

Aitkin County Board of Commissioners
Request for County Board Action/Agenda Item Cover Sheet



To: Chairperson, Aitkin County Board of Commissioners Date: 7-16-13

Via: Patrick Wussow, County Administrator

From: Patrick Wussow, County Administrator

Title of Item:

Courthouse HVAC System Replacement

Requested Meeting Date: 7-23-13 Estimated Presentation Time: _____

Presenter: Patrick Wussow, County Administrator

Type of Action Requested (check all that apply)

- For info only, no action requested
- For discussion with possible action
- Let/Award Bid or Quote (attach copy of basic bid/quote specs or summary of complex specs, each bid/quote received & bid/quote comparison)
- Approve/adopt proposal by motion
- Authorize filling vacant staff position
- Request to schedule public hearing or sale
- Request by member of the public to be heard
- Item should be addressed in closed session under MN Statute _____
- Approve under Consent Agenda
- Adopt Ordinance Revision
- Approve/adopt proposal by resolution (attach draft resolution)
- Other (please list) _____

Fiscal Impact (check all that apply)

- Is this item in the current approved budget? Yes _____ No _____ (attach explanation)
- What type of expenditure is this? Operating Capital Other (attach explanation)
- Revenue line account # that funds this item is: _____
- Expenditure line account # for this item is: _____

Staffing Impact (Any yes answer requires a review by Human Resources Manager before going to the board)

- Duties of a department employee(s) may be materially affected. Yes No
- Applicable job description(s) may require revision. Yes No
- Item may impact a bargaining unit agreement or county work policy. Yes No
- Item may change the department's authorized staffing level. Yes No



Supporting Attachment(s)

- Memorandum Summary of Item
- Copy of applicable county policy and/or ordinance (excerpts acceptable)
- Copy of applicable state/federal statute/regulation (excerpts acceptable)
- Copy of applicable contract and/or agreement
- Original bid spec or quote request (excluding complex construction projects)
- Bids/quotes received (excluding complex construction projects, provide comparison worksheet)
- Bid/quote comparison worksheet
- Draft County Board resolution
- Plat approval check-list and supporting documents
- Copy of previous minutes related to this issue
- Other supporting document(s) (please list) Assessment Report

Provide (1) copy of supporting documentation NO LATER THAN Wednesday at Noon to make the Board's agenda for the following Tuesday. (If your packet contains colored copies, please provide (4) paper copies of supporting documentation as we do not have a color printer or copier.) Items WILL NOT be placed on the Board agenda unless complete documentation is provided for the Board packets.

AITKIN COUNTY ADMINISTRATION

Aitkin County Courthouse
217 Second Street N.W. Room 130
Aitkin, MN 56431
218-927-7276
Fax: 218-927-7374

TO: Aitkin County Board of Commissioners

FROM: Patrick Wussow, Aitkin County Administrator

RE: Courthouse HVAC System Replacement

DATE: July 16, 2013

The Facilities Committee is bringing forward staffs' recommendation to replace the existing Courthouse chiller. The lowest responsible quote for the chiller is from Gravelle Plumbing & Heating, Inc. (Aitkin) in the amount of \$39,467.00. A computer interface/upgrade will be necessary and that will come from our supplier, Honeywell, in the amount of \$10,500.00. Additionally, an electrician will be necessary and we will use our local companies at an estimated expense of \$1,500.00.

Cost:

The cost to replace the 34 year old existing Chiller will be:

Gravelle Plumbing & Heating	\$39,467.00 (quote)
Honeywell new controls upgrade	\$10,500.00 (quote)
Electrician	\$ 1,500.00 (estimate)
Total project	\$51,467.00

History:

The Courthouse chiller is the piece of equipment that provides air conditioning to the West Annex (Boardroom) and the Courthouse which includes all three floors of the 1928 Courthouse. An additional air conditioner was added, in the year 2000, to help cool Courtrooms One, Two and the Judge's chambers. The Jail, Court Administration, and Health and Human Services buildings operate on separate units.

The existing chiller was installed new in 1979. This unit was professionally inspected in January of this year. The inspector stated that the expected useful operating life is twenty years, which means the County was able to receive an additional 14 years more than what would normally be expected. The report states the following "this chiller may operate for another five years without any problems or it may breakdown within weeks of startup." The report is attached for your review.

Recommendation:

Staff recommends approving the replacement of the chiller with the contractors identified: Gravelle Heating & Plumbing, Honeywell, and an electrician to be determined (based upon availability).

The plan will be to order the chiller immediately which will take approximately 6-9 weeks to build and deliver. Installation will take place in the fall as long as the existing chiller unit is still operating.

If you have any questions, please contact me.



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Aitkin County Courthouse Boiler and Chiller Assessment

Aitkin County Courthouse Building – Aitkin, MN

Scope of Work

The Design Group, Inc. has been asked to perform an assesment of the existing hot water boiler and chiller serving the Aitkin County Courthouse. This assessment is to determine the potential remaining operating lives of the two pieces of equipment.

BOILER PLANT

The existing hot water boiler (See Photo 1) is primarily fired on natural gas; it does have a fuel oil backup system, which operates when the gas utility curtails the gas supply. It appears the gas company has curtailed gas usage only once in the last few years. The boiler is a Burnham national board number 9043 boiler with a serial number of 75-9043. This indicates the boiler is approximately 38 years old, which is past its expected useful operating life of 25 years.

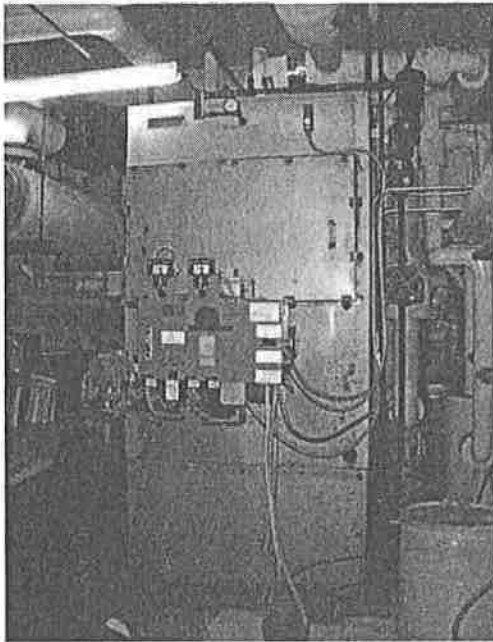


Photo 1 – Existing Burnham Hot Water Boiler

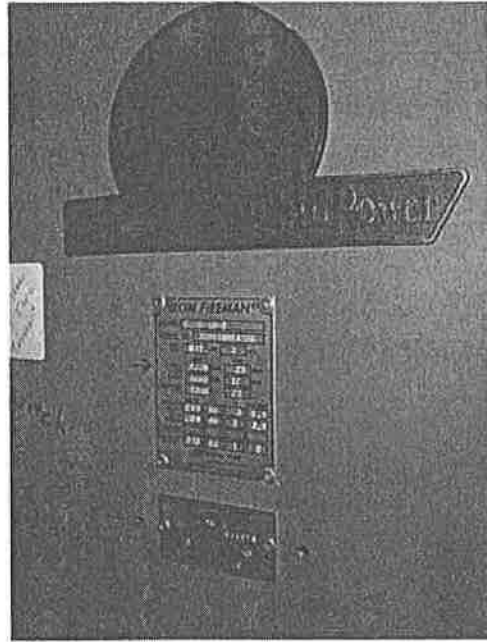


Photo 2 – Existing Burner on the Boiler

The boiler has a capacity of 3,704 lbs/hr with a heating surface of 463 square feet. It has a matched Iron Fireman burner WhirlPower number C240-GO-S (See Photo 2) with a capacity of 3,220 MBH. Overall, the boiler and burner are in relatively good condition with annual service work performed by Honeywell. Since the boiler is in full operation at this time, we were unable to examine the inside of the firebox to determine the integrity of the metal shell of the boiler, in order to perform a complete assessment, the boiler would need to be off and drained down for a complete inspection. It is our opinion based on past experience with this and other types of boilers of this age and in this condition, the boiler should continue to operate for at least another five years without any problems. There is no guarantee this will be the case due primarily to the age of the boiler. Planning should be done soon for the replacement of the boiler and the major components of the heating system. The rest of the heating system components, pumps, expansion tanks and miscellaneous fittings are mostly from the original installation and are also past their useful operating lives. (See Photo's 3, 4 and 5)

We estimate the current boiler efficiency to be no better than 73% based on past experience. A new boiler plant (we recommend multiple boilers so there is a back-up, with only one boiler you have no back-up in

case there is a malfunction) should include a high efficiency shoulder month boiler with standard efficiency boilers for the cold months when maximum water temperature is required. We estimate a 20% savings in natural gas if a new boiler plant is installed.

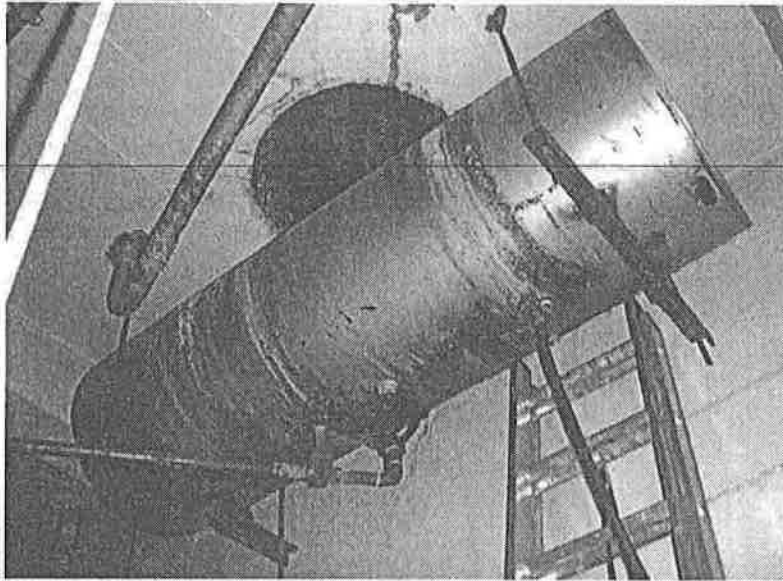


Photo 3 – Existing Expansion Tank



Photo 4 – Existing Heating Pumps



Photo 5 – Heating Pump for Addition

CHILLER

The existing chiller is a Trane model number CGAA0303MB51CC3C4B361EJ air-cooled chiller with R-22 refrigerant. (See Photo 6) This unit is powered by electricity and it appears this unit was installed new in 1979. This unit is 34 years old, which is past its expected useful operating life of 20 years.

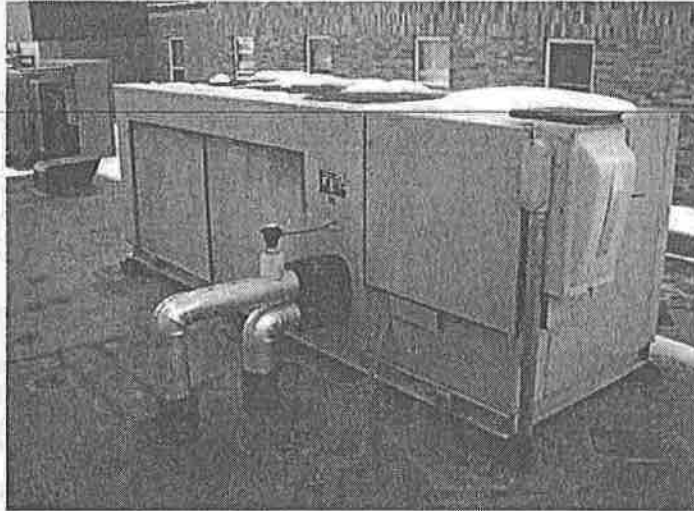


Photo 6 – Air Cooled Chiller

This unit has a capacity of 30 tons or 360 MBH cooling. Overall, the chiller is in remarkable good condition considering its age. Service work has been performed annually and it appears to be fully functional. Chillers with compressors and refrigeration processes are difficult to determine remaining life expectancies for due to the complicated mechanical parts. (See Photo 7) We did notice during the inspection the coil faces were dirty; this reduces the effectiveness of the unit. (See Photo 8) We recommend routine cleaning of the coil faces to insure maximum efficiency on the unit. This chiller may operate for another five years without any problems or it may breakdown within weeks of startup. The cost to tear the chiller down completely to verify the integrity is high and not worth it on a chiller which is so old and past its useful operating life. We recommend planning for the replacement of this piece of equipment as soon as possible.

Chillers are long lead-time equipment pieces and would not be readily available during the summer months. This chiller is also operating with R-22 refrigerant, which is no longer used in new refrigeration equipment and is in the process of being phased out of production. This chiller is also very inefficient due to age and design. New chillers are much more efficient and will save considerable money on the electric bills over the current unit. We estimate a \$2,100.00 savings in electric operating costs annually with a higher efficiency chiller.

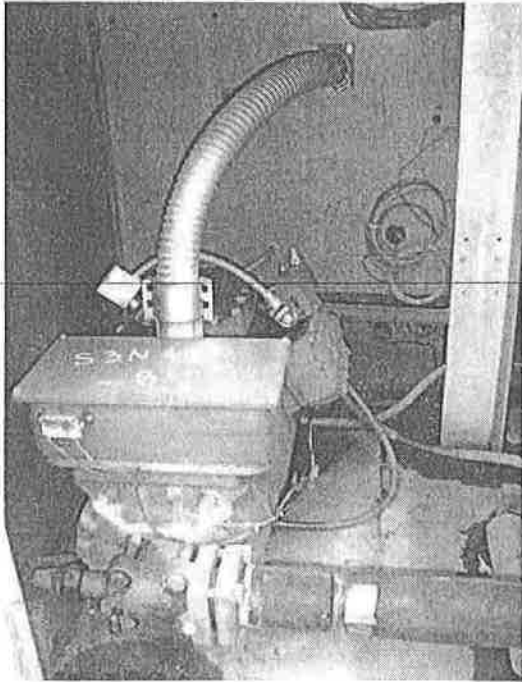


Photo 7 – Chiller Refrigerant Compressor

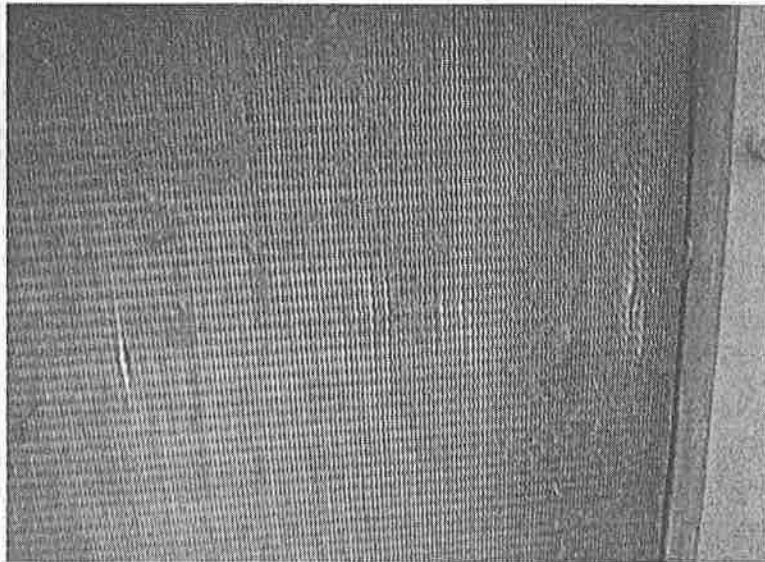


Photo 8 - External Coil Faces with Debris