



CASE STUDY

Bristol Community College

John J. Sbrega Health & Science Building

Equipment Requirements

GFH Ductless Filtering Fume Hoods:

(13) AMS Green Solution Hoods with Erlab's GreenFumeHood Technology

Products Expectations:

The design needed to comply with a 2050 campus goal of carbon footprint reduction. At the same time, the lab building could not consume all of the on-site power generation from recently installed PV arrays.



Project Background

A goal of achieving Zero Net Energy (ZNE) was set for this teaching lab, and the design team embarked on a journey to find solutions to this complex equation.

The Challenge

Achieving ZNE is very challenging in the Northeast climate (zone 5). Doing so with a lab building containing fume hoods is extremely challenging. The initial high performance design achieving LEED Silver Plus, would have consumed over half of the recently installed PV arrays and still not have come close to achieving ZNE. A new design solution was needed and the amount of exhausted air was identified as the main culprit.

The Solution

While many technologies were ultimately chosen to help achieve ZNE, the linchpin technology are the (13) filtered fume hoods. Drastically reducing the make-up air requirement down to 24,000cfm from an original design of 70,000cfm allowed a combination of ground-source and air-source heat pumps, enthalpy heat recovery wheels, fan coil units, centralized IAQ monitoring, natural ventilation and a high performance envelope to become viable components of the overall ZNE design. The reduction in MEP equipment size provided a cost reduction allowing for the integration of these technologies, and reduced the mechanical space to just 14% of the GSF.