

SLAM

K-12 EDUCATION

Waterbury Career Academy

NAVIGATING THE LEARNING EXPERIENCE



Whether it's students navigating through multiple types of learning spaces or navigating the right path between starting a career or moving onto post-secondary education, there are various design elements of the K-12 educational experience that are important to consider. There is a strong need to develop innovative problem-solvers with various educational backgrounds. Education has demanded robust experiential learning environments that engage students in a host of simulated settings. Students have various learning styles which has led to the evolution of educational delivery methods including flipped classrooms, immersive, project-, and team-based learning. The following pages will demonstrate the ways in which SLAM has collaborated with clients to design innovative academic spaces varying from classrooms, shops, and labs to engage all students in various subjects leading to increased attention, retention, and graduation rates.



TIME TO TINKER

Students need a place to think, feel, and learn in different ways—a “playground” where they can discover how to create new ideas, inventions, and concepts. More than a maker space, this area makes way for brainstorming and think-tank discussions. Writable surfaces on wheels and mobile units or floor-to-ceiling magnetic writable whiteboards and walls allow for students to put their projects on display and can be organized to create a gallery for poster and crit sessions. Students can work in groups and share resources to create new inventions and support each other’s creativity in various lab spaces designed to support hands-on experiential learning. These types of informal environments can give students the unstructured time to tinker, explore, invent and learn from mistakes with hands-on learning activities.

WATERBURY CAREER ACADEMY





FLIPPING OUT

Approximately 90 percent of learning happens outside of the classroom, in terms of the skills that students need to gain. As students acquire more content online and outside of the classroom, passive lecture-style learning is giving way to active learning pedagogies where students are encouraged to spend most of their class time engaged in homework-type activities that complement lectures they've watched outside of class. This type of "reversed" or "flipped" classroom offers seating in collaborative groups, where an instructor can move throughout the room and assist students when they have questions or seek one-on-one help on their assignments. Each table also supports its own intimate experience while dedicated writing surfaces and embedded technology become the focal point of the group. Although functioning independently, all tables contribute to the "buzz" of the space. The room works for multiple small groups or as a single team-based learning (TBL) studio where groups engage each other in peer-to-peer learning.





FULL STEAM AHEAD

STEAM (Science, Technology, Engineering, Arts, and Math) programs are the foundation of the K-12 curriculum, paving the way for rising STEAM job markets. STEAM programs provide students with engaging and rigorous education at all levels, delivered through project-based and immersive learning methods, integrating these principles with the arts. The learning environment needs to facilitate this type of learning through adaptable, flexible, and reconfigurable classrooms. Because STEAM is generally based on integrated project-based learning, students need small-group areas to plan, brainstorm and collaborate on their projects. Project spaces for students should also be easily accessible from classrooms/labs and provide access to outdoors. Students should have the ability to test creations and display them without any limitations.



“STAGE-LESS” LEARNING

Traditional didactic learning spaces are not aligned with how the brain works. Most people on average retain less than 10 percent of what they are told, so how do we actively engage students so they don't just remember but learn?

Seat location affects attention, so instead of the traditional approach of teacher as lecturer at the “front” of the classroom, classrooms and laboratories can be configured with “multiple stages” for instruction and no fixed instructor position. Therefore, every seat is the best seat in the house. Classrooms can be converted from lecture-style, to lab-style to workshop style spaces with movable tables. The instructor is not the only star of the show, but in this model, a student, or group of students, can address the class, lead a discussion, share content and engage other learners from anywhere in the space. Classrooms and teaching labs should be designed to work like a black box or stage — flexible enough to switch from lecture-style to group-style in a matter of minutes.



BRINGING THE OUTDOORS IN

The most successful/utilized space incorporates views to the outdoors, with daylight filling corridors and classroom spaces. Views to nature trigger diffuse thinking, allowing the mind to envision concepts, and making new neural connections. When the mind is relaxed, it is easier to form creative solutions to a problem. This can happen not only by bringing in more natural light into the spaces, but also by providing outdoor courtyards, green roofs, and outdoor classroom/lab spaces.



CLASSROOM TO CAREER

Themed high schools and specialized curriculums are now designed to not only prepare students to be qualified applicants for local employers, but also allow them to choose between starting a career and continuing to post-secondary education. These spaces are designed to facilitate real-life scenarios which allow students to immerse themselves in the learning experience. When students can respond to a situation at hand, they are able to grow in their learning.

EELIS TECHNICAL HIGH SCHOOL



PUBLIC SAFETY ACADEMY

THE SPACE BETWEEN

Learning can happen anywhere. A cafeteria can become a classroom or a library can house a poetry slam. A corridor can become an informal gathering space, promoting active discussions and interaction among peers and faculty. Flexibility is essential in designing spaces that promote cross-disciplinary learning and encourage interaction between peers. Spaces that provide students with informal interactions outside of class time are crucial to facilitating social relationships which are proven predictors of academic success, and preparing students for the real world.

GILMARTIN ELEMENTARY SCHOOL



CAPITAL PREPARATORY MAGNET SCHOOL

THE COLOR GREEN

SLAM has a long-standing commitment to the practice of environmentally sensitive design. A high-performance school is synonymous with a sustainable school. Sustainable design maximizes tax dollars, conserves resources and cuts operating costs – while teaching environmental responsibility.

This is a primary focus of the public schools SLAM is designing today. One recent example is the Waterbury Career Academy, which was designed to CT High Performance Building Standards. The new school employs a high performance thermal envelope, ground coupled (geothermal) heating/cooling plant, and photovoltaic (solar) array, which contribute to the building operating at 63% better than code minimum and provides the City with considerable annual operational cost savings.

153 Geothermal Wells @ 150 FT
3,300,000 BTU Heating
3,200,000 KBTU Cooling

Chilled Beams with 100% Outdoor Ventilation Air
Coupled with Desiccant/Energy Heat Recovery Wheels

Deep Daylighting with Shading Devices
Daylight Dimmer Controls
Occupancy Lighting Controls

50kW Photovoltaic
Array

Radiant Floor Heating
Natural Ventilation (shop area)

High Albedo
Concrete Walkways

Winter

Summer



THE SHAPE OF THINGS TO COME

Clarity of form, scale and functional adjacency are important principles in SLAM design. Young children feel more comfortable in large spaces when they are broken down into smaller relatable areas or communities. Shape and color can work as wayfinding elements expressing the program within for students of all ages and double as learning tools for the youngest. Defining and separating collaborative and active learning areas from quiet, reflective learning spaces reduces disruption, provides variety for different learners and aids in keeping students secure.



NAYLOR ELEMENTARY SCHOOL



SAMUEL STAPLES ELEMENTARY SCHOOL



RECREATION EDUCATION

A variety of spatial experiences, both interior and exterior, and materials with different colors and textures evoke dynamic movement and celebrate play motion and physical activity as an inseparable component of any successful educational philosophy. SLAM designs spaces that support recreational and athletic programs that build a stronger community, creates a sense of pride and promotes health and wellness for both students and faculty. Conscious location of observation areas and buffer space between public and play support safe protected environments for students.



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