KELLAM HIGH SCHOOL REPLACEMENT
A Prototype for 21st Century Learning
Virginia Beach City Public Schools
Virginia Beach, Virginia
www.HBAonline.com
Controlled entrances and clear separation of parking areas maximizes visibility and safety.

Infiltration gardens in the parking islands reduce run-off.

100 ft. wide reforestation buffer separates the school from an adjacent neighborhood.

Geothermal System reduces the building’s heating and cooling cost.

Cross Country trails form bridges over existing wetlands to minimize disturbance.

Targeted to achieve USGBC LEED Gold Certification and

Retained existing forested area on site.
From the beginning, this new 2,000 student high school was envisioned as a prototype for 21st century learning. We established three clear objectives that would define success for this project:

1. Involve full spectrum of stakeholders in collaborative planning and design processes to maximize the value of design-thinking across diverse networks and also to achieve user and community “buy-in.

2. Design a high school facility that will facilitate and support the implementation of a new curriculum and assessment model founded on the principals of student-centered challenge-based learning and focused on developing skills in critical thinking, creative thinking, collaboration and communication.

3. Create challenge-based learning opportunities for Kellam HS students that are integral to the planning and design process for the new school and that are collaborative efforts with the design team; incorporate design themes and elements into the school facility that will encourage students to become engaged as lifelong “sustainable citizens”.

A Prototype for 21st Century Learning
Planning for the new Kellam High School started with the entire school division. School board members, teachers, students, design professionals, and various others met to discuss the program and preliminary space requirements. Further meetings were held to discuss the kind of spaces that would be needed to develop 21st century skills through project-based learning. Site Planning charrettes were held with neighboring community members to develop a site plan that featured proper adjacencies, buffers, and connections.
Many of the features of Kellam High School pay tribute to the local agrarian environment.
Community Environment

Part of the project-based learning curriculum at Kellam High School has enabled students to interact with local businesses. Students practice beekeeping and the harvesting of honey on the school site with the help of a local beekeeper. They sell loofah plants, grown on the green screen in the Educational Courtyard, at the local farmers market. The school also hosted the Hampton Roads Sustainable Living Expo in 2014, allowing community members to use the space to showcase local sustainable movements.
This High School is an educational facility that has truly been designed from the inside out, planned to support and facilitate a new challenge-based learning curriculum focused on engaging students in their own learning, and collaboratively designed by the stakeholders who will benefit from its realization. This unique and innovative design directly responds and correlates to the new curriculum, and serves as a model for future schools in the area. Through participating in the design and planning of this educational facility, the entire community has produced a new school that they can respect, take pride in, and get excited about.
Learning Environment

The **Learning Commons** are at the core of each Learning Community, encouraging exploration and interaction.

**Designed for Adaptability**
The Learning Community is designed like a tenant fit-out in an office space: all walls are non-load-bearing partitions, allowing the entire space to be completely re-configured in the future without major expense.

The science lab opens directly to the experiential lab to support team teaching of multi-disciplinary curriculum.

Two Smart Boards and Three projectors in each Experiential Lab space give many avenues for the display of student work.

Collaboration Stations allow small groups to share their laptop screens by connecting to a toggle and large display monitor. Sharewall white marker board surface is writable, projectable, and magnetic.
Innovative Learning Spaces
All Learning Community spaces are designed to facilitate student discussion and collaboration, as well as presentation and demonstration. **Student Centered Problem-Based Learning** is successful when the educational model provides for inquiry-based, multi-sensory, multi-path, collaborative learning that has real-world context. Students come to understand that problem solving is an interdisciplinary and iterative process, and that there is no one right answer; rather, that there are a multitude of possible solutions and that each have benefits and consequences.
Physical Environment

The myriad of sustainable strategies present in the school provides students with numerous opportunities to interact with environmental systems both in the planning phase and in the post-construction operations & maintenance phase.

All common spaces are flooded with natural light, and each classroom is designed with sloped ceilings and light-diffusing windows in order to capture the most daylight possible. This increases student productivity and reduces the need for electrical lighting. A high degree of transparency between Learning Commons and Classrooms promotes active learning and peer review for both students and teachers.

The interior color scheme is one of muted earth tones which promotes a sense of wellbeing and a connection with nature. Interior finish materials are both sustainable and easy to maintain.
Rainwater from adjacent roofs is collected and added to the irrigation runoff in **Rainwater Runnels**, which meander through the Amphitheater, gathering areas, and outdoor café as a visual reminder to students of the role of water in their school and environment.

The **edible garden** contains planter boxes, a greenhouse, composting bins, and an outdoor classroom constructed from sustainable materials.

The planning, planting, maintenance, and harvesting of the garden will be fully incorporated into the science and culinary arts curriculum.

Rainwater from adjacent roofs is collected for **sustainable irrigation** and run-off is directed through the gathering garden.

Seating areas and sustainable decking are interspersed within a **natural marsh environment**, allowing students to directly observe water infiltration: the completion of the water’s journey through the educational courtyard.
**Stakeholder Engagement in Planning Process**

- **Kellam HS Educational Specifications Planning Process**
  - VBCPS Teaching & Learning Staff, KHS School Administrators, KHS Teachers, Parents, Community Members, Students, Educational Planning Team
  - Guiding Principles, 21st Century Skills, Challenge-based Learning Activities
  - Prototyping Learning Environments for Desired Learning Activities
  - Learning Community Organization Options, Connections and Transparencies

- **Site Planning & Design Charrettes**
  - Neighboring Community Members, KHS School Administrators, KHS Teachers, Parents, Students, Design Team
  - Orientation, Visioning, and Develop Design Goals
  - Site Planning Options
  - Refine Site Planning Options to Preferred Concept and Define Relationships to Adjacencies

- **“Library of the Future” Planning**
  - KHS Library/Media Center Specialists, VBCPS L/MC Director, KHS Principal, Design Team
  - Orientation, Visioning, and Develop Design Goals
  - Site Planning Options
  - Refine Site Planning Options to Preferred Concept and Define Relationships to Adjacencies

- **Furniture & Equipment Planning**
  - VBCPS Teaching & Learning Staff, KHS School Administrators, KHS Teachers, Educational Planning & Design Team
  - Benefits of Educational Commissioning
  - Educational Commissioning for 21st Century Learning Environments

**Project-based Learning Strategies & Implementation**
- VBCPS Teaching & Learning Staff, KHS School Administrators, KHS Teachers, Educational Planning & Design Team
  - Benefits of Educational Commissioning
  - Educational Commissioning for 21st Century Learning Environments

**Educational Courtyard Planning & Design**
- KHS Students, Design Team
  - Orientation & Visioning
  - Student Group Presentations & Judging
  - Finalist Student Group Presentations & Judging
  - Design Team Presentations to Students for Feedback

**Stakeholder Engagement in Planning Process**
- **Building Planning & Design Charrettes**
  - VBCPS Teaching & Learning Staff, KHS School Administrators, KHS Teachers, Parents, Community Members, Students, Educational Planning Team
  - Continue Learning Community Development
  - Building Organization Development
  - Continue Learning Community & Building Organization Development
  - Integrate Site Planning Development, Revisit Connections & Transparencies

**VBCPS Division-wide HS Educational Specifications Process**
- School Board Members, Division-wide Teaching & Learning Staff, Division-wide School Administrators, Division-wide Teachers, Parents, Community Members, Students, Educational Planning Team
  - Orientation & Visioning
  - Prototyping Learning Environments for Desired Learning Activities
  - Drafting Program and Preliminary Space Requirements
  - Prioritization of Needs – Overall Spatial Relationships
From the beginning, this new 2,000 student high school was envisioned as a prototype for 21st Century Learning. Our goal was to design a high school facility that would facilitate and support the implementation of a new curriculum and assessment model founded on the principals of student-centered challenge-based learning and focused on developing skills in critical thinking, creative thinking, collaboration and communication. Our tools were space, light, color, finishes and furnishings.
During the planning phase, we involved over 120 students from 5 AP Environmental Science classes in a challenge-based learning project to design the educational courtyard.

Common and unique attributes of each design were identified, discussed, and evaluated by the students before being incorporated into the final design.
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## Project Details

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<td>City</td>
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<tr>
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<tr>
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<tr>
<td>Supt/President</td>
<td>Dr. Aaron C. Spence</td>
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