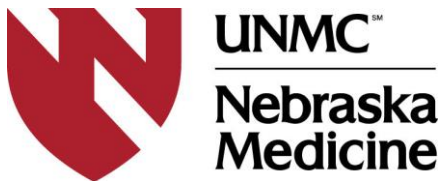




Final Project Report



Decommissioning of Munroe Meyer Institute, Hattie B. Munroe, & Additions

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OVERVIEW

This Final Project Report provides a summary of the work done in June of 2021 to decommission the Munroe Meyer Institute, Hattie B. Munroe, and both Hattie B. Munroe Additions. As discussions were taking place regarding optimization projects on campus, Optimized Systems was made aware that most spaces in these buildings were unoccupied. Optimized Systems approached Mr. Ken Hansen and asked if they had plans to shut down the equipment in unoccupied spaces in order to save energy. UNMC did not, and subsequently asked Optimized Systems to assist the research zone in making changes to the building in order to conserve energy and reduce maintenance issues, while keeping the occupants comfortable and safe.

In August of 2021 Optimized Systems was contacted by Mr. John Poulicek to make sure the building was freeze protected and safe to be occupied as temperatures change, given occupants would be there through at least the end of the year.

PROJECT OUTCOMES

This project was successfully completed. Project outcomes in June include:

Optimized Systems worked with Mr. Jim Gilbert and Mr. Todd Bishop to turn off the following items:

- Steam Perimeter Heat turned off for all of MMI
- Pool Pac
- Hattie B 2nd floor heat pumps off at the breaker
- Hattie B 3rd floor heat pumps off at the breaker
- AHU 2 Hot deck programming rescheduled
- AHU 6
- AHU 7
- AHU 8
- AHU 9 zones A, B, C, D, F, G, H are all turned off.
- AHU 10
- AHU 11
- AHU 12 (pneumatic)
- AHU 13 (pneumatic)
- "Meyer Exhaust Fan" unlabeled exhaust fan not on system, in penthouse on roof
- Water to MMI and HBM only.

The following items were left to be completed by the Research Zone:

- Glycol floor drains, sinks, and toilets; lock/secure bathrooms doors, and label with provided signs.
 - Signs provided stated bathroom was closed and the



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location of the closest open bathroom.

- Disable magnetic hold opens on 3 hallway doors, place signs on them.
 - This will limit the air the exhaust fans will pull from conditioned spaces to unconditioned spaces (or vice versa).
- Walk all spaces and close/lock all windows. Shut blinds where available to reduce heat load.

Equipment currently on:

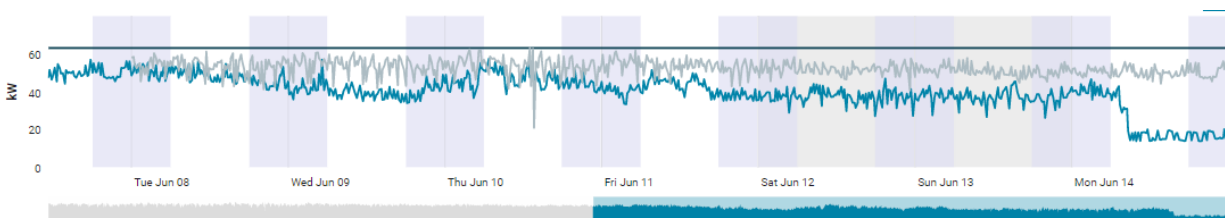
- AHUs 1, 2, 3, feeds HBM Addition; AHU 4, 5, feeds HBM 2nd Addition
- AHU 9 zones E
- The three largest (unlabeled) Exhaust Fans, all serve occupied spaces
- MMI EF7

In September, Optimized Systems worked with Mr. Jim Gilbert to confirm that each building in the MMI complex has an independent plumbing system and that none of the buildings have a fire protection system. As such, the domestic water system to all of Munroe Meyer was turned off and drained to prevent pipes from freezing and bursting. Occupied areas will remain heated and therefore are not a concern.

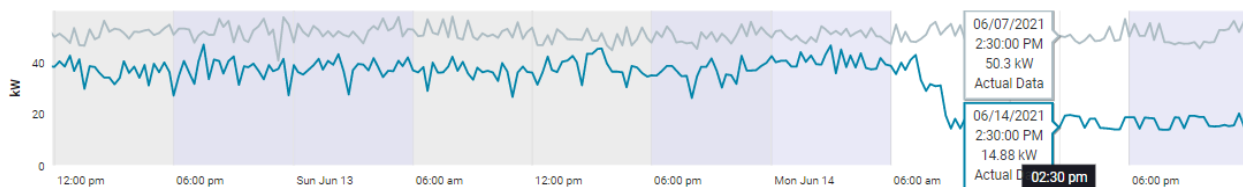
As discussed, AX08 is also vacant and as such had the domestic water turned off and drained, and the natural gas line has been turned off as well.

ENERGY SAVINGS:

Graph showing use prior to first round of shutdowns on June 8th, impact, and then further impact with the second round of shutdowns on the 14th (gray is previous week, blue is current):



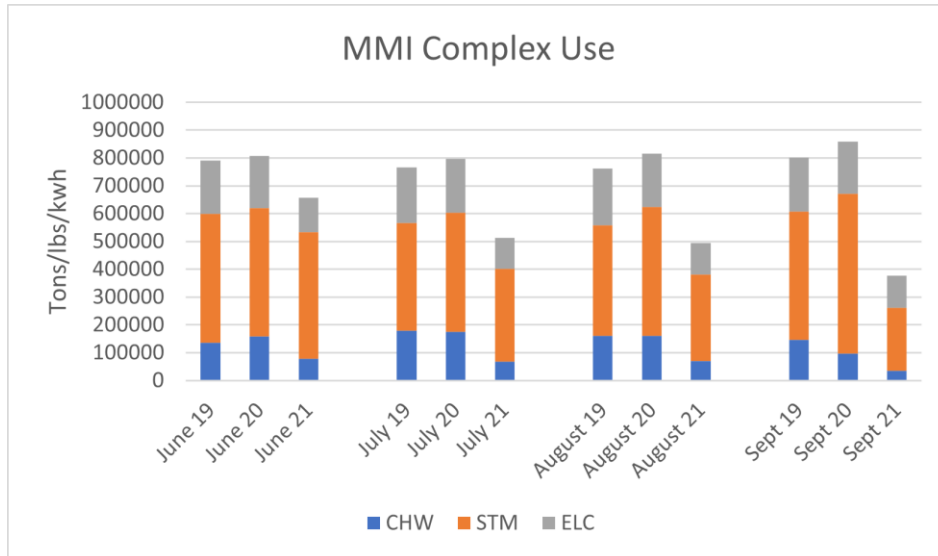
Magnified to show impact of the 14th, mid-day use down from 50 to 15 kW:





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Most equipment was turned off/scaled back in June, and in the three months that followed, significant energy savings have been realized. In all four buildings, steam, electricity, and chilled water use has been reduced. Chilled water is the most dramatic, down by more 50%, as shown in this graph:



As expected, significant cost savings were also seen. UNMC has paid more than \$20,000 less per month in utility bills each month, with a total savings over the past for months in excess of \$80,000. These savings will continue, provided all of the equipment that has been turned off remains off, though the savings amount will be different and will be seen in different commodities as the weather changes. The following graph demonstrates the actual amounts UNMC was billed for all three commodities, in all four buildings, combined.





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CONCERN

As noted in an email from Optimized Systems to Mr. John Poulícek on September 22nd and to Mr. Neal Buxcel on October 25th, there is a tunnel between Munroe Meyers and Hattie B on Level 1 that has a steam and condensate line running through it. Those lines are active as they provide steam to both the 1st and 2nd additions, which are occupied. There is a window that overlooks the courtyard and could allow that tunnel to get cold, as the AHU that served that area (and other spaces around it) is now off. We believe the steam line will radiate enough heat to keep the condensate line from freezing, but it should be monitored if the building is still occupied. The Research Zone stated they would do so, but if UNMC has any concerns, a formal plan may need to be put into place.

RECOMMENDATIONS

To save additional energy and/or turn additional equipment off, the “SOFT” computers located in 2019D could be relocated to the Addition or 2nd Addition, which would allow AHU9 zone E to be turned off, which would then mean AHU9 would be off entirely. These computers are in a small room and numerous spaces are being conditioned to keep them there.

It was unclear if the ITS closet 2077 was still needed. If not, or if the colder outside temperatures will be beneficial, Exhaust Fan 7 could be turned off. It was only kept on to move air through that closet.

It was also noticed that the Parish School is still using some utilities—mostly notably around \$1,000 of electricity a month. That building is purportedly also vacant so if equipment using electricity could be turned off or if the breakers/panels could be turned off additional savings would be found.

CLOSING

It has been our pleasure providing optimization services for the University of Nebraska Medical Center. We are confident that the results of this project will significantly reduce energy use while allowing the existing occupants to continue their work comfortably and safely. We hope you have found our involvement to be helpful and informative. If you would like to review any items in this report, please do not hesitate to contact me.

Respectfully submitted,

A handwritten signature in black ink that reads "Nick Combs".

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