RELOADED

"a fully renewable building with seasonal storage"

We propose a ‘ battery building’, to store seasonal energy and also to contain and to preserve energy used in the building. So, nothing is wasted. We use the phase changing qualities of salt and ice to integrate a hot & cold storage in the building.

For a long time NYC’s waste was dumped into the ocean. At this very moment a plan to clean up all plastic soup in the oceans is enrolled. (www.theoceancleanup). Recovered plastics will be offered as a raw material to anyone.

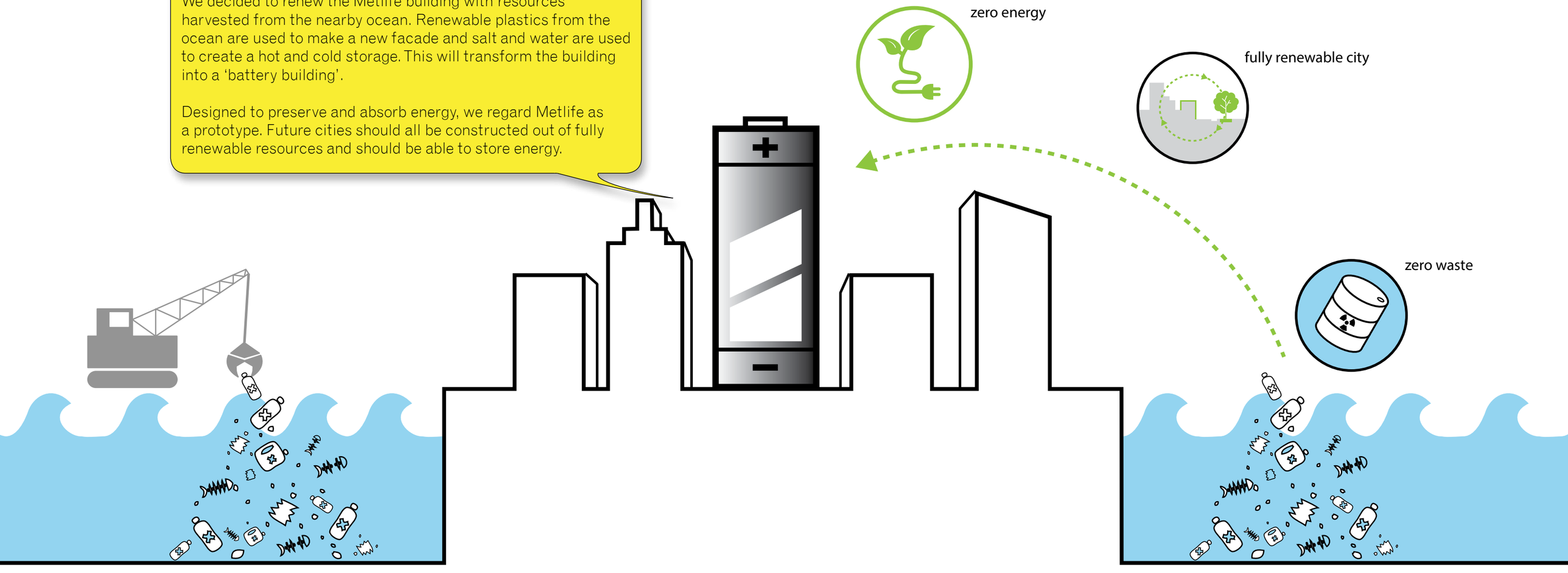
Fully renewable plastics can be made out of plastic soup from the “ocean cleanup”. The translucent parts of the new façade will be made out of PMMA, a material used in contact lenses and in this project a fully renewable version of polycarbonate.

Future cities should produce zero waste. Not only should future facades be made out of renewable materials but also the building components should be used in a none laminated way; as easily removed as applied to a building.

We vision the Metlife building to be a zero waste and zero energy building. The city and people of New York produce a lot of waste and use a lot of energy. Energy is lost through poorly insulated buildings, outdated installation concepts and unawareness. With our transformation we want to make a change.

We decided to renew the Metlife building with resources harvested from the nearby ocean. Renewable plastics from the ocean are used to make a new facade and salt and water are used to create a hot and cold storage. This will transform the building into a ‘battery building’.

Designed to preserve and absorb energy, we regard Metlife as a prototype. Future cities should all be constructed out of fully renewable resources and should be able to store energy.

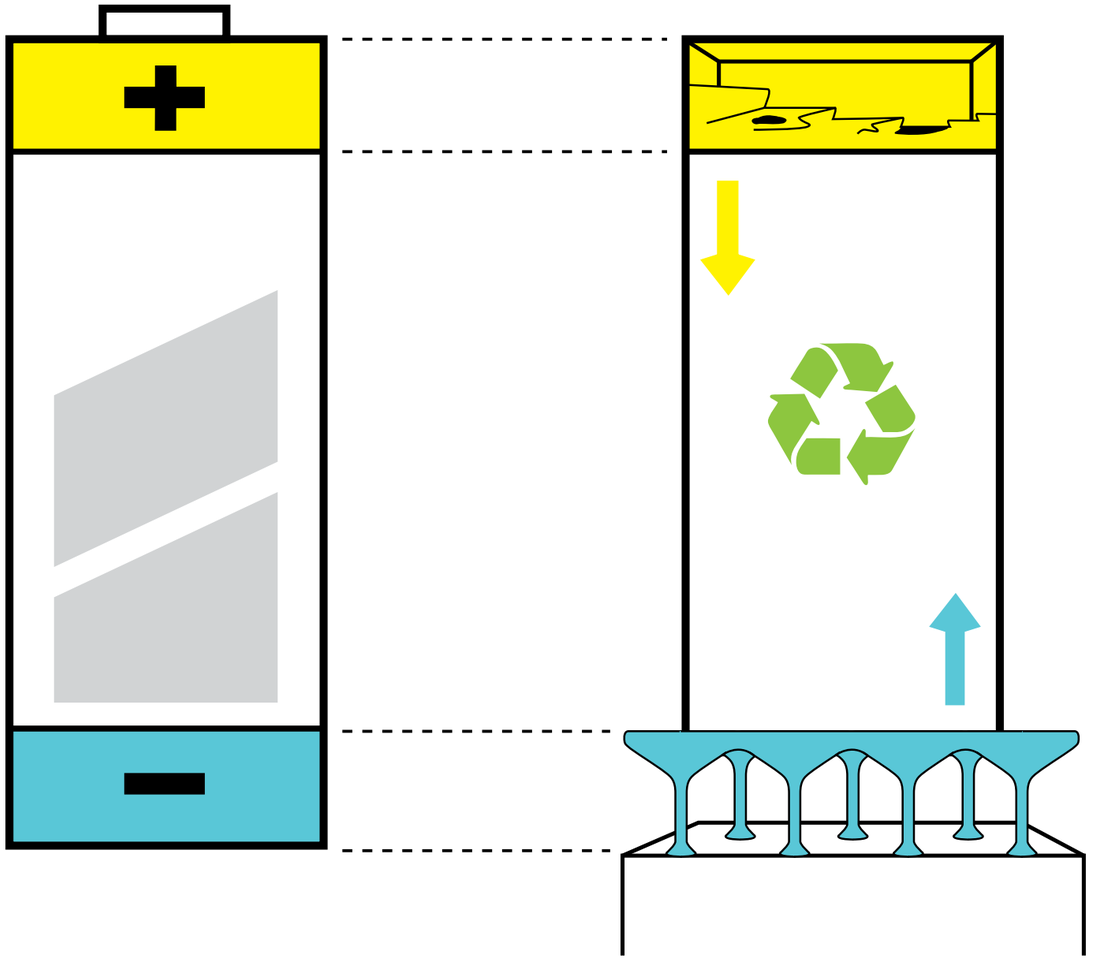


We want the people of New York to experience our concept in a literal way to make them more conscious about energy. So we added two spaces to the existing building that function as a seasonal hot & cold storage: a salt spa on top of the building and an ice skating venue in the plinth. These two functions will give the existing building and midtown Manhattan a new attraction point.

The hot & cold storage will work as the battery of the building. The phase changing qualities of ice and salt are used to store seasonal energy. This energy will be used to condition greenhouses in front of the offices through a natural ventilation system connected to both storages.

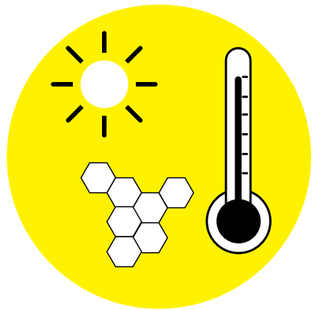
The new facade consists of translucent vertical zones. They function as chimneys between the hot and the cold storage, bringing fresh air into the greenhouses.

The glass of the greenhouses and the plastics of the translucent chimneys are fully renewable. Resources, like salt, sand, water and plastic soup are harvested from the nearby ocean, or acquired from the “ocean cleanup” program.



hot storage

summer heat is stored in a salt spa on the top of the building, using phase changing technologies.

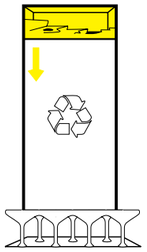


zero waste

a fully re-useable facade, made of plastic soup from the ocean.

cold storage

snow and ice, stored in column containers create a park and an ice skating venue.

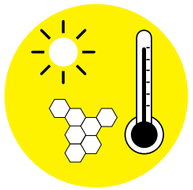


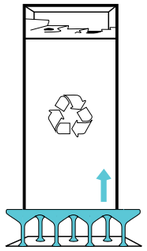
Envision a hot day in NYC during a heat wave. Then, the feeling of a cold breeze on your skin. The sudden temperature variation brings a moment of happiness. A salt spa on the rooftop lets you experience the hot storage concept. Instead of the more conventional approach of putting energy storage underground, we decided to integrate it into the building. Then, it starts to function not only as a heat source for the office spaces underneath but also as a place to enjoy some leisure time.

Salt is used for storing solar energy. It's phase changing quality can be 'designed' to 30 degrees Celsius, perfect for a salt spa, keeping its temperature on 30 degrees no matter how much heat comes in.

Solar heat comes in through the roof and facades of the salt spa. These are covered with highly insulated and transparent panels, making it into a greenhouse.

Salt and water both originate from the ocean. These materials can be transformed into other products or given back to nature.





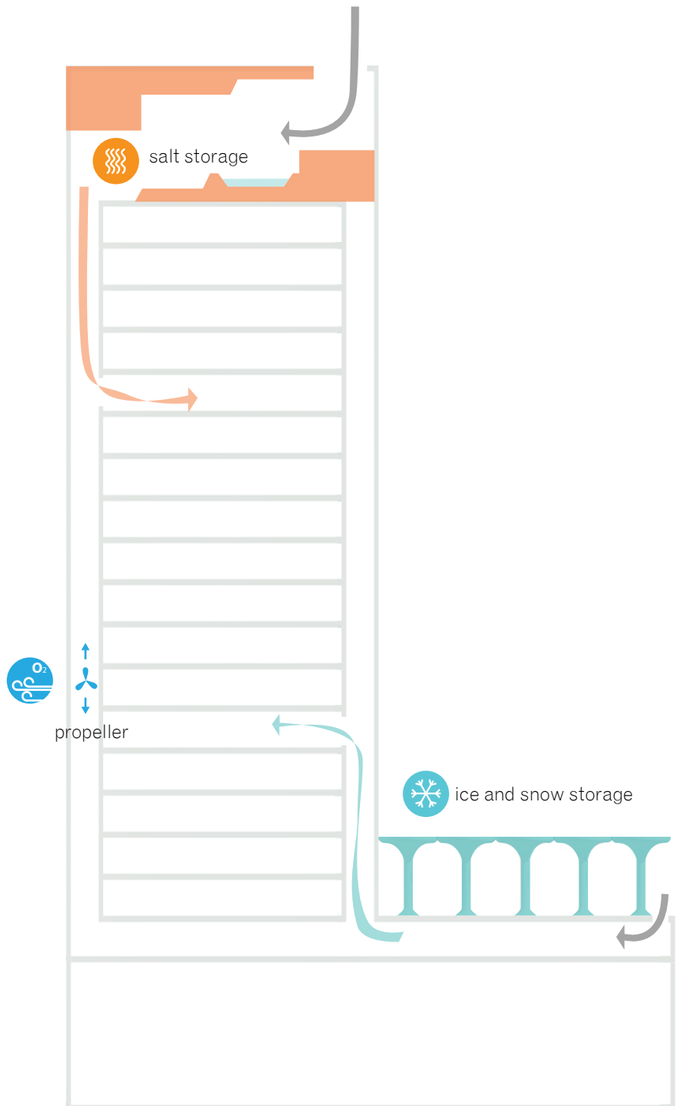
Also for the cold storage we envisioned a lively recreational area. The existing column grid of the building underneath will be used to store snow and ice that is removed from NYC's streets in winter. This cold storage is the minus of the battery and will be used to cool the building, later in the season. In summertime this urban forest will provide a nice shaded area, where in wintertime the place will be transformed into an energetic outdoor skating venue.

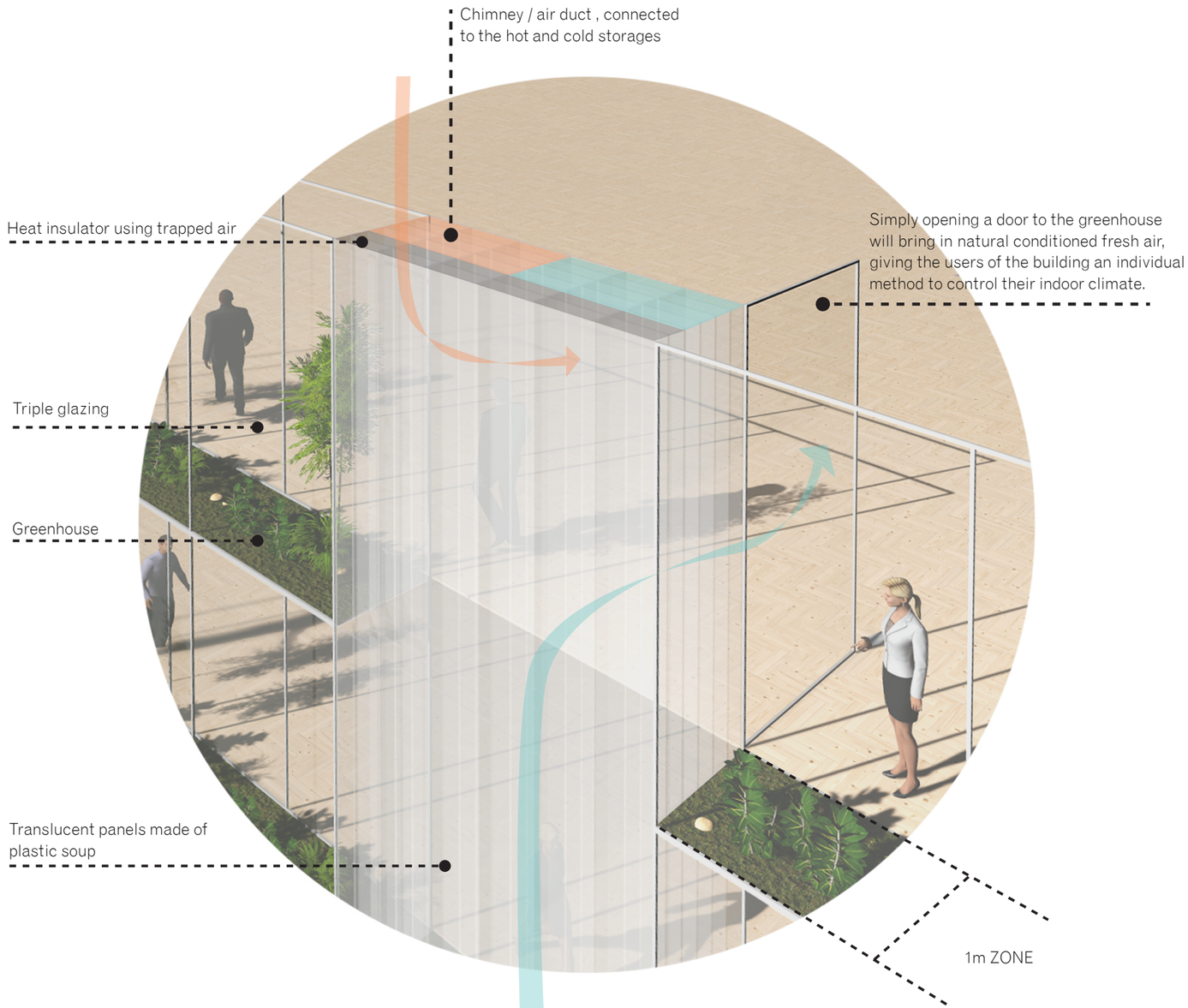
Ice and snow storages have been around for centuries. The phase changing qualities of ice are used to store seasonal energy and cool the building.

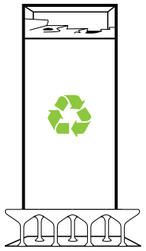
The storage containers are highly isolated, keeping ice and snow in there for as long as possible.

The roof park is located on the north side of the high rise, keeping the cold storage always in the shade.

Hot or cold air flows from the storages through chimneys that surround the building. A simple propeller ventilator is used to change the direction of the air flow, depending on the season.







The facade consists of a repetition of greenhouses and vertically stacked translucent panels that work as a chimney, connected to the hot & cold storages. The greenhouses are ‘raw’ climates in front of the offices.

Depending on the season, hot or cold air from the storages stabilize the climate of the greenhouses. If cold during winter, the greenhouses still are a nice place to be in. Vice versa in summer. Adding a sunscreen and using the chimney effect of the façade draws away excess heat in summer.

The temperature difference between the office and the greenhouse is only a few degrees, through which heat losses drop immensely, further enhanced by adding triple glazing and by trapping air in the outer parts of the translucent panels.

Both the greenhouses and translucent panels bring light into the building, so daylight autonomy of the office space is fully enhanced.

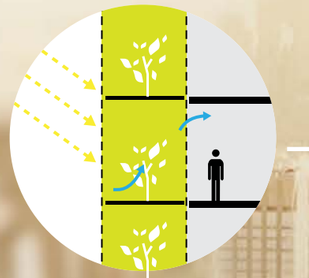
Glass, salt and PMMA can be re-used over and over. They only need to be used in a none laminated way. The facade consists of large components of a single material like Lego blocks; as simply removed as applied to the building.

Simply opening a door to the greenhouse from your office space will bring in natural conditioned fresh air, giving the users of the building an individual method to control their indoor climate.

plastic soup

raw material

Lego block



greenhouse

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