



Memorandum

TO: Jason Paret
FROM: Richard Davidson
DATE: November 11, 2008
SUBJECT: River Pavilion Heat

Jason,

The heating system in the River Pavilion is in need of immediate replacement due to a failure in design of the existing system. The current system's heat exchanger has 5% of the tubes failed and experience indicates we will continue to have increasing failures until the system is replaced. The areas impacted by this system include heat and hot water for Imaging, ED, OB, Wound Care, I.T. Support Services, and all other departments adjacent to these areas.

We have incurred an unbudgeted \$58,766.29 in Engineering and Estimating Fees to date.

The cost of the replacement system is estimated at \$642,564 including costs incurred to date. This is based on a professional cost estimate prepared by Estimations, a professional estimating company based in Anchorage.

I have attached a board resolution for the project, and I am recommending we move forward on the complete project immediately due to concerns with a total loss of heating for 40% of our facility and limited short term intervention methods in the event of failure.

Thank you for your consideration.

History

The heating system for the River Pavilion was upgraded in 2000. The scope of the project was to replace two old water boilers with a steam to water heat exchanger, which allowed the boiler plant to start providing heat and hot water to the River Pavilion. When this project was completed, the hospital lost redundancy for this essential system.

This steam to hot water heat exchanger failed in 2004, with approximately 10% of it's tube bundle broken, resulting in significant water and heat loss. The cause had not been determined, but the equipment manufacturer suspected a design flaw within the building's heating system. This failure necessitated immediate replacement of the heat exchanger.

In FY 2008, we budgeted the purchase of a redundant heat exchanger in anticipation of future problems. Toward the end of the fiscal year, we were asked to place a hold on Capital purchases, so this item was carried forward to the FY2009 budget.

In June, 2008, the Heat Exchanger failed, causing significant heat and water loss. This was the 2nd heat exchanger that only lasted four years. Heat exchangers of this type normally last 30 plus years. This failure resulted in approximately 6GPM water loss, and we eventually determined 5% of the tubes had failed. Given the history, I enlisted AMC Engineers to help determine the potential cause and help develop a plan of action.



Each of the silver dots indicated a failed tube

AMC initially determined that the failures we have experienced were a direct result of inadequate system design causing heat exchanger tubes to become cracked and start leaking. Given that we did not have a redundant system, we requested they immediately complete work on a Time and Materials Basis to develop 95% complete plans that could be priced out.

We also enlisted a Boiler Service Company to assist us in making a short term repair to the existing heat exchanger. At this time, we have not corrected any of the deficiencies that have caused the tubes to fail, and we have no reason to believe more won't fail in the near term.