

SHOWCASE PROJECT: CHESAPEAKE COLLEGE: HEALTH PROFESSIONS AND ATHLETICS CENTER (HPAC)

SOLUTION OVERVIEW

The Health Professions and Athletics Center (HPAC) is home to Chesapeake College's flagship health programs in nursing, radiologic science, emergency medical services, physical therapy, and surgical technology. Built in the 1960s, this building was one of the first five buildings on campus and originally housed the campus pool and gymnasium. When the opportunity to renovate arose, Chesapeake College made the strategic decision to expand the facility in order to house programs in nursing, allied health, emergency medical services, and surgical technology, all of which had been operating in an off-campus facility.

The building accommodates state-of-the-art nursing simulation laboratories, a surgical theater, an ambulance simulator, a simulated small-vehicle roll cage, and a simulated apartment for EMS training. The laboratory and simulator space is complemented by office spaces for faculty, staff, and administration, and by flexible lecture spaces that are used by both health science students and the broader College population. HPAC also accommodates the College's athletics programs, and includes a gymnasium, fitness center, locker/shower spaces, a dance/yoga studio, athletic training suite and office spaces for Athletics staff. A practice gymnasium is also designed as a flexible-use space that can accommodate group events, practice sessions, and more.

Renovations begun in 2014 expanded the footprint of the building by 60,000 GSF and included planning for a LEED Silver rating, per Maryland law. Enhanced planning, in keeping with environmental sustainability goals in the College's 2014-2018 Strategic Plan, as well as the addition of a 1.8 MW solar photovoltaic project, has resulted in a higher-than-planned LEED rating; Chesapeake College has attained LEED Platinum for the facility. The building stands as a testament to the College's educational goals and its regional leadership in environmental stewardship.

SECTOR TYPE

Education

LOCATION

Wye Mills, Maryland

PROJECT SIZE

100,000 Square Feet

SOLUTIONS

A wide array of energy conservation measures have been implemented at the HPAC, including geothermal and solar PV, high-efficiency HVAC equipment, LED lighting and building envelope features. See below for a full list.

1. [1.8 MW solar PV and 1 MW battery](#) (ground mount array, plus parking-lot canopies)
2. High performance insulating glass, including a) Integral ceramic shading patterns in areas with direct sunlight exposure, and b) maximized interior exposure to exterior glazing to provide daylighting and views
3. Building geometry and massing, including a) new construction wrapped around the pre-existing, uninsulated building, and b) opaque exterior components overhang glass areas to provide shading
4. Exterior walls feature metal or terracotta rain screen skins over minimum R-18 insulation
5. Roof has a light-colored, high-SRI surface membrane over minimum R-25 insulation
6. Ground source heat pumps use a common, building-wide water loop and a dedicated field of geothermal wells; each building zone has its own water source heat pump unit.
7. Central heat recovery air handlers are used for the building exhaust systems; fresh air is provided through energy recovery ventilators with heat wheels that condition 100% of outside air.
8. Monitoring controls for individual room management of temperature, fresh air intake, and carbon dioxide levels
9. High efficiency fluorescent lighting with electronic ballasts and lamps
10. LED light fixtures
11. High-efficiency transformers
12. Automated lighting controls using space occupancy sensors and daylight harvesting sensors
13. Exterior light fixtures and locations limit light pollution, and provide safety and comfort
14. Central building energy management system is integrated into the overall campus management system;
15. Minimal use of refrigerant systems, substituting water source geothermal system
16. Domestic hot water is generated by two high-efficiency propane-fired water heaters, and preheated by a solar thermal system.
17. Faucets are on infrared sensors and have low-flow aerators.
18. A total of 14 EV charging stations are installed: 4 near the building, and 10 under the solar PV parking lot canopies.

OTHER BENEFITS

The facility earned LEED Platinum certification in May, 2017, and the solar array will reduce campus fossil fuel reliance by one third. A 1 MW battery storage was also secured for the campus to supplement the solar array grid interconnection, which will improve campus resilience through redundancy.

Annual Energy Use

(Source EUI)

Baseline(ASHRAE Standard)



Actual(2016)



Energy Savings

51%

Annual Energy Cost

Baseline(ASHRAE Standard)



Actual(2016)



Cost Savings

\$78,000

