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# Techniques

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431703  
 KYIA KORYTOSKI  
 Lower Pioneer Valley  
 174 Brush Hill Ave  
 West Springfield, MA 01089-1204

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# A REIMAGINED CAMPUS:

## BRISTOL AGGIE INVESTS IN THE FUTURE

By Laura Wernick

CULTIVATING EXCELLENCE

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A

project team of education stakeholders in Massachusetts gained tremendous knowledge about inclusion and student engagement as they worked to complete a 196,000-square-foot construction project. Bristol County Agricultural High School (Bristol Aggie) already had a strong reputation for its hands-on, skills-based education with programs in natural resource management, agricultural mechanics, animal sciences, floriculture, arboriculture, environmental engineering and landscaping. But an overhaul of the campus provided a perfect opportunity to articulate a new vision and rethink the delivery of career and technical education (CTE).

*Help students develop into curious, capable & well-rounded individuals.*



The project scope involved four new buildings and renovation of two others on the 220-acre rural campus with a working farm in Dighton, Massachusetts. New buildings include the Center for Science and the Environment, the Student Commons, a net-zero energy ready dairy barn, and a lab shared by the landscaping and arboriculture departments. The central academic and agricultural mechanics buildings were renovated. To connect the old and new components, a newly created pedestrian thoroughfare and nonformal learning areas unite the formerly siloed programs and foster cross-disciplinary collaboration. In addition to updating facilities, Bristol Aggie used this opportunity to entertain diverse inputs; engage community members, families, students and staff; and set clear goals for the future.

Bristol Aggie's new facilities represent a significant civic investment in high-quality CTE. The multifaceted nature of a project this size deserves thoughtful planning to ensure long-term success, and, to that end, should include input from all stakeholders. Three important steps contributed to a successful outcome.

## 1. FACILITATE AN INCLUSIVE VISIONING PROCESS.

An inclusive visioning process involves broad participation and open-ended thinking. Solicit active participation from staff, students, families, and community members, because diverse perspectives are so important. Finding time that works for all parties can be a challenge, but it's possible with careful planning.

### Consider the benefits of asynchronous design feedback.

Ask thorough questions about how the school has operated in the past and how it should operate in the future. Certain topics are crucial, such as admissions, student engagement and creating a welcoming place for all. At Bristol Aggie, this approach sparked an important discussion about balancing a skills-focused CTE program with academics embedded to create greater appeal for a diverse

student population.

Further, an effective visioning process engages participants in the whole project from design through to occupancy and future use. These efforts can generate renewed investment in high-quality program development and a welcoming, supportive culture. Most importantly, input from diverse sources helps prioritize and build consensus around project goals. For Bristol Aggie, stakeholders agreed upon five goals to shape the character of the buildings, campus, culture and learning experience.

1. Design facilities that enhance hands-on learning opportunities while serving as learning tools themselves.
2. Strengthen academic achievement through tighter integration of academic and skills-based programs.
3. Create a hub for students within the school to encourage greater social and academic interactions.
4. Develop a welcoming, accessible and unified campus where the outdoor environment is an integral part of the social and academic experience and the student motto — “Cultivating Excellence” — is manifest.
5. Integrate sustainability, resiliency and student well-being into every aspect of the physical campus and educational programs.

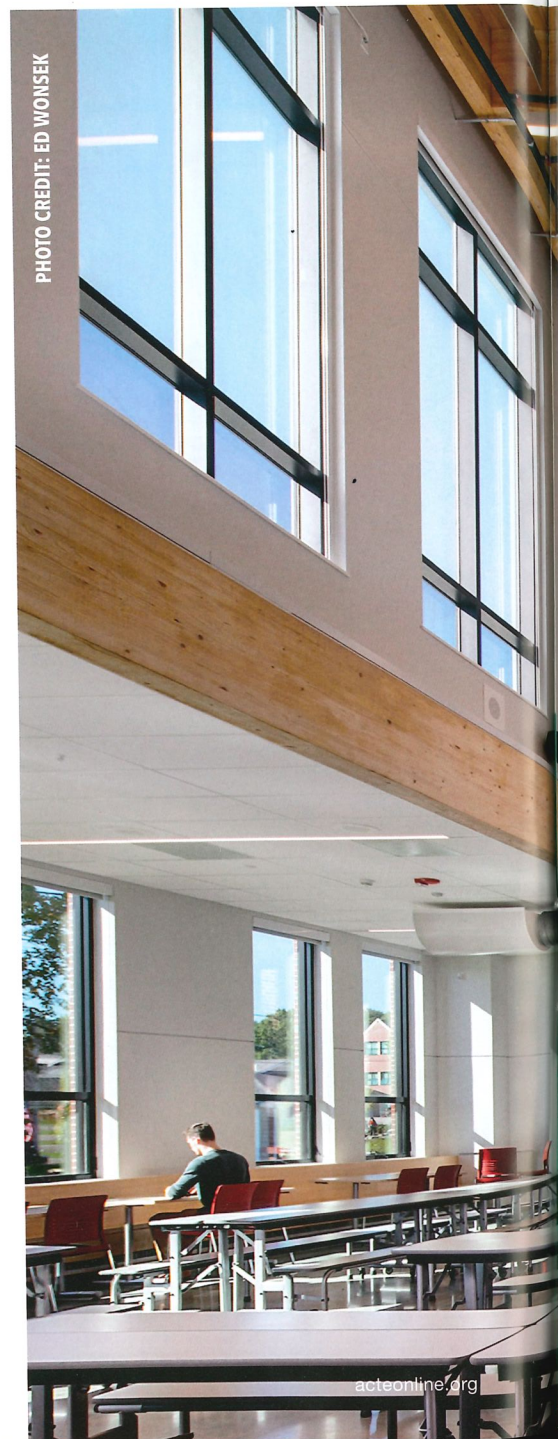
These goals became the project team's North Star throughout the design process, steering the course of decisions toward their fulfillment. When the team asked for buy-in from administrators and the community, they cited these goals to provide context.

## 2. COLLABORATE ON DESIGN DECISIONS.

With goals established, the project team asked: How can we turn the design process into a learning opportunity for students? And they worked in collaboration with faculty to make it happen. Bristol Aggie students participated in several different ways, which reinforced their academic work and helped create a sense of agency.

Landscaping and arboriculture students met with the design team early on to learn

about the process. In turn, they familiarized the designers with the on-site arboretum that hosts a range of tree and plant species. With help from the students and faculty, the landscape architects came to appreciate the diversity of tree and plant species on the campus. Later, as initial designs were generated, students discussed how they might contribute to the installation of new trees and plants.



The design team returned frequently to faculty and students for ideas, and to better understand their needs.

Then as the construction documents developed, the students learned about specifications and installation details and provided input. In the future, landscaping students

will learn how to install benches along the main pedestrian walkway, while arboriculture students will plant trees at designated points around the campus. And floriculture students will maintain and modify planting beds near the classrooms.

### **Indoor-outdoor connections**

As part of a design charrette — an intensive problem-solving activity — the team issued

a challenge to students: What should a combined dining hall and media center that welcomes all students look like? Students broke into small groups to explore and discuss the question and develop their own design solutions for a new Student Commons building. The students' designs prioritized places for socializing, strong connections with nature, plentiful natural materials like wood and stone, and



openness to the outdoors, particularly in the eating areas.

The emphasis on indoor-outdoor connections proved critical to the design. The dining hall opens to an outdoor patio that is very popular and used throughout the school year. Students sit on stone walls and steps as they eat in the sun and socialize. To extend its bucolic setting, the building features exposed timber and wooden ceilings throughout. These design elements make the building feel warm and welcoming, which the students wanted.

### Laboratories

Numerous aspects of Bristol Aggie's animal labs required precise and experienced input. How should cages be stored? How should they be cleaned and dried? And what sort of temperature control would be needed? Everything — from delivery of animal food and bedding to waste removal and lighting controls — was closely coordinated with faculty.

The Natural Resource Management (NRM) program expressed even more specific requirements for the aquatic support needs of each wild species under their care. Tanks need to be drained and cleaned, and water and air temperature maintained at variable and closely regulated intervals. Faculty helped the designers understand the parameters required for each species and each type of lab.

### Natural history museum

The design team also collaborated closely with the head of NRM to design a natural history museum, hosting a special design charrette to select the exhibits and discuss the infrastructure required. For many years, Bristol Aggie ran a small natural history museum in conjunction with the town of Dighton, Massachusetts. But this new opportunity led to more opportunity. How could a student-operated museum benefit all the students? What themes might be explored? How could the public be invited into the museum?

Now, it occupies the main corridor of the Center for Science and the Environment. With an inaugural theme of exploring Massachusetts' habitats from the sea to the mountains, students and visitors

learn about regional microenvironments. And NRM students set up displays that relate to their academic work. The museum is a showcase for students and the public alike to engage with and learn from the latest exhibits.

### Higher heights

In the climbing lab, arboriculture students learn how to climb trees, belay and descend. Previously, this was done solely outdoors. That was great when the weather cooperated but off limits for much of the year. With the new facility, students climb on a specially designed indoor structure, learning safe practices for handling ropes and equipment.

Involving faculty not only contributed to a successful design but also prompted teachers to invest in the physical environment to create learning experiences for their students. As the project neared completion, the project team developed an operations manual for the faculty with two goals: to explain how to use the lighting and temperature control systems in the classrooms, labs, and shops; and to describe opportunities within the buildings that can be used to support curricula. Examples include how the campus stormwater management system works, how the composting toilets function, and how the mass timber structure selected for two of the buildings reduces carbon dioxide emissions.

### 3. AUGMENT FACULTY AND ARCHITECT EXPERTISE WHEN NEEDED.

Substantial project benefits were realized by bringing in outside experts from a variety of disciplines to consult on the design of the new school. This happened most notably at the dairy barn. Although the campus already had a knowledgeable dairy herdsman on staff, advice from specialists in robotic milking, manure removal and cow health was necessary to design a facility for the future. The herd gained a modern, comfortable home. And students now thrive in a technologically advanced learning environment. The skills they de-

velop by using, gathering data from, and maintaining the equipment will better position them for employment and professional growth.

Additionally, public safety officials and building inspectors must provide input on every project. So the project team reached out early to Dighton officials, both for guidance and to foster transparency around plans and goals. This created a culture of open communication in all project phases. For instance, the town's plumbing inspector worked with the team to get approval from the state for the composting toilets that were installed.

Bristol Aggie is also home to community-based activities that use the campus throughout the year. Agricultural groups such as 4H and the regional Beekeepers Association meet regularly in the school, so their input was valuable. Including local groups such as these in the process of high-quality CTE facility design will build support, trust, and a sense of community.

### CONCLUSION

Cohesive and inclusive teamwork was necessary to plan, design and construct this campus-wide improvement project. All stakeholders share in its ultimate success: the Massachusetts School Building Authority; Bristol Aggie's administration, faculty, staff and students; a multidisciplinary design team led by HMFH Architects; construction management professionals from Gilbane; and county and township officials and the community at large. At the ribbon-cutting ceremony held on May 23, 2022, former school Superintendent Adele Sands echoed this sentiment by saying, "Bristol Aggie is an extraordinary place. The students deserve school buildings that support the education they receive every day. And now we have them, thanks to all of you." ■

**Laura Wernick, FAIA, LEED AP**, is a senior principal with HMFH Architects in Cambridge, Massachusetts.

### Welcome to the Bristol County Museum of Natural History

The Bristol County Museum of Natural History was established in 1992 with the creation of the Natural Resources Management Department vocational program. Originally housed in a 19th-century barn, the museum first opened with only four exhibits featuring mounted specimens of local birds bequeathed to the school in the early 1920s by eminent ornithologist and Taunton resident, Arthur Cleveland Bent (1866-1954). Bristol Aggie students have played a central role in designing, building, and maintaining all of the exhibits. Over the years the museum and its collection have since grown beyond the barn and the Bent Collection to include exhibits featuring the range of regional biodiversity and the history of man's interactions with it, including dozens of live animals.

From the Blue Hills to Buzzards Bay, the Worcester Plateau, Race Point, Horseneck Beach, Taunton River, Wachusett Reservoir, and Nomans Island the landscape of Southern New England is extremely diverse. Dunes, swamps, woodlands, streams, pine barrens, salt marshes, lakes, meadows, bogs, family farms, bays, and rocky hills can all be found within fifty miles of this campus. Each provides an important and unique habitat for wildlife. The Bristol County Natural History Museum provides opportunities to learn about our shared natural heritage so that we may better enjoy, appreciate, and take care of it.

*"Dull indeed would be the man that did not feel the thrill awakened by the first glimpse of brilliant color in the woods, and the cheery warbling notes come to our ears on the first gentle breath of spring!" -Arthur Cleveland Bent*

