One of the healthiest and most energy-efficient laboratory buildings in the world, Harvard's Science and Engineering Complex was certified by two international sustainable building programs—the International Living Future Institute (Materials, Beauty, and Equity Petals) and the U.S. Green Building Council (LEED Platinum)—and marks a major step toward Harvard’s goal to be fossil fuel-free by 2050 and to reduce damage to human and ecosystem health.

Experts in architecture, design, engineering, sustainability, and construction contributed insights into energy, wellness, water management, equity, and beauty. Harvard leveraged the SEC as an opportunity to evaluate more than 6,000 products, and to educate and partner with manufacturers and designers to create a safer global supply chain. More than 1,200 companies disclosed the ingredients in their building products and made this information publicly available. Many manufacturers reformulated their products to remove harmful chemicals.

The façade is engineered to boost energy performance and maximize natural light. A screen of metal shading panels—the first façade element in the world to be fabricated using hydroforming techniques from the aerospace industry—sheaths the upper research spaces. The patterned enclosure shields the interior from solar heat gain during warmer months, while letting sun enter during the winter, reducing cooling and heating loads on the mechanical plant. Rooftop solar panels help further reduce the building’s energy impact.

The SEC was built to withstand storm surge flooding and other major climate events. Its water management system was engineered to manage runoff during severe rainfalls and alleviate the impact of stormwater events up to, and including, a 100-year storm. Bioretention basins and swales capture rainwater and direct it into a 78,000-gallon rainwater reuse tank. The building’s electrical and mechanical equipment is positioned above expected flood levels to reduce the risks of power outages and other damage caused by high winds or catastrophic events.

Before construction, the land on which the SEC was built was a brownfield, with a 100-plus year history of industrial and manufacturing operations. Harvard removed and properly disposed of over 150,000 tons of soil containing lead, cadmium, petroleum hydrocarbons, and volatile organic compounds.