

# Duke University: Nicholas School of the Environment

BY COLLEGE PLANNING & MANAGEMENT

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Environment Hall on the campus of Duke University in Durham, NC, designed by Payette, is a long narrow bar building nestled in among existing campus buildings, giving virtually all program spaces access to natural light and views. A subtle bend in the building's geometry mitigates multiple campus grids, signifies entry and is used to create landscape spaces that are at once cradled and expansive. The building's structural grid and floor-to-floor heights align with the adjacent Levine Science Research Center, creating a dialogue between old and new across a protected orchard while preserving the flexibility of a future physical link between buildings.

The project integrates low-energy, sustainable building systems aimed at reducing environmental impact and serving as teaching tools for the School and its broader community. A rooftop solar photovoltaic trellis generates 60,000 kWh of electricity annually and is complemented with a solar thermal panel system to satisfy domestic hot water needs. The trellis shades a garden roof, which functions as a pair of informal outdoor classrooms.

A low-ambient, high-task lighting strategy with vacancy sensors and daylight harvesting reduces lighting energy. Building-wide, a dashboard monitoring system monitors and communicates indoor and outdoor environmental conditions, as well as indoor energy usage, allowing occupants to make near real-time adjustments to reduce energy consumption.

The building's primary organizing element is its network of thermal corridors along the south façade, which utilize a relaxed temperature strategy to insulate interior spaces from direct solar gain. Coupled with tuned horizontal sunshade elements and operable windows providing natural ventilation, the thermal corridors significantly reduce the building's overall energy consumption.

A high-performance curtainwall with a varying ceramic-fritted glazing and vertical fin sunshades minimizes heat gain. At the ends of the building, these primary façade systems wrap the corner and are stitched together by expressive concrete stairs, a unique exterior experience made possible by the site's temperate climate.