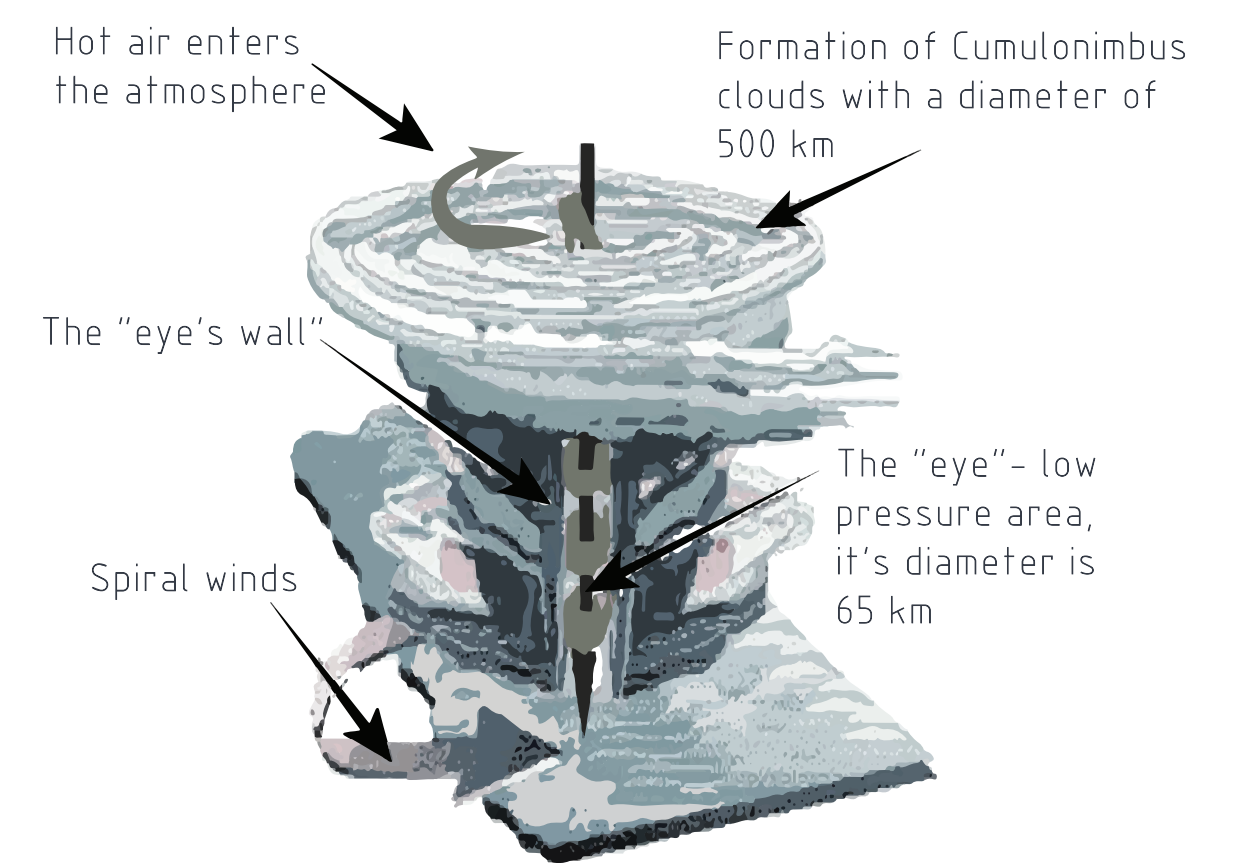




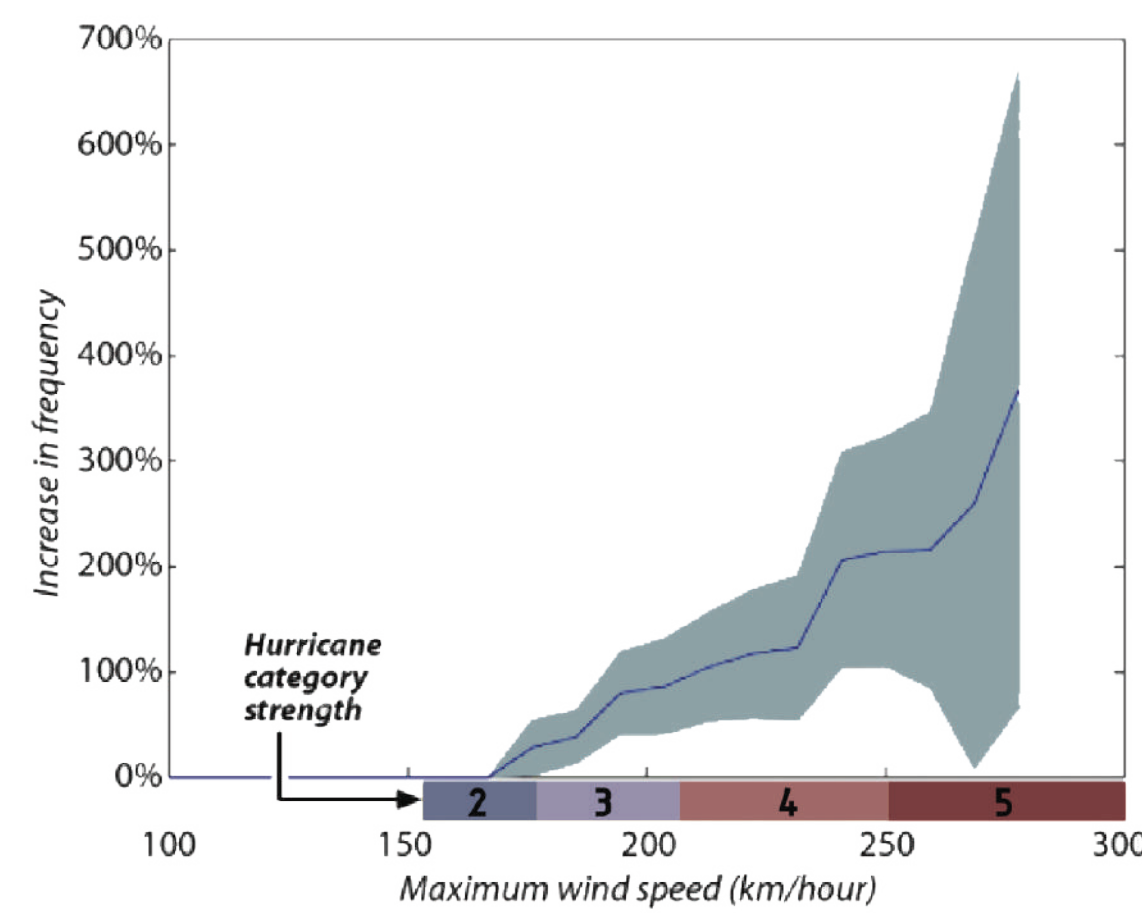
Dali Vinogradski and Lior Shem Tov  
Tel Aviv University

The high risk of tropical storms

Tropical cyclones, as we all know, bring huge damages to human life and property. It is considered as one of the worst natural disasters in the world, with forecasts of at least 15 storms in the upcoming year.



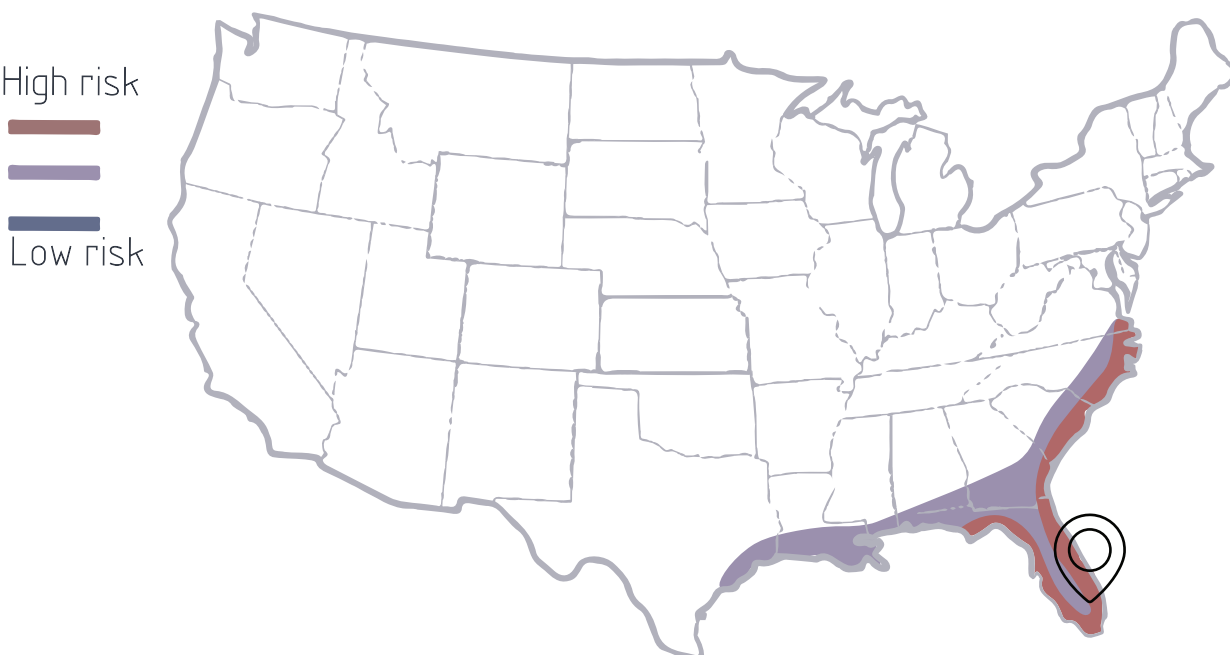
Storm forms when water temperature is high, low pressure area evolving, and high dense winds blow.



The frequency of intense tropical storms worldwide has increased over the years.

Complex reality in Miami, Florida

Storms are very common in the east coast of United States. Florida, due to its unique location, is the most affected state, while the southern area, and especially Miami, are the most dangerous. Each year at least one tropical storm hits this area. In 2017, Florida was even declared as a 'disaster area' as the storm was so lethal.



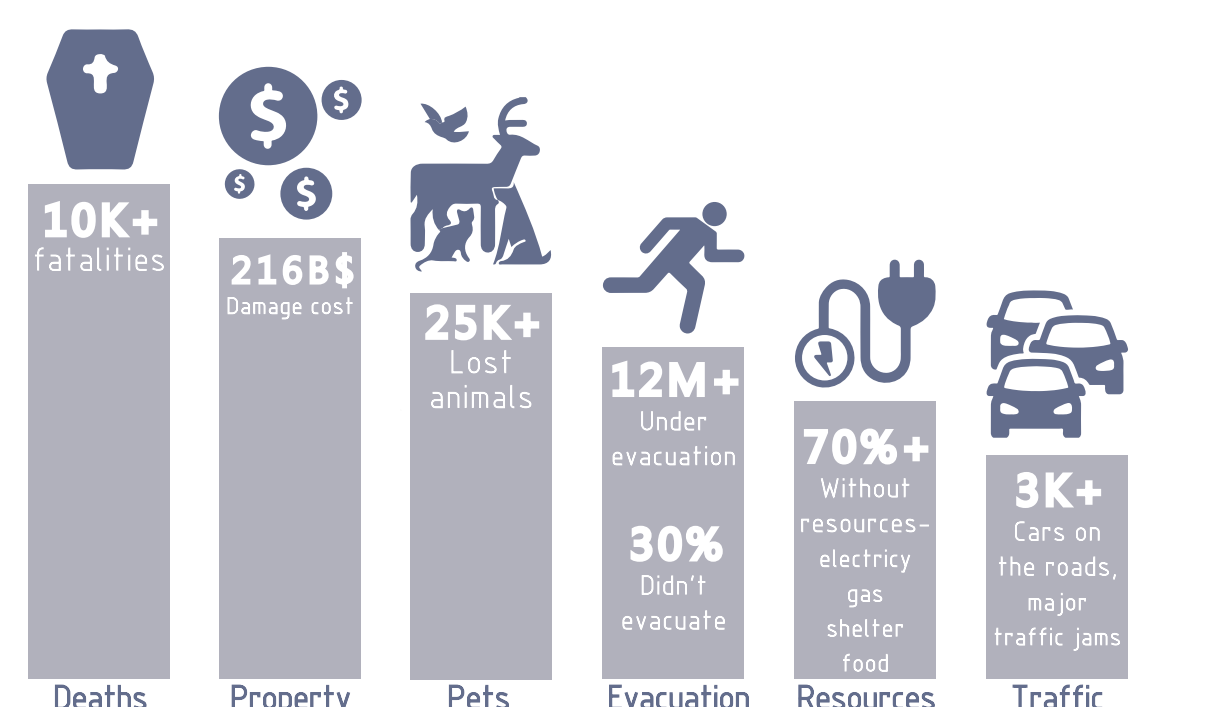
Miami is located at the highest risk area for storms.



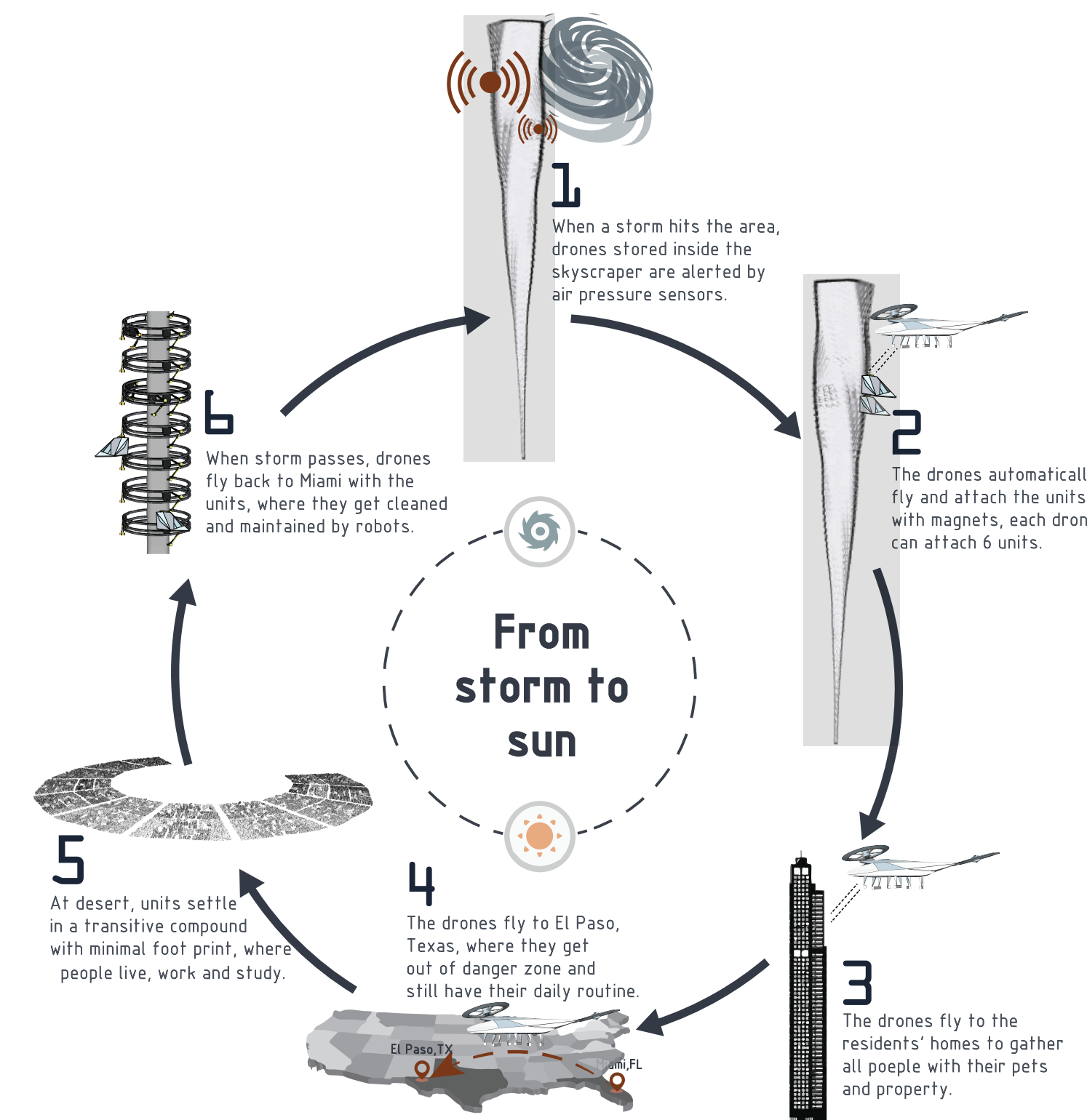
Florida, due to its special location, is the most affected state in United States.

Severe implications of storms

Not only losses in human life and property damage, the biggest challenge that such a disaster poses is the evacuation process. While many residents are asked to evacuate, some of them refuse to leave their property and their pets. The ones that do evacuate, face serious problems such as blocked roads, traffic jams and gas shortages.



Florida's hurricane damage hierarchy, based on storms from 2000-present.





Escape with your emergency unit

The Home Mobile is a skyscraper consisting of emergency units. These units include the essentials needs of humans- sleeping, dining and storage. It enables people to live comfortably and maintain a normal life routine during storms.

Emergency unit with all the basic needs for humans and their pets, designed to maintain normal life routine.

Skyscraper stacking

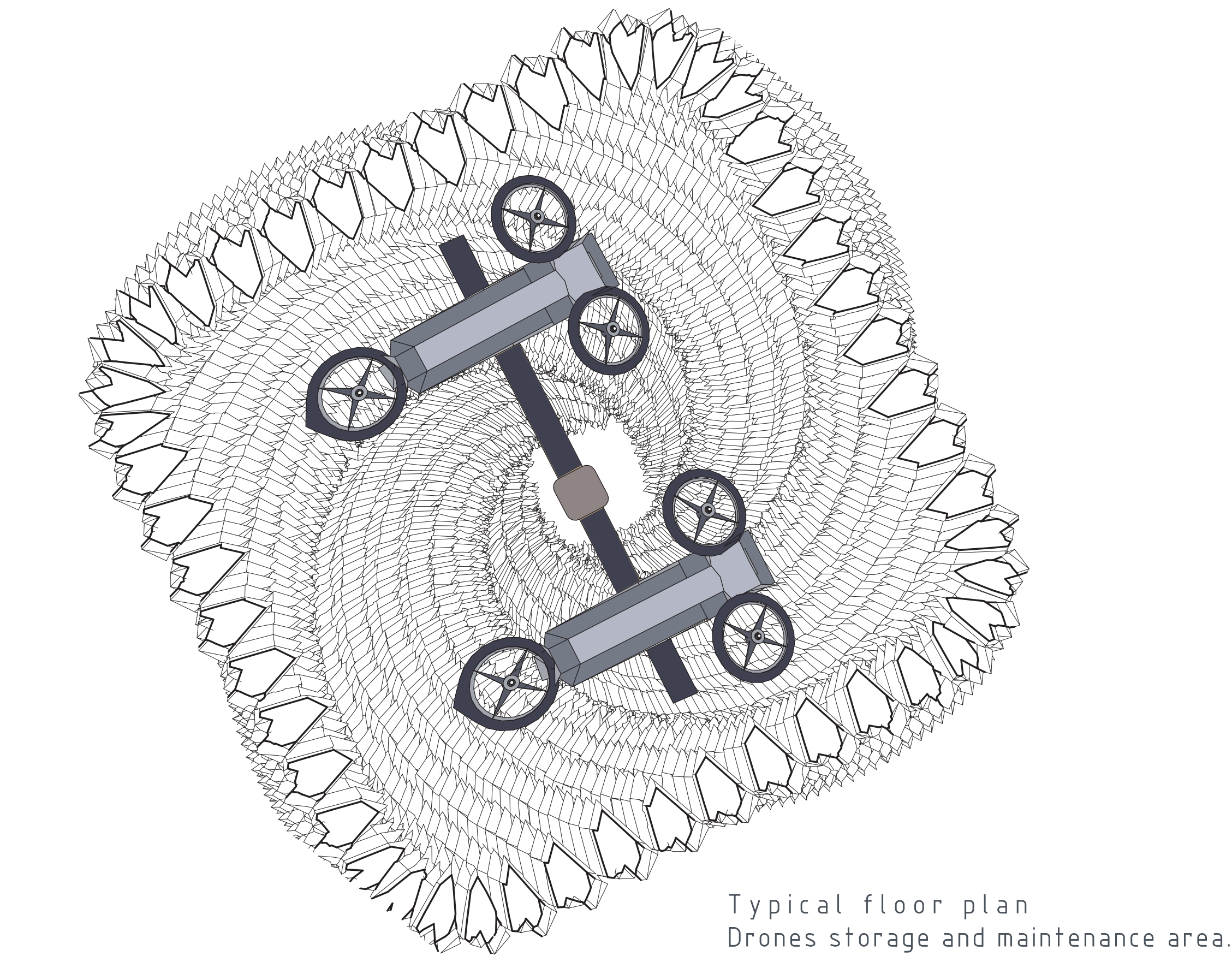
These units stack up using a magnetic technology as a skyscraper with a minimal footprint. It is made of lightweight materials for modular flexibility. The stacking makes the units as one strong entity, but when a storm hits, the units fly away and the skyscraper disappears.

Evacuation process

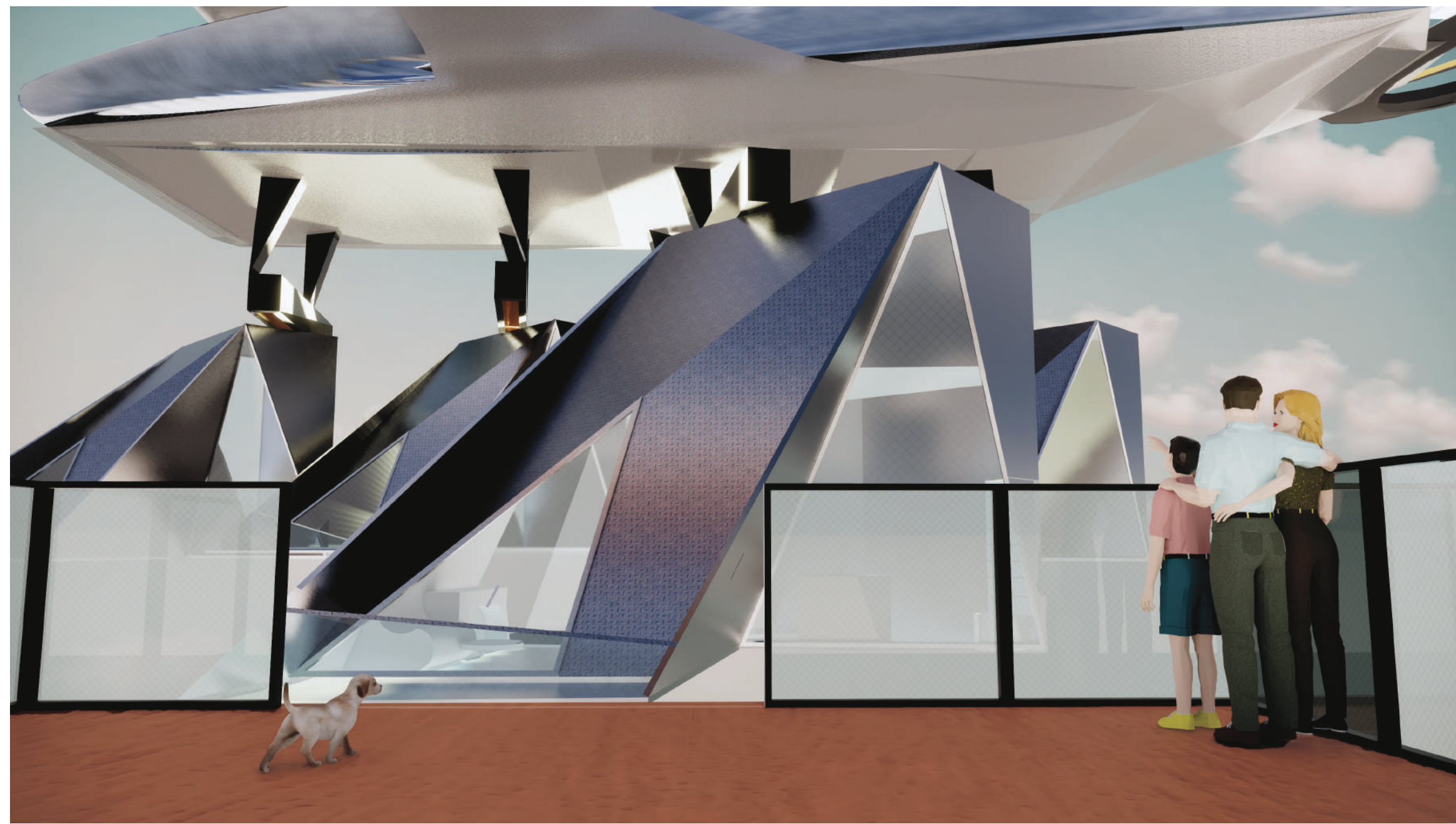
Drones stored inside the skyscraper are alerted by air pressure sensors when a storm is nearby and they automatically attach the units. Then, they fly to gather the residents from their homes and move them to a safer place. They fly the minimum time to get out of the danger zone and arrive to the Texas desert.

Maintain a normal life routine

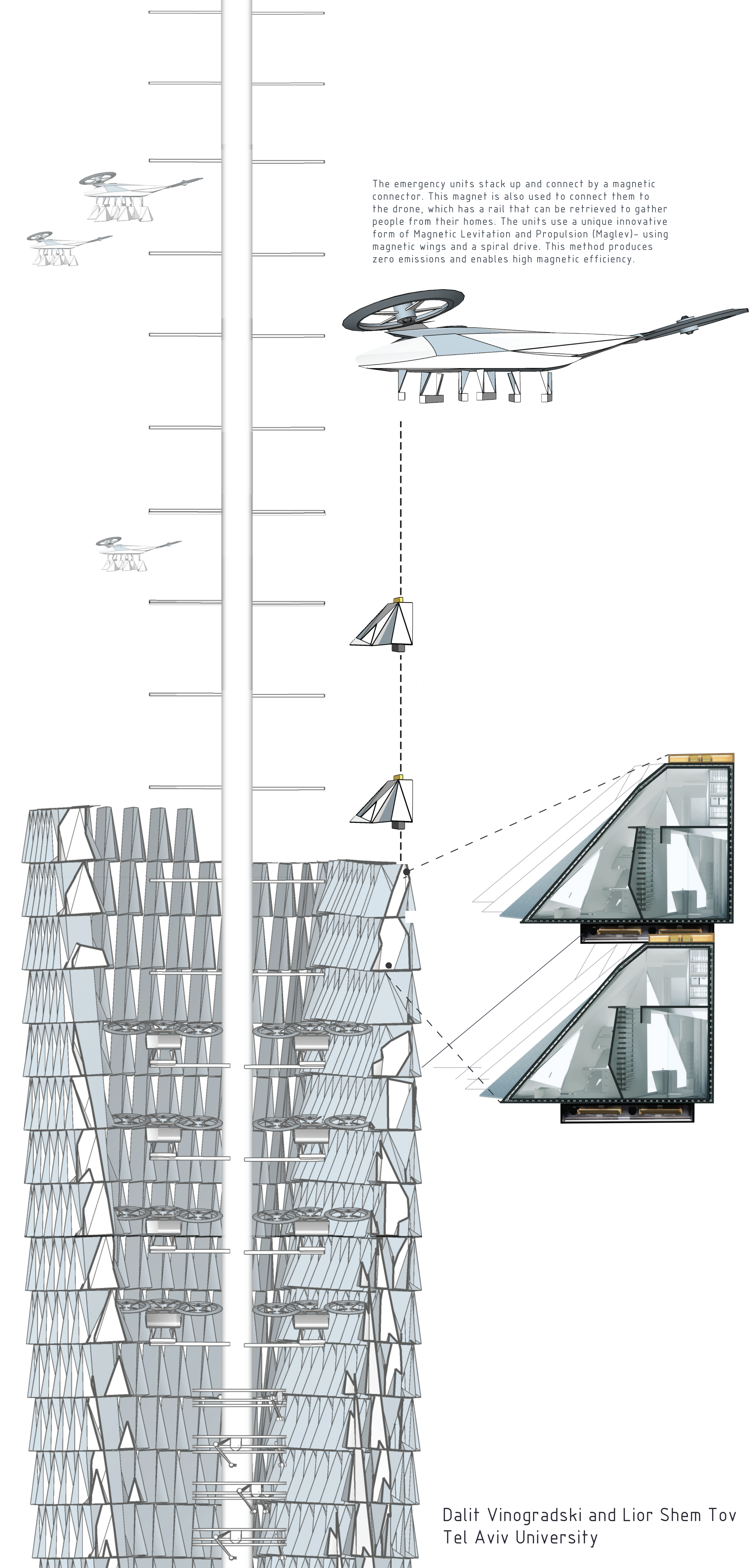
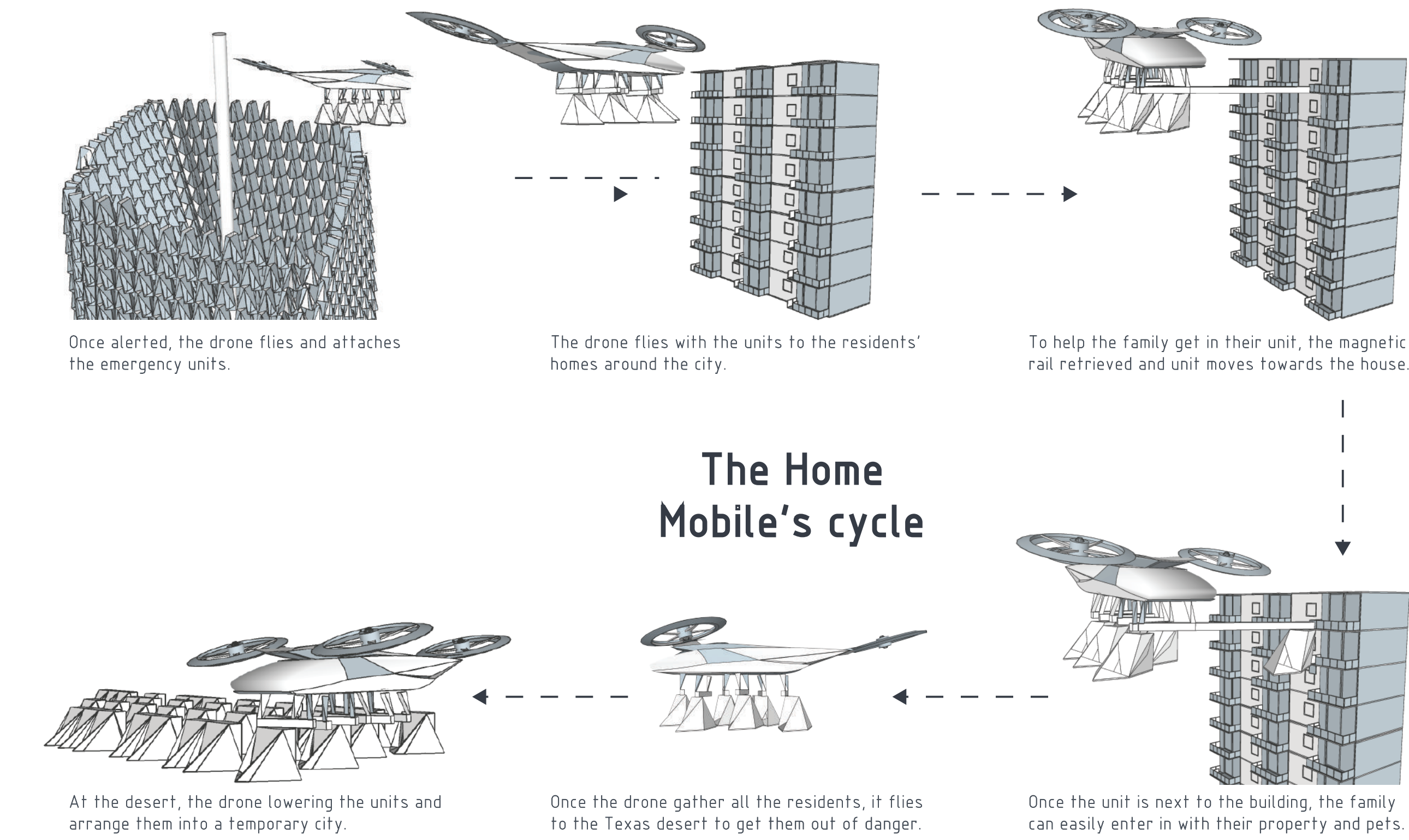
At the desert, the units connect to existing infrastructure with a minimal foot print. People can stay there until the storm is over, living their daily routine. When the storm passes, the drones attach the units and fly back to Miami, where the units will be maintained to get ready for future disasters.



Typical floor plan  
Drones storage and maintenance area.



'Burning man' view- the desert at El Paso, Texas  
A transitive compound with minimal foot print, where people can live their daily routine until the storm is over. Once the unit includes all the basic needs for the residents, people can live here as long as they need.



The emergency units stack up and connect by a magnetic connector. This magnet is also used to connect them to the drone, which has a rail that can be retrieved to gather people from their homes. The units use a unique innovative form of Magnetic Levitation and Propulsion (Maglev)- using magnetic wings and a spiral drive. This method produces zero emissions and enables high magnetic efficiency.