LANDSCAPE ARCHITECTURE
A STEM PROFESSION

Living Breakwaters, Staten Island, NY. SCAPE Landscape Architecture

Landscape architecture is inherently a Science, Technology, Engineering, and Mathematics (STEM) discipline. Landscape architects, as stewards of the natural and built environment, routinely apply STEM in the planning and design of sites where millions of people live, work, and play.

A STEM Education

Landscape architects are licensed in all 50 states and the District of Columbia. Ensuring public health, safety, and welfare in the practice of landscape architecture starts with a rigorous STEM higher education, and culminates in a nationally administered four-part examination.

Landscape architecture students are educated, trained, and tested on site design, environmental sciences, grading and drainage, stormwater management, roadway alignment design, vehicular and pedestrian circulation, manipulation of contours and spot elevations, and other technical and scientific areas.

The Landscape Architect Registration Examination (LARE) tests a practitioner's knowledge, skills, and abilities that directly relate to protecting public health, safety, and welfare. A candidate for licensure must pass each section to qualify to become licensed.

Section 1: Project and Construction Management

Section 2: Inventory and Analysis

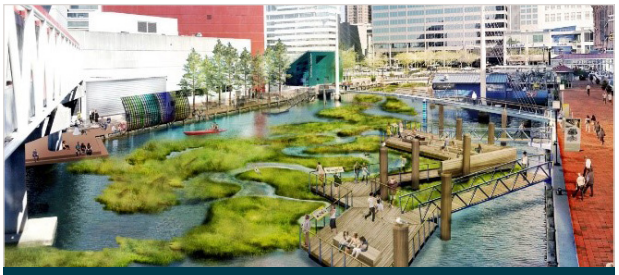
Section 3: Design

Section 4: Grading, Drainage, and Construction Documentation

A STEM Designation

Several state and federal entities, such as the Bureau of Labor Statistics (BLS) and Office of Management and Budget, recognize landscape architecture as a STEM profession. According to BLS, the need for planning new and existing sites for economic and environmental purposes is expected to grow, and therefore, the demand for landscape architecture services will grow.

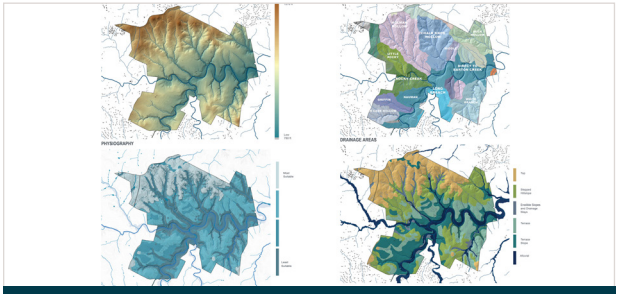
At this time, the Department of Homeland Security (DHS) does not recognize landscape architecture on their STEM Designated Degree Program List. DHS STEM designation would help the country to meet this growing demand by providing greater opportunity for universities to recruit from a global pool of qualified applicants.



2018 Research Honor Award. Urban Aquatic Health: Integrating New Technologies and Resiliency into Floating Wetlands. Ayers Saint Gross.
(Image credit: Ayers Saint Gross)

Science

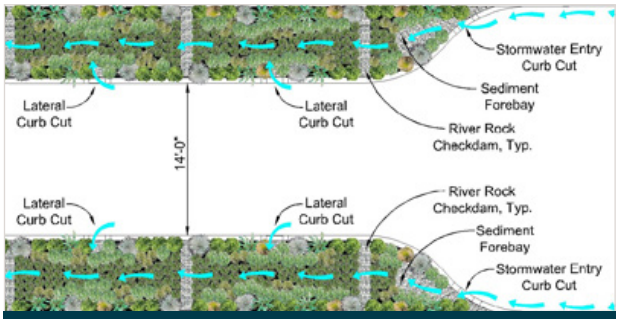
Landscape architects study the natural world daily through environmental sciences, ecology, soil science, biology, physics, horticulture, and others. Plans call for the transformation of Baltimore's Inner Harbor by adding floating wetlands. This is achieved by using scientific knowledge and research, which will improve the harbor's water quality, biodiversity, and resiliency.



2018 Analysis and Planning Honor Award. From Pixels to Stewardship: Advancing Conservation Through Digital Innovation. Andropogon Associates, Ltd.
(Image credit: Andropogon Associates, Ltd.)

Technology

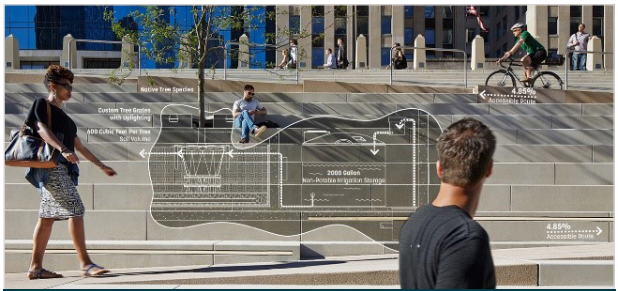
Landscape architects must be adept in the use of computer applications and other cutting-edge technologies such as mapping, GIS, LiDAR, digital drawing, drones, and simulation tools. State-of-the-art digital tools were used to design a master plan for the Shield Ranch's 6,800 acres, including LiDAR data hydrogeological modeling, LiDAR data viewshed and soundscape modeling, client-engaged GIS, and eco-hydrogeological planning frameworks.



2007 General Design Honor Award. NE Siskiyou Green Street. Kevin Robert Perry, ASLA.
(Image credit: Kevin Robert Perry, ASLA)

Engineering

Landscape architects create solutions, using physical science principles, for many outdoor problems, including the manipulation of landforms through grading, drainage-system design, stormwater management, erosion control, and retaining walls. Landscape architects used their education and training to create a nature-based stormwater management system on NE Siskiyou Green Street using bioretention gardens, curb extensions, and curb cuts.



2018 General Design Honor Award. Chicago Riverwalk | State Street to Franklin Street. Sasaki and Ross Barney Architects.
(Image credit: ©Kate Joyce; overlay Courtesy of Sasaki)

Mathematics

Landscape architects study algebra, trigonometry, geometry, and calculus to be used in structural, earthwork, stormwater, electrical, energy, and hydraulic computations. For example, mathematics was used to calculate the design solutions related to stormwater management, irrigation storage, and soil volumes for the flood resilient Chicago Riverwalk project.