

Arch 464  
ECS  
Spring 2021

Name \_\_\_\_\_

Quiz #3

# "More Green Points for Greenpoint?"

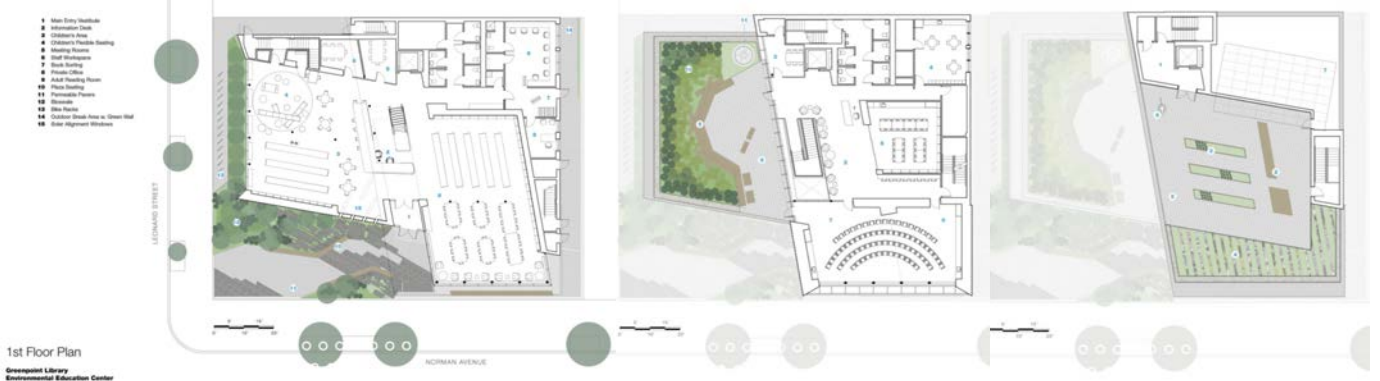
Read and look at everything before you write!



All photos and drawings: Architectural Record, March 2021 and Marble Fairbanks Architects.

The southwest corner view (above) of the Greenpoint Library.

For this quiz you get to revisit Brooklyn's Greenpoint Library and Environmental Education Center with an eye on evaluating its performance as a regenerative building and site.



1st Floor Plan  
Greenpoint Library  
Environmental Education Center  
First, second, and third floor plans.

## Greenpoint Library and Environmental Education Center by Marble Fairbanks

Open since October, the Greenpoint Library and Environmental Education Center is more than a repository of information. Designed by Marble Fairbanks, it is a symbol of an ecological effort that dates back more than 40 years. In 1978, one of the largest oil spills recorded in the United States (at least 50 percent greater than that of the Exxon Valdez) was discovered in a tributary of New York's East River. Between 17 and 30 million gallons of oil and refining products leaked from processing facilities in Greenpoint, Brooklyn, and seeped deep into 55 acres of soil and aquifer in both industrial and residential areas. After years of litigation and slow remediation, this disaster became a catalyst for the new public library, which offers a unique focus on sustainability and the local ecosystem in a building that exemplifies the principles of good stewardship.

Situated on a prominent corner, the 15,000-square-foot steel-and-concrete structure immediately grabs your attention with a gracious plaza. Marble Fairbanks wanted to introduce public green space where there had been none and so massed the building by stacking a pair of orthogonal volumes and rotating them at right angles to establish three tiered outdoor areas: the plaza at grade, a second-level reading garden, and a rooftop horticultural classroom. Broad expanses of deep-set louvered and insulated glass span the southeast and west facades to visually connect passersby with the reading rooms, and to infuse the interior with strategically shaded daylight. The massing also enabled the creation of a welcoming backlit entrance canopy beneath an overhang.

The architects clad the upper volume with sandblasted-cedar panels made in the nearby Brooklyn Navy Yard, then used the same wood as formwork for glass-fiber-reinforced concrete panels on the lower volume. This move, says project architect Jason Roberts, places the more durable material at the street level and contrasts it with the wood, which will age, above. The split levels and bold materiality also minimize the bulk of the structure so that it fits within Greenpoint's patchwork of old and new buildings faced in wood, brick, and vinyl siding.

Besides collaborating with the Brooklyn Public Library, Fairbanks and her team worked with the community and local environmental groups, as well as landscape architect SCAPE and ads Engineers, to develop the programmatic, material, and sustainability strategies, ultimately targeting LEED-Platinum certification. Products, sourced within 500 miles when possible, include the work of local artisans and fabricators; 87 percent of the wood comes from sustainable forests; and low-VOC adhesives, coatings, and flooring were used throughout. Efficient systems include low-velocity-displacement ventilation; controlled LED lighting; and bidirectional solar panels on the roof, estimated to offset more than 10 percent of the building's annual energy consumption. These components (and more) are identified and explained on wall plaques.

SCAPE introduced immersive landscapes that connect to the urban and ecological context. In homage to the region's geological history, bands and outcroppings of granite on the plaza trace the movement of the Laurentide Ice Sheet across Brooklyn 18,000 years ago. Native plantings, bioswale, and permeable pavers manage runoff, with excess rainwater directed into a retention tank below ground. More native plants and fruit-bearing shrubs in the reading garden on the second floor provide food and habitat for birds and insects, and water from a 1,500-gallon cistern is used by student and community groups who pump it by hand to tend raised beds and a green roof on the upper level.

Walking in from the street, you'll find adult and children's reading rooms on either side of a cherry-clad main desk. Such local wood figures prominently throughout the interior, as do select shades of green. Marble Fairbanks seized every opportunity to insert details that reinforce the program: four narrow south-facing windows near the entrance highlight the angle of the sun on the concrete floor at noon during an equinox or solstice.

The actual environmental center is one flight up, where a lounge opens to the reading garden. This central space, or "eco lounge," is bordered by a glazed "teen lab" and 1,400-square-foot community room that can be divided in two for simultaneous educational and social activities. The lounge also features a display wall to showcase projects, art, and other materials that will increase awareness about sustainability. A digital monitor explains the building and presents data such as its energy use and how much the solar panels generate.

— Linda C. Lentz, *Architectural Record*, March 3, 2021



## Site Energy

1. The architect opted for on-site energy generation via photovoltaics. **Make a case** for or against supplementing the PV array with a building-mounted array of wind turbines or with additional PVs. **Discuss** the merits, placement, and drawbacks of a wind turbine array. Use diagrams to **illustrate** your ideas.

4 points

## Wind



*Aerial perspective of the proposed library.*

## More PVs

## Regeneration-Based Checklist for Design and Construction

© SBSE @ Tadoussac 1999

Project: \_\_\_\_\_

Rate the building for each of the checklist items and give a total score.

		degeneration				sustainability				regeneration		
		-100 always	-75 usually	-50 sometimes	-25 a bit	0 balances	25 a bit	50 sometimes	75 usually	100 always		
the site	pollutes air										cleans air	
	pollutes water										cleans water	
	wastes rainwater										stores rainwater	
	consumes food										produces food	
	destroys rich soil										creates rich soil	
	dumps wastes unused										consumes wastes	
	destroys wildlife habitat										provides wildlife habitat	
	imports energy										exports energy	
	requires fuel-powered transportation										requires human-powered transportation	
	intensifies local weather										moderates local weather	
the building	excludes daylight										uses daylight	
	uses mechanical heating										uses passive heating	
	uses mechanical cooling										uses passive cooling	
	needs cleaning and repair										maintains itself	
	produces human discomfort										provides human comfort	
	uses fuel-powered circulation										uses human-powered circulation	
	pollutes indoor air										creates pure indoor air	
	is built of virgin materials										is built of recycled materials	
	cannot be recycled										can be recycled	
	serves as an icon for the apocalypse										serves as an icon for regeneration	
is a bad neighbor										is a good neighbor		
is ugly										is beautiful		

negative score 2200 possible	positive score 2200 possible
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final score: \_\_\_\_\_

### Regeneration Rating

2. a) Explain what your rating of the building means in terms of regeneration. b) Explain your rating for "serves as an icon for the apocalypse vs. serves as an icon for regeneration."

2 points

## Building Scale Regeneration

3. Given the building plans and orientation **point out and discuss three** features of the **building design** to which you awarded regeneration points on the SBSE checklist (page 4) and **one** feature of the **building design** that to which you awarded degeneration points on the SBSE checklist.

8 points



1(+)

2(+)

3(+)

1(-)

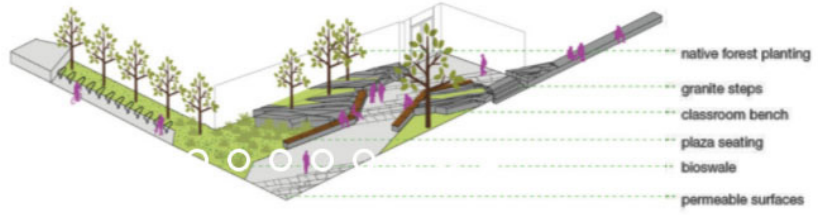
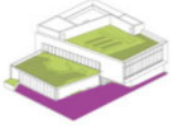
## Site Scale Regeneration

4. Given the building plans and orientation **point out and discuss two** features of the **site design** to which you awarded regeneration points on the SBSE checklist (page 4) and **one** feature of the **site design** that to which you awarded degeneration points on the SBSE checklist.

6 points

### GLACIAL STREETSCAPE

Features an outcropping manufactured from stone skins recycled from New York State quarries, creating a destination on this highly-visibility corner.



1(+)

2(+)

3(-)