Cooling buildings on a historic New England campus The University of Vermont's hybrid chilled-water system is ready for the future while preserving architectural heritage. David Blatchly, PE, CEFP, Capital Renewal Engineer, University of Vermont; Michael R. Pelletier, PE, CEM, University Engineer, University of Vermont; and Erica Spiegel, Analyst/Planner, University of Vermont

niversity campuses are places where people have expectations of feeling comfort in their space and being inspired by the beauty of the buildings and grounds. Nothing disrupts this more than the hum of mechanical equipment – including that coming from a chilled-water plant – which elevates background noise. Providing cooling on historic campuses poses a particular challenge for utility professionals who are constrained by operating and locating equipment in existing spaces while tasked with meeting modern thermal energy demands.

Such has been the case at the University of Vermont in Burlington – the f fth-oldest university in New England, founded in 1791. Over the past 15 years, this historic institution has developed a central chilled-water system that today serves more than 1.9 million sq ft of building space on the 460-acre campus. Building on an existing central steam system, the hybrid cooling network has evolved to meet the needs of expanding campus facilities while preserving the

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between other historic buildings and a new STEM complex and residential hall.

adverse impacts such as noise, vibration, unsightly equipment, traf c and exhaust plumes that would have disrupted the character of individual historic buildings.

Prior to adding air conditioning to a historic building, it is also important to determine the ef ect this might have on the building's interior. This means investing in predesign studies to ensure that there would be no adverse impacts on the building envelope. Evaluation includes determining the location where condensation will occur by modeling the movement or accumulation of moisture and heat within the wall assembly.

During the 2017 plant expansion, the university had the opportunity to "get it right" and accomplish a complete visual transformation of the plant itself. Getting it

right meant designing an industrial building that, despite its function, would be a positive addition to the architectural character of the area and be a quiet neighbor to the existing and planned buildings in the historic core of campus.

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would be arguably the most beautiful building on our campus?" Indeed.



David Blatchly, PE, CEFP,