# Massachusetts Schools Embrace A Sustainable Future
# 12/2/21
# School Descriptions

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**Boston Green Academy (BGA), Brighton, MA**

Boston Green Academy is a Horace Mann 'in-district' Charter School that is proudly part of the Boston Public Schools. Founded in 2011 by a committed group of Boston educators and community members, BGA is Boston's only school focused on sustainability and preparing the next generation of diverse leaders for college and green careers.

Originally asked by the Boston Public Schools to turn around a struggling high school, BGA in three years became the most improved high school in the Boston Public Schools and one of the most improved state-wide. In 2014, BGA moved to the historic Taft Building in Brighton (built in 1895) and began expansion to include middle grades. In 2017, BGA achieved the goal of becoming a full school for grades 6-12 serving approximately 500 students from every neighborhood and background in Boston. Currently, BGA enrolls 32% Students with Disabilities, 16% English Language Learners, 83% economically disadvantaged, and 93% Students of Color, all of whom are 100% amazing.

BGA continues to be one of the most improved and innovative schools in the Boston Public Schools and is proud to be the winner of the 2019 Massachusetts and United States Green Ribbon Schools Award for exemplary green and sustainable education. BGA currently offers a Chapter 74 Career and Technical Education program in environmental science among numerous green partnerships, sustainable curriculum, and project-based experiences for students.

**Bristol County Agricultural High School, Dighton, MA**

Bristol County Agricultural High School's renewed campus design weaves curricular goals with sustainable design elements to create facilities that function as teaching tools for students. The campus is a classroom, the site is an arboretum, and sustainable design features encourage important conversations about carbon and land use.

Bristol Aggie's 4 new buildings, 2 renovated building and their redesigned campus landscape are representative of the school's commitment to assuring its students are stewards of their environment. Each building achieves distinct energy and conservation goals developed through close collaboration with students, educators, and community members: The new Center for Science and the Environment is designed to LEED Gold standards, and the historic Gilbert Hall, also targeted to achieve LEED Gold, demonstrates the importance of reuse of existing buildings to conserve embodied carbon. The dairy barn is a net-positive energy building, and the exposed timber structure of the new Student Commons is a visible demonstration of an embodied, high-performance construction alternative. The landscape is composed of drought resistant plants and trees selected to broaden their arboretum's spectrum of species.

Sustainable systems including photovoltaic panels, highly efficient displacement air mechanical systems, and vegetative green roofs are integrated across campus, are highly visible to students, and will be available for research and teaching. A dry bed outside of the Center for Science and

nearby bioswales filter and slow stormwater runoff to help protect water quality in the adjacent Taunton River, an integral component in the School's Natural Resource Management program Campus-wide innovative water conservation strategies are projected to reduce water usage by 40%. Collected roof run off from the Center for Science and the Environment is used to irrigate the landscape, while eight composting toilets, the first ever installed in a Massachusetts public school, further reduce water use.

**Cape Cod Regional Technical High School, Harwich, MA**

The new Cape Cod Tech is a 220,000sf Career Technical School that replaced the outdated and under-sized 1973 facility on the same site. The school serves 650 students in 15 different Chapter 74 career programs. The building is organized into five academies reflecting the DESE career clusters and reinforces the schools Educational Vision by locating the CTE shops in close proximity to the academic classrooms. The new school also features a 21st century Student Commons, a Learning Commons, and a multi-purpose Performance/ Presentation space at the heart of the new facility. The open, light-filled design was inspired by the Cape Cod environment and the stepped two-story configuration minimizes its environmental impact while following the natural topography. The LEED-Silver facility features an extensive vegetated roof, photovoltaic array, and energy efficient displacement ventilation system.

**Hanlon-Deerfield Elementary School, Westwood, MA**

The new 113, 141 sf Hanlon-Deerfield Elementary School is consolidation of two schools, designed to support 560 students in grades K-5. The school sits on 45 acres of Town-owned land nestled within 400 acres of heavily wooded conservation land. Th
e natural wooded setting provided the inspiration for the design of the school, as a "school in the woods", in building placement, orientation and layout as well as exterior materials. Its form is composed of four massing elements connected to a circulation spine reminiscent of a tree with its roots, trunk, and branches. Each of the four massing elements was informed by the district's educational desire for grade level teams and a clear separation of public and secured spaces. By embracing this tree concept, the architectural characteristics allow occupants to experience the natural surroundings in nearly every space. The project is planned to be Net-Zero-Energy Ready, tracking 22 EUI, LEED v.4 Silver, using geothermal wells, and a future rooftop solar array. The school district has signed on to Mass Save/Eversource Path 1 NZE incentive program.

**Lincoln School, Lincoln, MA**

The Lincoln School revitalization project involves renovation and addition to the existing 138,000 sf one-story Smith and Brooks schools. These buildings are currently the only public school buildings in Lincoln and serve grades K through 8.
The Town of Lincoln is among the forefront in the area for land conservation and historic, modernist building preservation. The existing Smith and Brooks buildings are exemplars in modernist architectural design, and the renovation will continue to apply these principles.
In addition, the Town has set high standards and goals on this project regarding energy conservation as it strives to achieve NetZero Energy use. To achieve NetZero, the proposed design incorporates a combination of high-efficiency mechanical, electrical, and plumbing systems, including a 100% onsite solar PV roof and parking canopy system. The design also includes significant work on the existing façade to improve the thermal envelope. Integrating

these new elements into a renovated building all while honoring the original modernist detailing and architectural design makes this project unique and true to Lincoln's values.

**Minuteman Regional Vocational Technical High School, Lexington, MA**
Minuteman is a revolutionary new high school that unifies 21st Century career and technical programs with rigorous academics in two focused academies. Features of the new facility include large flexible classrooms, career and technical programs organized into innovative trade clusters, breakout spaces for small group learning, an outdoor learning courtyard, and a publicly accessed "main street" retail area complete with Cosmetology Salon, Culinary Arts Restaurant and meeting space, the Paul Revere Conference Room. A large bright, open cafeteria/commons area is the central organizing element which is the heart of the Minuteman school community. Additional retail areas including Automotive and Early Childcare Center with public access are located apart from the main academic areas for security purposes. All trade shops are designed with their own related theory classroom, large secure storage space, student lockers, outside access and lots of bright, flexible teaching space with state-of-the-art, hi-tech equipment.
The contemporary facility is utilized as a teaching tool with features that showcase individual trades and gives students and teachers the ability to interact with the systems and spaces. The overall massing of the facility is delicately positioned on the site with three distinct floor elevations stepping down the existing slope to minimize site excavation and disturbance. The visual exterior materials of wood and stone are intended to compliment the natural material characteristics of the adjacent Minuteman National Historical Park.

**Pierce School, Brookline, MA**
The Pierce School Feasibility Study evaluated several design options for a 180,000 SF, PreK-8 school for 725 students. The campus incorporates buildings from 1855, 1910 and 1974 on a dense urban site surrounded by the central Town institutions and commercial buildings. Options included renovation of the 1970's building, an addition, and new construction with the renovation of the 1855/1910 buildings. Sustainability analyses that helped inform selection of the preferred option included energy modeling, embodied carbon modeling, daylight and shadow studies, and outdoor thermal comfort modeling.
The selected option balances a majority of new construction to align with the District's pedagogic and decarbonization goals, with the renovation of the historic 1855/1910 building representing the cultural legacy of the site. The all-electric, carbon-free design is planned to include solar PV and geothermal.

**Stoneham High School, Stoneham, MA**
The town of Stoneham, in partnership with the MSBA is in the design development phase as they plan a new ground-up, net zero energy high school. With the intent of transforming the site's current ecological monoculture and reinventing the high school educational experience, the town will be constructing a new 207,000 GSF facility with a goal of being a fully electric zero on-site fossil fuel facility that generates 100% of its net yearly power on site. The new school will include the town's district offices, pre-k classrooms alongside a full suite of high school programs including engineering and maker spaces, media labs, a gymnasium, multi-function performance spaces, a scene shop and much more.

**Tobin Montessori and Vassal Lane Upper School, Cambridge, MA**
This project will provide new facilities for the Tobin Montessori School (Pre-K through grade 5), Vassal Lane Upper School (grades 6-8), Department of Human Services program's preschool and after school programs plus Special Start. In addition, the project provides an infrastructure opportunity to help mitigate street flooding in the neighborhood with the construction of a 1.5-million-gallon underground storm water tank on-site.
The project is being designed as a low energy use intensity, Net Zero Emissions Facility with emphasis on superior indoor environmental quality, reduced embodied carbon, integrated sustainable landscapes and stormwater management, and integrated sustainability education. The design team is utilizing extensive computational modeling to support data-informed design decisions.

**Walpole Middle School, Walpole, MA**
The new Walpole Middle School is planned for 905 students in grades 6-8. At just over 162,000 square feet the project has committed to the path 1 energy initiative with Eversource and has work toward a target EUI of less than 25. The Town of Walpole is a newer signatory to the MA Green Communities Act and this project will be the first major project in town to implement higher levels of sustainability and energy conscience design. The team has taken a multilayered approach to reducing the EUI starting with optimal solar orientation of the building within the tight occupied site. As the first project of its kind in town, the team has taken extra steps to educate the community about potential energy conservation measures including enhanced building envelope strategies, all electric building systems and true PV readiness.

**Watertown High School, Watertown, MA**
Watertown is known for its unique cultural environment that combines rigorous academics with career-based Chapter 74 CTE programs and pathways. The proposed new 720 student urban high school serving grades 9-12 will replace the existing high school located in the center of Watertown. The high school site is only 4.27 acres and offers limited land area for parking and outdoor playfields. The compact building footprint and underground parking garage maximizes site area for much-needed open space for outdoor student dining and learning, informal student gatherings, greenhouse, and gardens as well as a regulation playfield on the south side of the campus adjacent to Common Street.
The new Watertown High School will achieve net zero energy and is on a path to be certified LEED Platinum. The simplified building plan contains an academic core and a community core. The four-story academic core adjacent to Common Street contains academic clusters integrated with adjacent special education and vocational program spaces to promote the district's goal of multi-disciplinary learning opportunities and inclusive learning for all students. The two-story community core adjacent to Columbia Street contains programs utilized beyond the typical school day such as the multi-court gymnasium, elevated walking track, large auditorium, band and music programs, and fitness center.