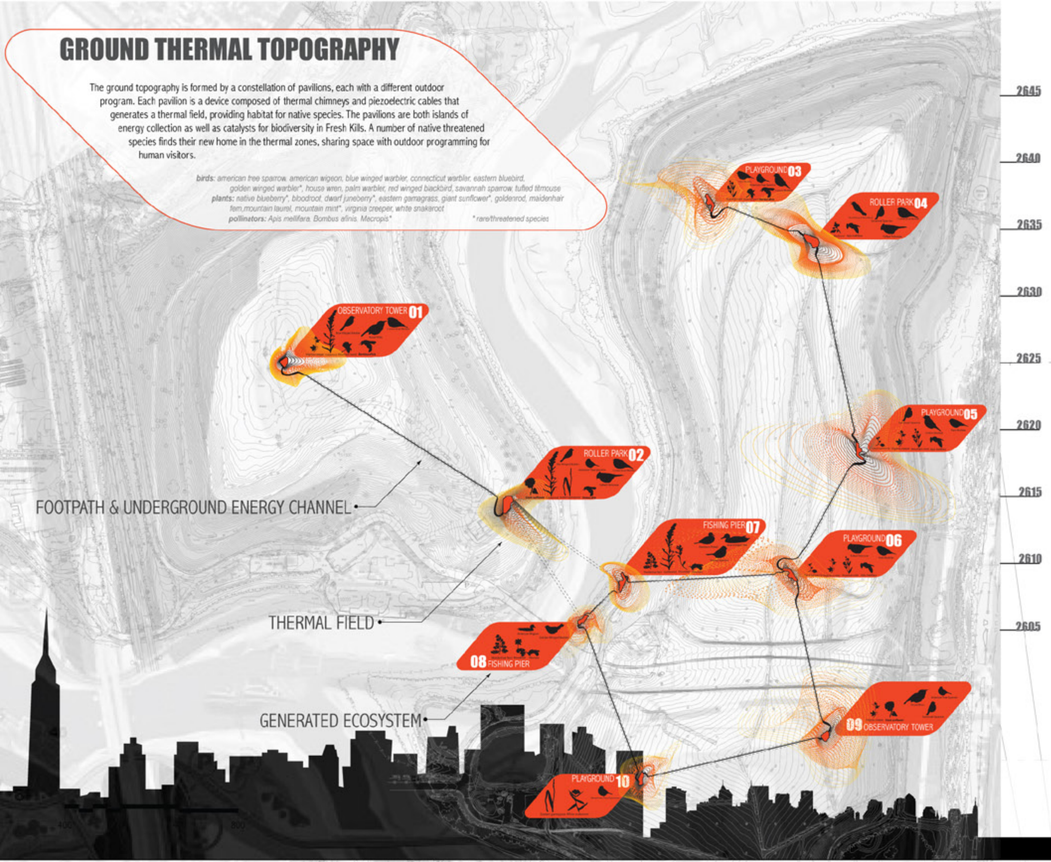
CLOUD ECOLOGIES

AIR AND GROUND CONSTELLATIONS

GROUND THERMAL TOPOGRAPHY

The ground topography is formed by a constellation of pavilions, each with a different outdoor program. Each pavilion is a device composed of thermal chimneys and piezoelectric cables that generates a thermal field, providing habitat for native species. The pavilions are both islands of energy collection as well as catalysts for biodiversity in Fresh Kills. A number of native threatened species finds their new home in the thermal zones, sharing space with outdoor programming for human visitors.

birds: *american tree sparrow, american wigeon, blue winged warbler, connecticut warbler, eastern bluebird, golden winged warbler*, house wren, palm warbler, red winged blackbird, savannah sparrow, tufted titmouse*
plants: *native blueberry*, bloodroot, dwarf juneberry*, eastern gamagrass, giant sunflower*, goldenrod, maidenhair fern,mountain laurel, mountain mint*, virginia creeper, white snakeroot*
pollinators: *Apis mellifera. Bombus afinis. Macropis*.* ** rare/threatened species*

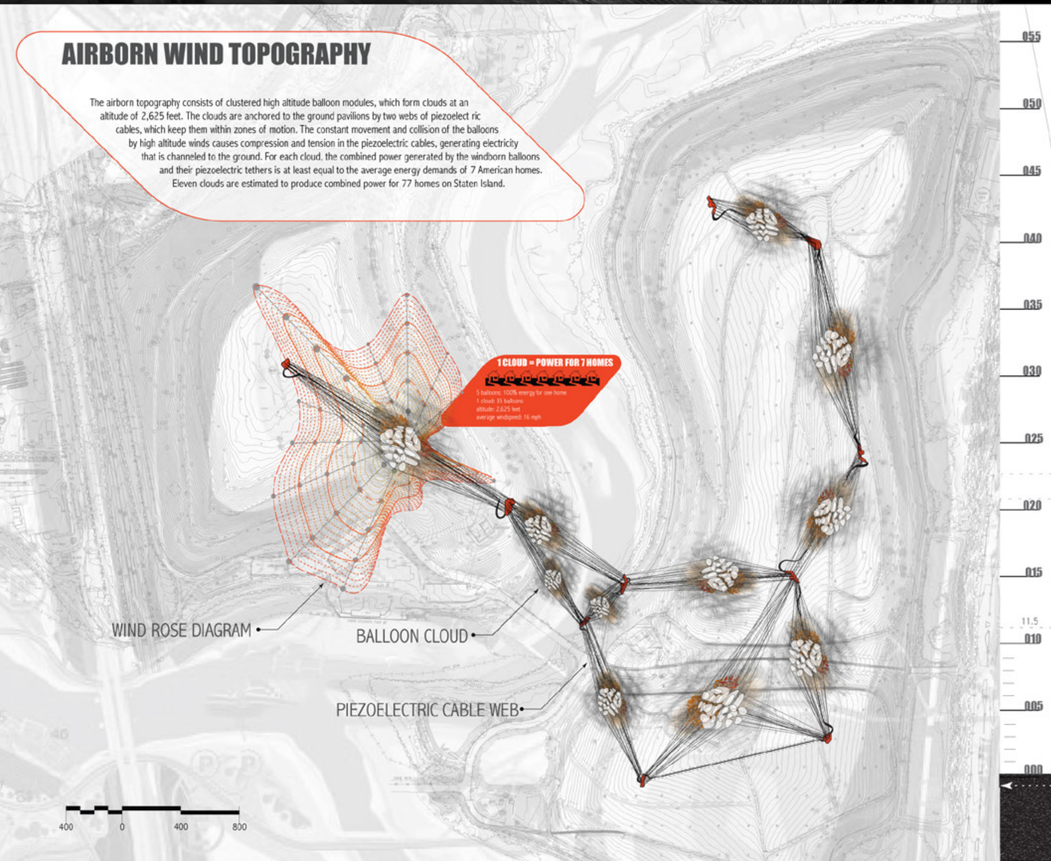


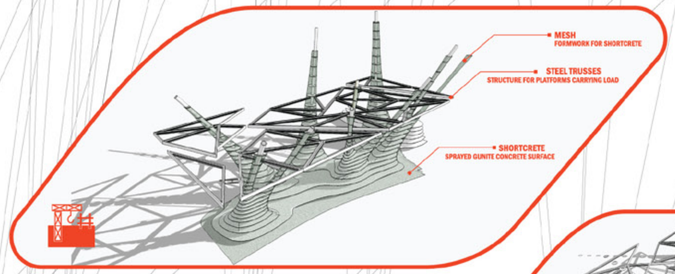
Average Windspeed: 16 mph

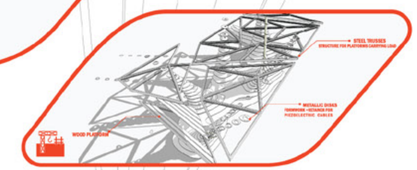
SECTION CUT

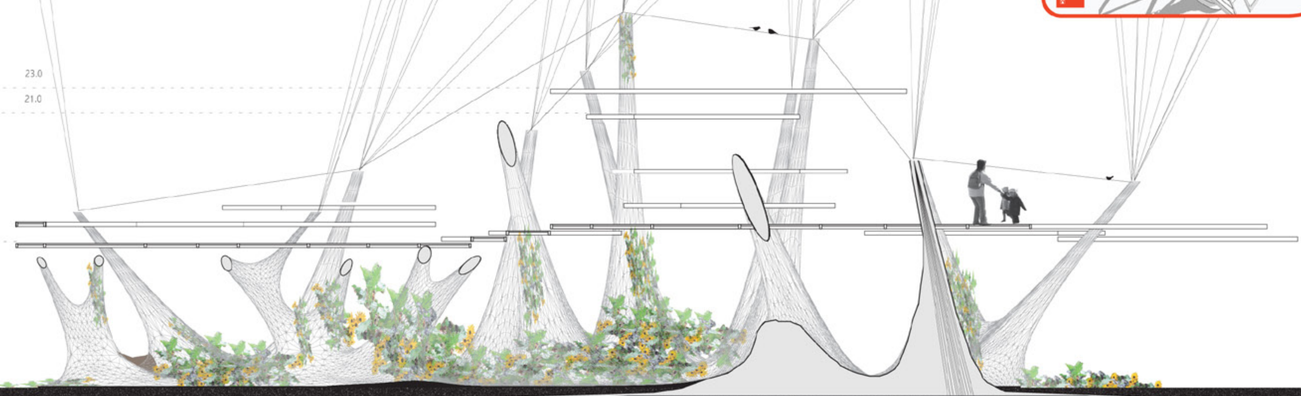
AIRBORN WIND TOPOGRAPHY

The airborn topography consists of clustered high altitude balloon modules, which form clouds at an altitude of 2,625 feet. The clouds are anchored to the ground pavilions by two webs of piezoelect ric cables, which keep them within zones of motion. The constant movement and collision of the balloons by high altitude winds causes compression and tension in the piezoelectric cables, generating electricity that is channeled to the ground. For each cloud, the combined power generated by the windborn balloons and their piezoelectric tethers is at least equal to the average energy demands of 7 American homes. Eleven clouds are estimated to produce combined power for 77 homes on Staten Island.

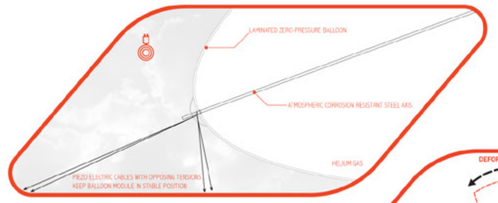


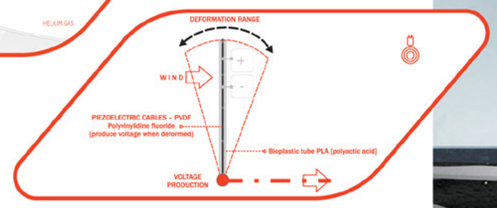






WIND TOPOGRAPHY





Cloud Ecologies is a constellation of ten outdoor ground pavilions and eleven air balloon clusters dispersed throughout Freshkills Park, formerly the world's largest landfill. The ground topography of pavilions anchors the balloon clouds, which harvest high-altitude wind energy. The ground system and the air system work reciprocally; *not only to generate energy, but also to create islands of new life.*

Although the City of New York has immediate plans for the restoration of Freshkills Park, the chronic accumulation of waste has been detrimental to the site's capacity to sustain biodiversity. Each ground pavilion brings new life in two ways: first, it introduces program –fishing, roller sports, observation, play et-al; second, the pavilions' perimeter becomes *an enhanced thermal zone and thus a catalyst for biodiversity.* Each structure is composed of thermal chimneys and piezoelectric cables that generate an ambient temperature field, providing heat for native species, sharing space with outdoor programming for human visitors.

Diversity is at the core of *Cloud Ecologies*. The unity of weather patterns, ecosystem and human inhabitant is realized not only as a pragmatic solution to Staten Island's growing energy needs, but also as an immersive re-experiencing and re-imagining of our natural habitat. In New York 's fastest growing borough, the populations of people and native species can come to the same place to thrive.

THERMAL TOPOGRAPHY