

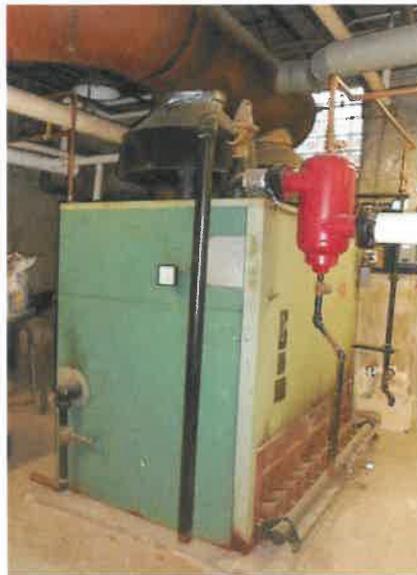
FIMs #5 & 15 – Boiler Replacements

Concept

Older water tube boilers are designed to obtain heating efficiencies in the range of 75 % to 82 %. Upper efficiency limitations are a result of maintaining hot operating conditions within the boilers to protect them from both thermal shock and corrosive liquid condensate in the flue gasses. Boilers that are not designed to accept low return water temperatures or operate with condensate in the flue system must be operated at higher temperatures, even when heating loads in the facility are low.

Modern condensing heating systems can achieve efficiencies as high as 93%, converting nearly all the fuel to useful heat. Energy efficiency upgrades and a new high-efficiency heating system can often cut the fuel usage and pollution output of a facility in half. In addition there can be appreciable energy and cost savings by converting older boilers to condensing boilers.

Existing Conditions



Existing Municipal Building Hot Water Boiler

The existing Peerless boiler is beyond its useful life. It's a natural gas fired, atmospheric sectional boiler with an estimated efficiency of 80% or less. The circulation pumps and motors are of standard efficiency and appear to have been replaced since original installation.



Existing DPW Building Hot Water Boiler

The existing Bryan boiler is original to the building with an efficiency of 77%. The boiler provides heating water for fin radiation and some terminal units within the building. The circulation pumps are of standard efficiency.

Recommendations

Danforth proposes to remove the existing boilers in the Municipal Building and the DPW Facility and replace them with condensing hot water boilers. These new boilers will be significantly more efficient than the existing units and provide substantial fuel reductions in both facilities while continuing to effectively maintain comfort conditions.

Scope of Work

Danforth will provide all labor, equipment and materials associated with the following scope in each facility:

Municipal Building

- Demolition of existing boiler system
- Installation of one (1) new condensing boiler sized for building load
- Installation of one (1) new boiler pump
- Installation of venting