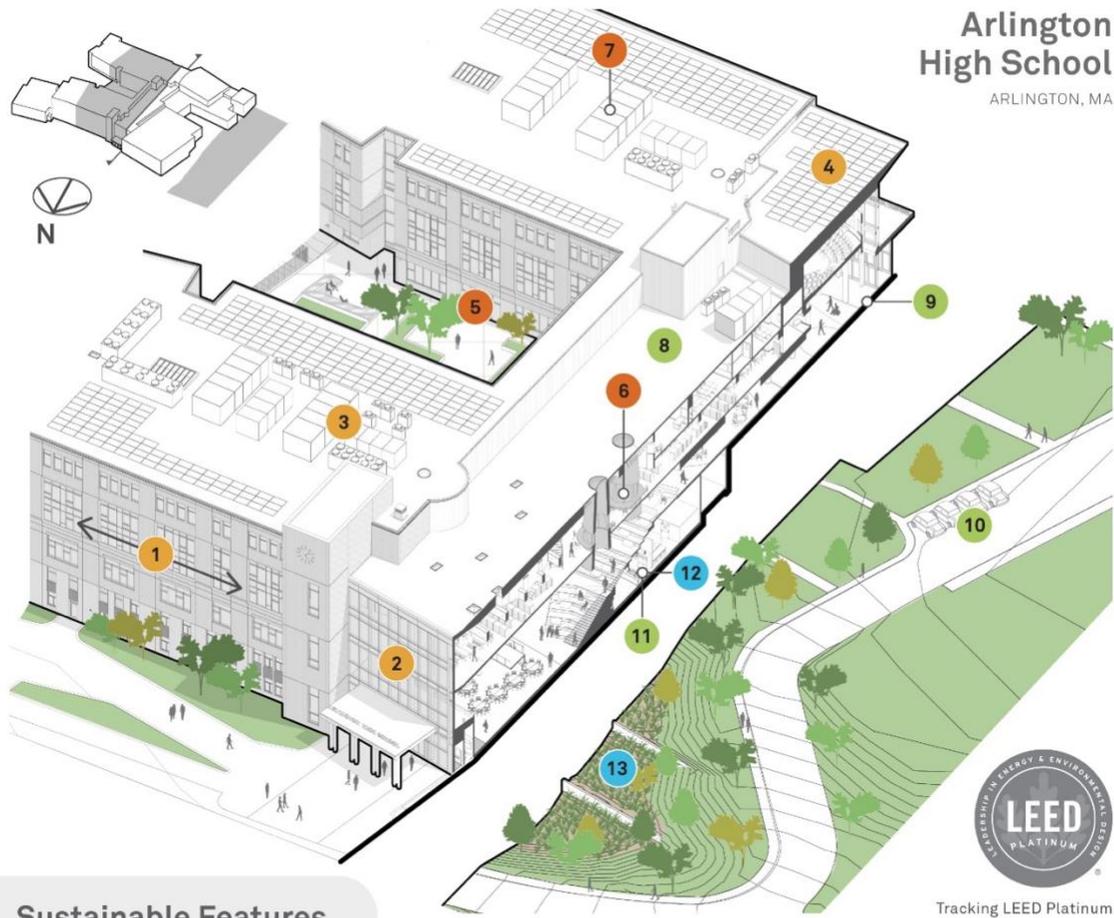


Arlington High School LEED Case Study

August 2025

Integrative Process

- A collaborative process between the design team and building users addressed site energy and water use with sustainability in mind from the start.
- The building's design helps Arlington make significant progress toward [achieving carbon neutrality by 2050](#), a goal set due to concerns about climate change.



Sustainable Features

Energy

1. Optimal solar orientation reduces the building's overall energy use
2. Triple pane curtain wall glazing
3. All-electric building
4. A 850 kW solar array reduces the building's energy use by 30%

Indoor Environmental Quality (IEQ)

5. Direct access from classrooms to outdoor learning environments
6. Multi-level lightwells bring daylight deep within the building
7. Energy recovery ventilation provides fresh, filtered air while recovering temperature from outgoing air

Carbon

8. Light-reflective roofing helps reduce energy used to cool the building
9. Low-carbon concrete
10. EV charging stations
11. Energy is reduced by using excess waste heat from electrical rooms to heat handwashing hot water.

Water

12. Low-flow fixtures conserve over 660,000 gallons of water annually
13. Rainwater collection gardens provide habitat for native pollinator species and prevent stormwater runoff

HMFH ARCHITECTS

When the new Arlington High School project is complete (anticipated September 2025), it will include the following sustainability features.

Location and Transportation

- Direct access to the Minuteman Bikeway and on-site bicycle parking encourages cycling as an environmentally friendly means of transportation.
- Accessible paths to the MBTA bus encourages the use of public transit, reducing carbon emissions and reinforcing a connection to the Arlington community.
- Retaining and revitalizing an existing central campus ensures equitable access to the facility by all town residents.
- EV charging stations support environmentally friendly transportation and are open to the Arlington community when school is not in session.

Sustainable Sites

- Rainwater collection areas retain stormwater and allow it to percolate into the landscape over time. This prevents stormwater runoff, which adversely affect the quality of nearby waterways.
- Exterior lighting reduces light pollution with fixtures that only direct light where it is necessary.
- Native pollinator gardens collect rainwater from the building's roof and provide a habitat for local pollinator species.



Water Efficiency

- Low-flow plumbing fixtures conserve over 660,000 gallons of water per year, the equivalent of an Olympic-sized swimming pool.
- Bottle filling stations throughout the campus promote reusable water bottles. Limiting plastic bottle use reduces the occupant's carbon footprint, and this carbon saving strategy is reinforced by the 'bottles saved' counter integrated with the stations.
- A rainwater garden collects rainwater from the school's roof, letting it percolate into the groundwater over time. This prevents stormwater runoff, which can overwhelm Mill Brook.

Energy and Atmosphere

- Arlington High School is all-electric, meaning no fossil fuels are burned on-site to operate the building. The primary systems include centralized Air-Cooled Heat Pumps (ACHP), Heat Recovery Air Handling Units (HRU), and Variable Refrigerant Flow (VRF) Systems.

- Daylight controls and vacancy sensors in classrooms and offices limit energy use by automatically dimming lights when there is sufficient daylight and turning lights off when a space is unoccupied.
- The north-south solar orientation of the classroom wings reduces the energy used for heating/cooling, particularly in the spring and fall. The building's mechanical systems harness excess heat from the direct southern exposure to heat north-facing classrooms.
- Solar power produced on-site through 850 kW of rooftop solar arrays and a parking lot canopy array (purchased through a power purchase agreement / PPA) reduce the building's energy use by over 30%.

Materials and Resources

- Red List Free materials are used throughout the building. These materials do not contain any chemicals of concern identified by the Living Building Challenge (LBC).
- Materials with recycled content are used throughout AHS, including structural steel, concrete in the foundation, roofing, linoleum flooring, carpeting, and ceiling tiles. Linoleum flooring is also made from rapidly renewable materials.
- Over 90% of construction and demolition waste was diverted from landfills through diligent waste separation.
- AHS is one of the first municipal building in Massachusetts to utilize low-carbon concrete. In low-carbon concrete, alternative materials replace cement, which is known for its high carbon footprint, while maintaining the same structural strength.



Indoor Environmental Quality

- Expansive windows and multi-level lightwells bring daylight deep within the building. This supports a healthy circadian rhythm and reduces the building's energy use and carbon emissions.
- To ensure appropriate acoustics, the school utilizes sound-blocking strategies and highly absorptive materials, including ceiling tiles in classrooms, felt baffles in communal spaces, and texturized acoustic spray in lightwells.
- Classrooms feature sloped ceilings to make room for mechanical systems while maximizing window height and daylight.
- Paints, carpeting, and other interior finishes use third party certified healthy materials. Keeping the air free of chemicals is critical to occupant comfort and indoor air quality.
- The carpet patterns incorporate biophilic design elements. Inspired by fractal patterns found in nature, the pattern is meant to give your eyes and brain a moment of visual rest from reading and studying.

Innovation

- Green Building Education is supported through sustainability signage installations in and around the building, as well as case study materials, which communicate the building's sustainability features.
- All light fixtures installed throughout the project are energy-efficient LED fixtures.



Photography, Robert Benson