

MOMENTUM

SPRING 2020

ADVANCING HEALTHCARE EDUCATION



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Mueller

BUILDING THE FUTURE HEALTHCARE WORKFORCE

Universities Enhance Science, Technology, and Healthcare Programs with Cutting-Edge, Interdisciplinary Facilities



Industry analysts have been projecting a dire shortage of public healthcare workers for years. An aging population and increases in chronic diseases are among several factors contributing to the burgeoning need for well-trained doctors, nurses, specialists, and others in the allied health professions. A recent study by Mercer points to the need to hire as many as 2.3 million new healthcare workers by 2025, with a critical shortage forecast for rural areas in particular.

A lack of capacity in higher education institutions focusing on healthcare programs has long been a complicating factor in addressing the workforce shortage. Today, several colleges and universities are expanding programs to graduate skilled workers to meet patient demands and fill the vacancies anticipated by a wave of healthcare retirees.

Promoting Integrated Learning

Virginia Commonwealth University (VCU), recognized for its leadership in healthcare education, is among the many top institutions addressing the critical shortage in trained healthcare workers. The Richmond-based university's new College of Health Professions building, which opened in 2019, brought all of its programs in the allied health professions under one roof, supporting interdisciplinary research and scholarship and integrated healthcare studies. Designed by EYP, the LEED® Gold facility accommodates a wide variety of programs such as gerontology, nurse anesthesia, radiation sciences, counseling, and health administration.

VCU's new 154,000-square-foot College of Health Professions building offers an integrated learning setting for multiple programs in allied health services. Photos (above and below) by Esto.

The eight-story tower has classrooms; spaces for synchronous distance learning; labs, including a double-height biomechanics research lab and several maker spaces; simulation and diagnostic technology suites; and an auditorium. The building also includes a state-of-the-art "Smart Home" apartment to support studies in occupational and physical therapy.

The building offers numerous spaces for students to collaborate and interact. According to Dr. Cecil Drain, former dean of VCU's College of Health Professions, "When these students graduate and start working in hospitals and other healthcare settings, they will be prepared for working with other occupations."



To support building system requirements, Mueller engineered a variety of solutions including an optimized chilled water plant, custom-designed rooftop air handling units (AHUs) equipped with energy recovery heat wheels, variable volume supply air, and perimeter finned tube radiation. Extensive metering provides feedback data to monitor loads, allowing for efficient equipment use. To further optimize energy usage, Mueller designed control strategies including dimming, vacancy and occupancy sensing, daylight harvesting, and time-of-day scheduling.

A Flagship Facility for the Health Sciences

George Mason University (GMU) in Fairfax, Virginia, also recently opened a major new facility for its College of Health and Human Services. Designed by Perkins Eastman, the 160,000-square-foot Peterson Family Health Sciences Hall is the second largest building on any of GMU's four campuses.

GMU's programs in nursing, rehabilitation sciences, social work, health administration, global and community health, and nutrition are united in this new facility. Features include clinical spaces, classrooms, wet labs, a nutrition kitchen, and a patient simulation laboratory. The cutting-edge spaces are supported by Mueller's engineering designs. From enthalpy wheel and heat pipe energy recovery technologies to sophisticated control strategies including temperature and pressure resets, demand-controlled ventilation, and energy monitoring, Mueller's solutions reduce energy consumption while supporting these growing programs at the forefront of the university's program in health and science education.

"This building is an investment in people," Dr. Germaine Louis, dean of GMU's College of Health and Human Services, has stated. "The building signifies innovative thinking, discovery, service, and ensuring students have lifelong skills to advance health for all people."

An Incubator of Collaborative Solutions

Duke University in Durham, North Carolina, has been expanding campus facilities to accommodate its growing School of Nursing and other healthcare programs for years. Working with Ayers Saint Gross, Mueller completed the first phase of the university's School of Nursing complex in 2006 and the second phase in 2014. In 2019, Duke celebrated the opening of its new InterProfessional Education and Care building, which adjoins the existing nursing facilities via a three-story pedestrian bridge. Mueller's scope of work for the building, designed to LEED Gold standards, encompassed HVAC, electrical, plumbing, and fire protection services.

The five-story building supports expanded research programs and partnerships across various healthcare disciplines, houses the Department of Orthopaedic Surgery and the Doctor of Physical Therapy program, and provides more space for the School of Nursing. "The ability to co-locate orthopaedic surgery and physical therapy with the School of Nursing allows us to focus on a new office of InterProfessional Education that will teach students the value of patient-centered care across multiple medical disciplines," Dr. Mary E. Klotman, dean of the Duke University School of Medicine, has stated. "By virtually every measure—patient outcomes, research advances, efficiency, cost savings, and so on—partnering up offers big advantages."

This is the fourth major project that Mueller has completed on the Duke University campus.



A gateway presence at the northern entrance to George Mason University's Fairfax campus, the new Peterson Family Health Sciences Hall reflects a major investment in health sciences education. Front cover and top photo by Joseph Romeo.

Duke University's new InterProfessional Education and Care building supports ongoing collaboration between the School of Nursing and the School of Medicine. Photos (below) by Ayers Saint Gross.



EXPANDING STEM EDUCATION AT GEORGE MASON UNIVERSITY

Design is underway on Bull Run Hall, a new building on George Mason University's growing Science and Technology Campus in Manassas, Virginia. The 100,000-square-foot building will support interdisciplinary studies in science, technology, engineering, and health. Mueller is working in partnership with EYP to design the building, which will include instructional wet labs, cadaver labs, classrooms, spaces for virtual reality and animation technology, and instructional dry labs. The new facility is scheduled to be completed in 2023.



Rendering courtesy of EYP

FROSTBURG STATE UNIVERSITY: CREATING FLEXIBLE LEARNING SPACES FOR HEALTHCARE

Frostburg State University in Maryland is addressing the nationwide need for STEM teachers, nurses, and medical professionals in the allied health fields. The university's new Education and Health Science Center, nearing design completion, will provide 100,000 square feet of flexible laboratory spaces for hands-on learning and simulations, active learning and instructional classrooms, seminar rooms, clinical training facilities, offices, and a student health center. Mueller is collaborating with Ayers Saint Gross on the design of the building, scheduled for completion in 2022.

"We have recently completed some very complex MEP laboratory projects, so I was very happy with the MEP documents Mueller produced," Timothy Lupcho of Barton Malow Builders recently stated. "We didn't discover any of the typical issues we deal with on these types of projects."



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Renderings courtesy of Ayers Saint Gross