2019 James D. MacConnell Award

Bluestone Elementary School
Harrisonburg City Public Schools
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76% of building users said that the building makes them feel happy.
Executive Summary

Harrisonburg, VA is a refugee resettlement community experiencing tremendous growth. Over 35% of Harrisonburg City Public School (HCPS) students identify as English Language Learners, representing over 60 countries and speaking 58 languages. Guiding principles of Bluestone Elementary School’s design included celebrating this amazing diversity, fostering a sense of inclusion, and offering flexible learning opportunities in a net-zero energy ready environment that’s able to evolve and expand with the growing school community.

Celebrating diversity began with designing for the endlessly different needs of students. Bluestone Elementary School emphasizes a variety of spaces and scales for differentiated learning opportunities while creating welcoming public areas that embody the school’s commitment to learning in an inclusive environment. An active landscape and wayfinding system celebrating Harrisonburg’s unique geography and ecology empower the diverse population of students to become stewards of this special place while feeling connected to the larger world around them.

Social equity at all scales was a driving force during community engagement and design. At the local level, prioritizing social equity meant aggressively pursuing a compact building footprint to provide equivalent student/open space ratios to other HCPS campuses. At the regional scale, recognition of the Chesapeake Bay’s watershed health led to a site design that uses a combination of “soft” and “hard” stormwater infrastructure to exceed local retention and treatment requirements. At the global scale, commitment to net-zero energy recognizes the Harrisonburg community’s role in combating climate change and its responsibility to propose solutions for this and future generations.

The architect worked with the Center for the Built Environment (CBE) to develop a custom post-occupancy evaluation module to better understand how the architecture and site promote key project goals to elevate the social, emotional, and physical health of its occupants, and to inspire environmental literacy. While reading this submission, you will see stats and feedback from the CBE survey incorporated, showcasing how the design of the school is making a difference for the city of Harrisonburg and the Bluestone community of learners.
“Bluestone is our sixth elementary school. Our oldest school was built in 1911. When the issue of parity comes up, I respond that we’re building up. **We’re building for our future.** We’re committed to doing the best that we can for kids. We’ve raised the bar, and **everyone benefits from that.**”

Craig Mackail
HCPS Assistant Superintendent
Ambitious planning goals for Bluestone Elementary School included the creation of a net-zero energy building, as well as pursuit of LEED certification (the building is currently tracking LEED Gold). The building serves 755 students in grades K-5 with three stories that are approximately 103,000 gross square feet.

Bluestone is one in a series of school projects that will reflect the 21st century educational needs, goals, and core beliefs of the city of Harrisonburg. The school and its program accommodate expanding services and enrollment within the city, and foster new and dynamic relationships between academic, cultural, and recreational spaces.

The Programming Phase included a series of visioning and work sessions with a diverse steering committee and design advisory group to formulate programmatic and environmental opportunities for the school. The goal of these work sessions was to establish the planning principles for the city of Harrisonburg’s 21st Century Schools initiative, identify space requirements to support the diverse instructional needs of the students, and create a space program that reflects the educational goals of HCPS.

The school opened in August 2017 and was constructed for $26,682,344.

**Scope of Work + Budget**

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<td>Project Cost (with sitework):</td>
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86% of building users responding to the CBE survey said that the school is a community asset.
The inclusive planning group consisted of about 20 representatives with diverse perspectives, including teachers, special educators, food service and facilities staff, and district leadership. Community meetings with parents and staff utilized Design-Thinking strategies to develop empathy, brainstorm about possibilities, set goals, and prioritize outcomes. Cumulative responses informed both the programming and design processes—and contributed to the development of a school culture dedicated to equity and respect, where relationships are foundational and students are welcomed and valued.

"At Bluestone, we're learning to take care of ourselves, to take care of each other, and to take care of our school. The students understand that this is a special place. It inspires stewardship."

Anna Lintner
Principal
School District Growth

As part of the planning process for the new elementary school, the design team reviewed all HCPS building capacities and assessed various factors driving growth in specific areas of the student population. School district administration provided leadership in ensuring that the large 103,000 GSF school provided needed services without creating equity gaps in relation to older, existing schools.

Working with the Weldon Cooper Center at the University of Virginia, the design team aligned strategic analysis of enrollment projections with facility needs and educational goals, building consensus and buy-in from stakeholders along the way.

The analysis produced two main recommendations:

- Grade Realignment: 5th grade has been moved back to the elementary level to alleviate strain on middle school capacity. Multiple site options for a new Early Learning Center, a new elementary school, and a consolidated complex were studied. Final sites for Bluestone and the Early Learning Center were selected and approved.

- Redistricting: The City’s school district borders were revised to re-balance enrollment and ensure equity and access to the new schools.
Grounded in Place + Community

The school’s location is a greenfield site located at the edge of the city of Harrisonburg. Responding to a gently sloping topography, the design of the school steps down with the land and opens up expansive views to the surrounding mountains and Shenandoah Valley. The design team studied the path of the sun, prevailing winds, views, and safe ways to connect the site to the surrounding area through roadways and pedestrian connections. Visual and physical connections to Harrisonburg’s natural beauty contribute to a strong sense of place and ‘rootedness’ that furthers the planning group’s goal to celebrate and create community.

Inside and outside, the school creates differentiated learning opportunities that encourage students to take ownership of their school and school community. Through environmental graphics that celebrate the beauty, resources, and diversity of Harrisonburg, students learn to become caretakers of each other, their school, and their community. This sense of responsibility stems in part from the school leadership’s commitment to celebrating diversity and promoting community, which is reinforced both in Bluestone’s physical environment and in the culture that administrators and teachers are dedicated to developing for students.

“The three-story design allowed us to preserve and maximize site space for outdoor learning and movement. Every design decision was intentional to promote community and learning and health. Bluestone is not in a neighborhood, but it’s definitely a community school.”

Craig Mackail
HCPS Assistant Superintendent
Welcome to Bluestone

750 Garbers Church Road
Harrisonburg, VA 22801

Exploring Bluestone Elementary School is like trailblazing through the Shenandoah Valley. Each floor of our school represents a geological layer of the region while each hallway becomes a trail you would find in that region. Continuing down the trails, each classroom is a local animal that would be found in that trail's surrounding landscape. Our school celebrates all of the unique landscapes and fauna our region has to offer!
As soon as you enter the school, you know that you are welcome. This generosity of spirit is modeled by Principal Anne Lintner, expressed in the way teachers, students, and staff treat one another, and reinforced by the way people interact with the building, as if it belongs to everyone. A lot of this attitude has to do with the care and camaraderie demonstrated by the teaching staff, who were critical to the design process. For many staff members, it was important for the design to celebrate cultural diversity and global contexts while supporting personalized learning needs, including the need to belong. As a result, all social and physical elements of the building were designed to help students relate to the larger world while feeling part of a community designed just for them.

Public spaces radiate outward from the lobby and create a welcoming arrival sequence. One of the first things visitors see upon entering the lobby is a representative international flag exhibit that highlights the diversity of the student population. This global celebration is complemented by extensive wayfinding highlighting local geography and strategic views to nature showcasing the unique beauty of the Shenandoah Valley.

Stepping down a level from the lobby, a welcoming Dining Commons features local wood and stone details that create a unique sense of place and emphasize the significance of dining, sharing, and gathering as a community. Windows in entry-level shared spaces overlook the Commons and enhance visual connections within the school environment.
80% of building users said the building enhances their connections with students.
Learning Neighborhoods

Bluestone features 42 core-learning studios organized into grade-level neighborhoods. Neighborhoods are scaled to encourage relationship-building, collaboration, and novel curricular arrangements that enhance learning, while allowing for flexibility in how the spaces are used.

Bluestone’s dynamic learning neighborhoods maximize flexibility, visual connections, and physical proximities through open areas, reconfigurable spaces, and transparency. The model consists of 5 main space types:

1. **Open Studio**: A double-core learning studio with an operable connection / partition that can support team teaching. The studio is open to circulation.
2. **Super Studio**: A double-core learning studio with separation from circulation.
3. **Single Studio**: A single-core learning space with separation from circulation.
4. **Shared Staff Resource / Meeting**: A space for team planning with visibility to circulation.
5. **Small Group Resource**: A space for small group and one-on-one learning with separation from circulation.
Flexible Studio Spaces

A. OPEN STUDIO
B. SUPER STUDIO
C. SINGLE STUDIO
D. SHARED STAFF RESOURCE / MEETING
E. SMALL GROUP RESOURCE

- FLEXIBLE CONNECTION
- PERMANENT CONNECTION
- MOVABLE PARTITION

1. STUDENT + TEACHER RESOURCE STORAGE
2. MOVABLE PARTITION
3. SINK + RESOURCE AREA
4. TACKABLE SURFACE
5. READING WINDOW NOOK
6. STUDIO TOILET (K/1)
7. THRESHOLD BENCH
8. INTERACTIVE TECHNOLOGY
9. WRITABLE WALL
Agile, Adaptable Learning Spaces

During the planning process, educators expressed a desire for team teaching. The resulting design promotes teacher and student collaboration and individualized learning by creating spatially-diverse neighborhood environments that provide a variety of flexible scales and arrangements. Breakout spaces and resource hubs are distributed throughout the neighborhood to empower one-on-one collaborations that complement the project-based work occurring in studios.
Learning Made Visible

Beyond the core learning spaces, opportunities for small group learning, collaboration, social connections, and physical activity are embedded throughout the school. In Grades 3-5, Exploration Rooms and makerspaces support STEM programs and hands-on learning. For all grades, a variety of active spaces—such as a climbing wall, movement center, and cozy niches furnished with active, reconfigurable furniture—encourage healthy movement and social engagement. Strategic visual connections throughout the building and to the landscape beyond promote school community, allow for passive surveillance, and celebrate the beauty of the natural environment.

“Sometimes people ask why there aren’t doors on some of the classrooms. At Bluestone, we know that learning doesn’t begin and end at a door. Learning is on display here, and learning happens everywhere.”

Anne Lintner
Principal
Physical Environment

90% of building users feel this building fits with the surrounding environment.
Responding to Site + Context

The 10.8-acre site is a unique post-agricultural landscape with varied topography, rock outcroppings, and sweeping views of the mountains – affording dynamic opportunities for a place-based learning landscape. The school’s compact, three-story massing maximizes site area for play and outdoor learning while the landscape supports environmental and human health education by creating a communal, active, and bio-diverse habitat.

Oriented east-west, learning wings maximize daylight and limit glare in core learning spaces. Extending from core learning areas are unique outdoor learning environments carved out of the site’s topography. Boulders and trees harvested during construction are re-purposed in the landscape as natural site and play features and are paired with native grasses, trees, and wildflowers that support visible water conservation and stormwater management.

“We have a lot of great outdoor spaces at Bluestone, but the kids’ favorite playscapes are the salvaged logs and boulders from the original site. There are always kids on those!”

Craig Mackail
HCPS Assistant Superintendent
High Performance Building

The school’s design features a high performance building envelope, reduces water and energy use, incorporates healthy low-emitting materials, promotes natural daylighting and abundant views to nature, ensures healthy air quality, employs innovative stormwater capture and management, and provides a geothermal HVAC system.

Based on the first full year of results, actual energy performance (18.7 EUI) is close to modeled (18 EUI) – 75% below the national average, meeting the AIA’s 2030 Commitment. Bluestone’s 450 kW PV array was not included in final construction budget, so it is not yet a net-zero energy facility. However, the project catalyzed the conversation district-wide, and in December 2018 the HCPS School Board announced that they contracted with a provider to install arrays at all six HCPS schools in 2019.

Built into the topography, the school features a 2-story K-1 wing stacked in proximity to the central whole-school communities dedicated to dining, music, art, language, movement, and the media lab. The 3-story 3-5 wing steps down with the hillside to offer older students greater independence and mobility to and from shared areas. The proximity of the wings encourages collaboration between grades and promotes shared resources and blended learning, particularly between grades K-1, 2-3, and 4-5.
Health + Learning Made Visible

Modeled after a “garden patch” serving model, the Dining Commons is visually and physically connected to outdoor raised beds, learning gardens, and a variety of nature-based play spaces designed to incentivize healthy decisions, activity, and creativity. Outside each of the four school entry areas are unique outdoor patios, terraces, learning meadows, and outdoor classrooms carved out of the site’s topography.

Similar to indoor learning neighborhoods, outdoor learning spaces emphasize a variety of scales, allowing for a diversity of programming from science experiments and art classes to community events to occur at any time. Through a flexible program that promotes learning, activity, and community, Bluestone’s architecture celebrates diversity while honoring the school’s core values of creativity, expression, and identity.

“We have a lot of great outdoor spaces at Bluestone, but the kids’ favorite play-scapes are the salvaged logs and boulders from the original site. There are always kids on those!”

Craig Mackail
HCPS Assistant Superintendent

“It’s an easy connection. The building supports increased opportunities for 4C skill development – creativity, collaboration, communication, and critical thinking!”

Anne Lintner
Principal
Place-Based Wayfinding

Through environmental graphics that celebrate the beauty, resources, and diversity of Harrisonburg, students learn to become caretakers of each other, their school, and their community. The school’s wayfinding emphasizes the school’s natural context to support vertical theming between floors and horizontal theming between grade levels. Levels 0-2 correspond with local natural systems including; Grand Caverns (Level 0), Shenandoah Valley (Level 1), and the Blue Ridge Mountains (Level 2). In celebration of the 100th anniversary of the National Park System, wayfinding across the school recalls hiking trails in the Shenandoah Mountains to enhance navigation and provide a sense of adventure for students.
Results of the Process + Project

93% of building users feel more connected to nature + the outdoors
Overview of Findings

As part of its mission to foster community, Bluestone makes deep connections to its watershed, its ecosystem, and its history, while at the same time drawing parallels to the other areas of the world. These connections within the building are spatial — maximizing views to the outdoors within the teaching spaces and aligning common areas with key sightlines to the surrounding Shenandoah Valley. They are experiential — allowing students to experience and study the effects of daylighting, rainfall, and changes in weather on the environment. Connections are intellectual, through environmental graphics and wayfinding explaining Harrisonburg’s unique natural setting and drawing parallels around the world; and pedagogical, through a place-based learning landscape.

Empirical evidence from the school’s first year indicates increased student creativity and activity; increased student responsibility for personal learning and caring for their school; increased parent appreciation and community engagement; and increased staff collaboration, inspiration for their work, and excitement for new opportunities.
The architect worked with the Center for the Built Environment (CBE) to develop a custom post-occupancy evaluation module in conjunction with CBE’s standard K-12 post occupancy survey. Bluestone is the first project to deploy this new questionnaire, which asks staff questions about safety, community, health and wellness, and sustainability. In general, feedback on the design has been very favorable, including the following results—all of which exceeded CBE’s K-12 benchmark averages:

- 93% responded that the building makes them feel connected to nature.
- 90% responded that the building makes them feel happy.
- 90% were satisfied with the light quality.
- 86% were satisfied with the air quality.
- 80% agreed that the building enhances their connections with students.
- 83% of respondents were satisfied with the temperature of their workspace.
- 80% of respondents said the building supports their physical health.
- 76% of respondents said the building promotes a sense of safety.
Creating a Sense of Ownership

In the new school, creative and critical thinking is enhanced through hands-on learning opportunities and fostered by a project-based learning curriculum. Applying this curriculum in the new school's setting was a major goal identified during the planning process at the school and district levels. After two years, students are more willing to take risks, try new things, and develop creative solutions to problems posed by teachers and others. Flexible, adaptable spaces allow students to be agile and independent while experiencing the benefits of learning in a shared environment.

Since the school’s opening in fall 2017, teachers and administrators have noticed students exhibiting ownership over the school’s physical and communal spaces. “Students are learning how to be caretakers not only of themselves but also for each other, their school, and their environment,” states Anne. Before and after large events in the school, students have started to help clean up in an effort to “pitch in and help out.” Sometimes, students choose to remove their shoes at a classroom’s doorway if they’ve become particularly dirty during recess or other outdoor activities.

An example of students learning the value of stewardship involves one of the school’s Scrabble Walls, located in a collaborative hub. Anne shared that one day some of the Scrabble pieces went missing, which led to the board being taken away for a period of time. “Students eventually advocated that the board be put back in use, claiming that they could use it and take care of it.” When the board went back into use, one of the first messages posted on it was: “We Love Bluestone” – a testament to the students’ belief in their role as stewards and caretakers of the school. Now, students routinely post messages on the board and have learned to share the space.
Many of the students who attend Bluestone have never seen some of Harrisonburg’s natural features – such as the Grand Caverns, Shenandoah Valley, and the George Washington and Jefferson National Forests – much less put their hands in dirt or feet in local rivers. The area’s natural systems, and the respective flora and fauna found in them, are celebrated in the school’s theming and educational signage, which are organized by floor – Caverns (Floor 0), Valley (Floor 1), and Mountains (Floor 2). To bring this signage to life for students, teachers have organized field trips to the Grand Caverns, Shenandoah National Park, and nearby lakes / rivers and, closer to home, aligned curriculum with activities in the gardens and outdoor active learning areas.

Principal Anne Linter shares that students have expressed a greater appreciation for the natural world around them and interest in taking care of their garden and outdoor areas – inspired in part through the signage and associated field trips, but also through the school’s plentiful views to the mountains which are a constant reminder of place and placemaking.

As a new annual tradition, the school year culminates in “Bluestone is for Learners” Day – where hands-on learning is celebrated as a means to prompt answers to the broad question: “How do people, plants, and animals live together and support each other in the Shenandoah Valley?” As Bluestone’s version of a field day, various stations are set up with different activities that are led by teachers and community partners from the surrounding region. Representatives from the National Park Service, James Madison University, and local food and nature agencies like Shenandoah Growers engage students in activities related to agricultural history, water systems, beekeeping, recycling, symbiotic relationships, local music heritage, and active movement and yoga exercises.
The building is used around the clock for various community and school-related activities before, during, and after the school day. Recitals, presentations, and community meetings regularly take place in the lobby and movement center. As students, teachers, and community members become more familiar with the school, more uses are found for gathering, sharing, and enjoying each other’s company.

High school students from across the street mentor students through an iSTEM program that utilizes Bluestone’s makerspaces. Community partners at the National Park Service, James Madison University, and Eastern Mennonite University are often invited to make presentations or collaborate with teachers and students on specific projects. And most recently, a special piano recital was held for two students who learned piano on the school’s keyboard located in the lobby.

“One of our original planning goals was to ‘use it all the time.’ We wanted the school to be a shared community asset. We get a lot of requests for community use of the building, and the school hosts many evening and weekend activities. Someone recently requested use of the dining commons for a wedding. It’s a beautiful space, but we’re not set up for weddings!”

Craig Mackail
HCPS Assistant Superintendent
Educational Specifications / Visioning

“So many schools seem to isolate children and teachers; this school brings people together and contributes to a sense of trust. That was our goal from the beginning.”

Anne Lintner
Principal
Educational Specifications + Visioning

Educational visioning sessions outlined a number of challenges that were resolved during design:

1. Optimize space on a tight 10.8-acre site while providing a variety of learning spaces by:
   - Analyzing compact footprints to ensure Bluestone received equivalent student/open space ratios
   - Creating a 3-story solution with numerous views outside + roof space to support net-zero ready design
   - Overlapping commons with circulation to increase spatial efficiency while supporting community building
   - Designing flexible, reconfigurable learning spaces to allow for a future-proofing of space

2. Serve a diverse + growing school population through personalized-learning and community building by:
   - Providing grade-level “learning neighborhoods” that support autonomy + collaboration for a diversity of needs
   - Creating a welcoming arrival sequence that celebrates the school’s cultural diversity
   - Situating community-centered activities like dining and gathering at the center to heighten connection

3. Create a sense of community, despite the project’s rural setting and distance from a neighborhood by:
   - Linking the school to share-used walkways, parks, greenways, and public transportation routes
   - Grounding students in the local context through place-based graphics celebrating local geography + stewardship
   - Locating 3rd-grade students in a wing stacked in proximity to the central whole-school amenities
   - Locating older students in a 3-story wing to offer greater independence + mobility to and from shared areas

**2.00 PRIMARY GRADES K-2**

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**2.0A EXT Outdoor Learning Forum + Playscape**

1. **SPECIAL EDUCATION**

   - Locate all on-floor of exit discharge

2. **STUDENT SERVICES / SPECIAL PROGRAM**

   - As Required

3. **ART CLASSROOMS**

   - As Required

4. **MUSIC CLASSROOMS**

   - As Required

5. **MEDIA CENTER**

   - As Required

6. **CAMPUS HUBS**

   - As Required

7. **RECOMMENDED PROGRAM**

   - As Required

8. **TOTAL**

   - As Required

**Note:** All dimensions given are approximate.