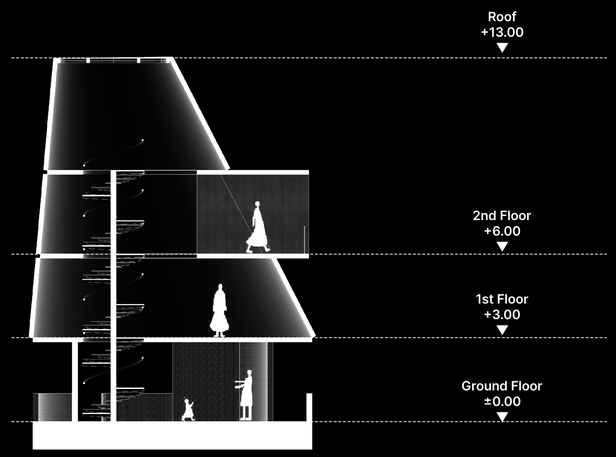


Ground Floor
Community Ground

1st Floor
Generator Floor

2nd Floor
View Deck

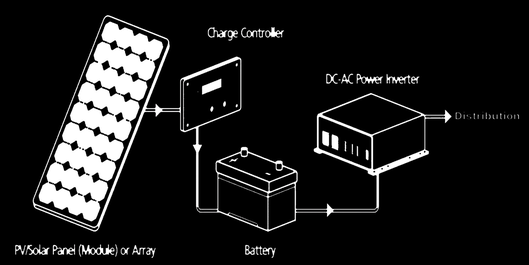
Roof
Skylight Roof

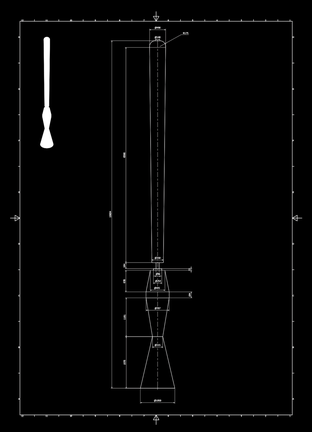


Photovoltaic (PV-Scheme)

A curved photovoltaic system can be installed on rooftops or public structures, maximizing solar exposure and aesthetics. Collected energy is stored in batteries and distributed via microgrids to nearby homes, ensuring clean, local electricity access. Ideal for urban or remote communities.

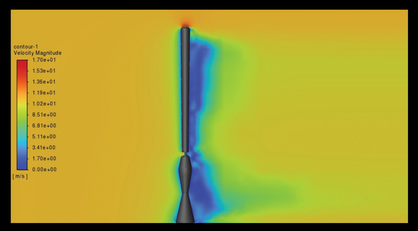
Source: International Renewable Energy Agency (IRENA), 2023

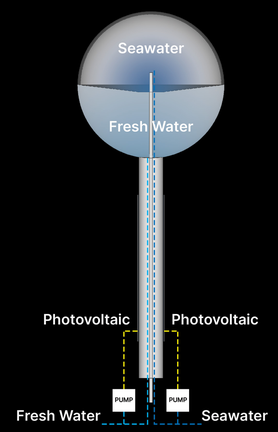


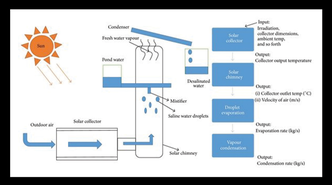


Bladeless Vortex Turbine

The bladeless turbine uses vortex-induced vibrations to generate energy as wind causes a conical mast to oscillate within a fixed cylinder. This motion powers a simple alternator with magnets and coils. Durable and low-cost, it adapts to wind changes, resists harsh weather, and requires minimal maintenance due to fewer moving parts.





Seawater Converter Spheres

The bladeless turbine uses vortex-induced vibrations to generate energy as wind causes a conical mast to oscillate within a fixed cylinder. This motion powers a simple alternator with magnets and coils. Durable and low-cost, it adapts to wind changes, resists harsh weather, and requires minimal maintenance due to fewer moving parts.