Jones Beach Energy and Nature Center Report

Fall 2025 ARC100
Introduction to Architecture and Culture

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https://www.lipower.org/about-us/jones-beach-energy-and-nature-center/

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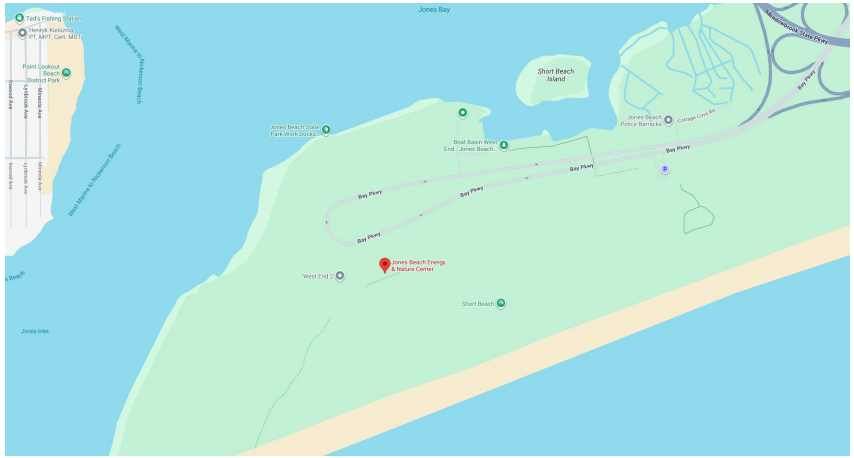
https://www.archdaily.com/991911/jones-beach-energy-and-nature-center-narchitects

Building Information

- Building Style - Functionalism
- Address - 150 Bay Parkway, West End 2, Jones Beach State Park, Wantagh, NY 11793
- Architects - nARCHITECTS (lead design firm)
- Date Completed - September 25, 2020
- Area (sqft.) - 12,000 sqft
- Total cost - approx. $30 million
- Cost per sqft. - $2,500 per sqft

https://www.google.com/maps/place/Jones+Beach+Energy+%26+Nature+Center/@40.5861515,-73.5630319,16z/data=!4m6!3m5!1s0x89c27bc0c4b1403b:0xa00eeaf07f06208f!8m2!3d40.5848194!4d-73.5603819!16s%2Fg%2F11lqbtb_1j?entry=ttu&g_ep=EgoyMDI1MTIwOS4wIKXMDSoASAFQAw%3D%3D



1. Interactive Exhibits Throughout

The Center includes numerous hands-on indoor and outdoor exhibits designed for all ages, with multilingual and accessible features

https://www.jonesbeachenc.org/exhibits

2.Landscape as a classroom

Outdoor spaces like gardens,paths, and classrooms are fully integrated into the educational experience

https://www.archdaily.com/991911/jones-beach-energy-and-nature-center-narchitects

3. Former Parking lot Reclaimed

Nearly 10 – 12 acres of old asphalt were removed and replaced with native coastal landscape

https://www.starrwhitehouse.net/project/jones-beach-nature-center/

4. Wave-Inspired Design

The buildings low, flowing roofline reflects the movement and form of the nearby ocean.

https://www.woodworks.org/award-gallery/jones-beach-energy-nature-center/

5. Seamless indoor and outdoor flow

Interior galleries connect directly to porches an outdoor spaces, encouraging continuous exploration

https://www.archdaily.com/991911/jones-beach-energy-and-nature-center-narchitects

Brief History of Jones Beach

In 1929, Robert Moses established Jones Beach State park which gave everybody in New York access to a public beach. When it opened it was designed with recreational amenities. Over time the shoreline had become damaged because of storms and erosion. So dredged sand was used to widen the barrier island. Which allowed for Jones Beach to support new facilities.

https://en.wikipedia.org/wiki/Kingston,_New_York

Net-Zero Buildings

A net-zero building is one that uses the same amount of energy throughout the year as it produces so it doesn't have to worry about extra energy. The Jones Beach Energy and Nature Center does this perfectly by its design using very little energy and it produces enough energy to balance it out. Which makes it a net-zero building.

https://www.facebook.com/RenewableEnergyLongIsland/posts/explore-long-islands-energy-efficient-gems-from-the-jones-beach-energy-nature-ce/1125810339550786/

7. Examples of embodied energy building materials

Embodied energy is the total amount of energy required to extract, manufacture, transport, nd assemble building materials, before the building ever existed

Structural Steel- The energy comes from mining ore, producing steel, transport, and fabrication

Concrete foundation and slabs - Energy comes from cement production, aggregate processing, transportation and placing of said concrete.

https://narchitects.com/work/jones-beach/

Cradle-to-grave vs. Cradle-to-cradle

Cradle-to-grave - This is the full life cycle of a material from raw material extraction, through manufacturing, use, and final disposal. *(Ex. Conventional concrete is mined, manufactured, used in a building, and eventually demolished and discarded as waste)*

Cradle-to-cradle - This is the life cycle where materials are designed to be reused, recycled, or safely returned to nature at the end of their life, rather than becoming waste. *(Recycled aluminium panels that can be fully reclaimed and reused in new products after a building is deconstructed*

https://www.facebook.com/JonesBeachENC/

Biomimicry

Biomimicry - Innovation inspired by nature *(Ex. Shells form to create a more sustainable material.)*

https://www.jonesbeachenc.org/the-wave/beachy-biomimicry

10. Shinnecock Indian Nation

Some of the things that the Shinnecock Indian Nation did to make the coastline stronger are things like restoring oyster reefs, adding natural barriers, and planting native grasses. This coastline is very important to their culture and identity.

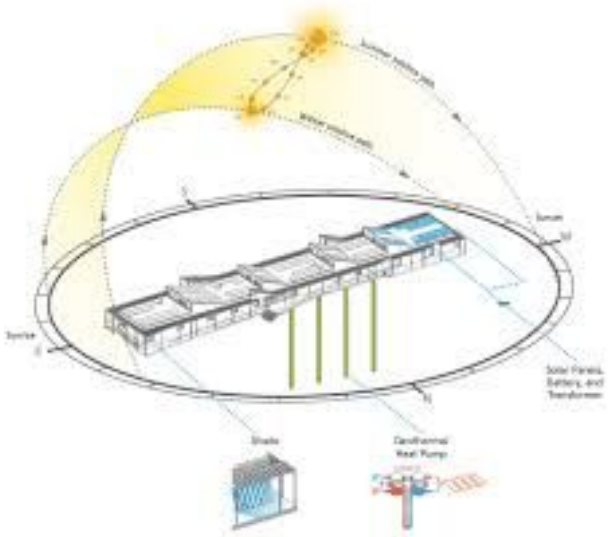
https://www.shinnecock-nsn.gov/

Geothermal Systems & how it works

Geothermal systems uses the Earth's stable underground heat to heat/cool buildings. It works by fluid circulating through underground loops – absorbs and releases heat – heat pump transfers it to the building. Long Islands ground temperature is around 55-57 degrees fahrenheit year round.

System Types

- **Horizontal** - Loops in trenches, need more land
- **Vertical** - Loops drilled deep, good for smaller sites
- **Open-loop** - Water from well circulates and returns
- **Closed-loop** - Fluid circulates in sealed loops underground



https://architizer.com/blog/practice/details/targeting-net-zero-jones-beach-energy-nature-center/

Geothermal Systems advantages vs disadvantages

Advantages

- Renewable and low-emission
- Provides heating and cooling
- Durable (loops last 50+ years)
- Highly energy-efficient (30-60% savings)

Disadvantages

- Can disrupt landscaping during installation
- Site-specific efficiency
- High upfront cost
- Needs space for loops and drillings

https://www.jonesbeachenc.org/sustainability/

Reflection

What I found the most interesting about the Jones Beach Energy and Nature Center is that it is a net-zero building. As a student studying a major in architecture it was cool to see how architecture can actively sole environmental problems while still looking very modern and functional. I love how they dont leave an energy footprint on the world unlike most other buildings in the world.

https://www.aiany.org/architecture/featured-projects/view/jones-beach-energy-nature-center/