

Case Study: Lock Haven University-Lock Haven, PA

TMI Case Study No. 12037

Lock Haven, a quaint city located in the scenic mountains of Central Pennsylvania, is home to Lock Haven University of Pennsylvania. Founded in 1870, with a long and rich history, Lock Haven University, or LHU, continues to remain a huge part of the local community. Receiving a grant for their new East Campus Science Center, LHU needed more space to house the science labs and classrooms for the science center. Looking into local resources, the University purchased the old Lock Haven high school and middle school. The science center

included the need for a 90,000 CFM penthouse, also known as an equipment room. One of the stipulations for this grant was that the penthouse be an American made unit which meant all steel, fasteners, piping etc. needed to originate in the United States. TMI Climate Solutions, with our ISO 9001:2008, could easily comply with the “Made in America” requirements.



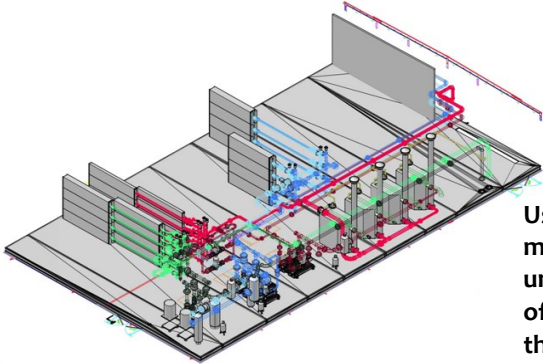
A few additional challenges faced this project. One included the community’s desire to have the buildings’ façade on West Church Street harmonize with its historic district neighborhood. The Historic District Advisory Committee also questioned the size of the mechanical installations on the roof. TMI’s modular penthouses are always custom built and offer a choice of exterior finishes, so the penthouse easily complimented the existing the structures. Zoning Officer, Cindy Walker, stated that the units wouldn’t be visible from the street and a parapet will help shield them from view.

The University’s design intent prioritized efficiency, recycling, and energy saving costs. Throughout this project, optimizing the use of local materials and providing energy savings, such as room lighting that was programmed for efficiency, were initiated. This also fulfilled the required use of domestic materials and saved on transportation costs as well. As part of the Lock Haven process of tearing down part of the old school, LHU recycled the current masonry and concrete by grinding it up to use on the parking lots and other areas.



Finally, another concern for the University included the sound levels. Located in the heart of the Lock Haven community, the University wanted to minimize the sounds of a running unit. To alleviate the sound concern, TMI installed three rows of sound attenuators in the unit to surpass the expectations of just wanting a “quiet” unit.

Sound Levels	Frequency, HZ							
	63	125	250	500	1000	2000	4000	8000
Supply Air Opening	66	69	64	57	43	45	45	48
Return Air Opening	72	75	77	67	60	50	38	39
Casing Radiated	57	68	54	50	48	39	33	25
Specified Maximum Sound Levels per Specification 23 75 13	Frequency, HZ							
	63	125	250	500	1000	2000	4000	8000
Outside Air Opening	78	70	67	63	56	54	54	54
Supply Air Opening	89	80	80	69	65	64	64	64
Specified Maximum sound Levels Per Drawing H-14	Frequency, HZ							
	63	125	250	500	1000	2000	4000	8000
Casing Radiated	87	80	68	67	60	60	60	60



Using Quickpen, TMI modeled the piping for this unit, minimizing the amount of piping and maximizing the amount of clearance.



TMI aided the University in its energy saving goals with two stages of heat recovery. Stage one used heat recovery coils to recycle existing heat from return heat saving 692.5 MBtuh, Stage two used Heat Pipe Technology to recover more heat to use as free reheat after the cooling coils and saving 605.83 MBtuh. TMI continued to help strive towards energy savings. TMI chose fans that provided better static efficiency and premium efficient motors. Also, included in the unit for reduced energy needs were four Natural Gas Lochinvar Condensing Boilers with a 92% thermal efficiency, 25:1 turn down modulating burner, built in cascading sequencer for the boilers, Modbus Communications and SMART TOUCH PC software. Looking to the future needs, TMI created an equipment room with space for future equipment.



Finally, because our unit would be providing air to the science labs, filtration was key and needed to be free of contamination. TMI used two station UV lights to accomplish this. TMI included two Nortec Evaporative media humidifiers featuring intelligent microprocessor control, which handles water management, staging as well as hygienic flushing and washing cycles.



Throughout this project, TMI worked with the University to meet its needs of a “made in America” plan of domestic materials, efficiency, recycling, and energy savings. TMI enjoyed partnering with LHU and being the solution for the University’s climate control needs. TMI Climate Solutions was proud to participate in such a rewarding project for the Lock Haven community.



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