



**REQUEST FOR BIDS**  
**Heat Transfer Fluid Replacement**  
**DULUTH TRANSIT AUTHORITY**

**Addendum #1**

April 28, 2023

1. Clarifications to Date:

- a. Please note that the RFB incorrectly stated the type of replacement fluid. It should be propylene glycol. Please change all references accordingly.
- b. The water to ethylene glycol ratio in the system and in the barrels is between 48% and 50%.
- c. The DTA is requesting that the replacement fluid be mixed to a ratio of water and glycol to prevent freezing to a minus 40 degrees Fahrenheit (-40° F).
- d. Because the City water supply is chlorinated, the replacement fluid must include inhibitor in accordance with the boiler manufacturer's recommendations:

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### 2.2.1 - Water Treatment

Cleaver-Brooks ClearFire® condensing boilers are suitable for closed loop heating systems. Systems with significant air accumulation due to unknown or unseen leaks must be equipped with a system air separation or pretreatment device.

Untreated drinking water is generally the best heating medium as filling and make-up water for a system that utilizes the Model CFC-E. If the water available from the main system is not suitable for use, then demineralization and/or treatment with inhibitors is necessary. Treated filling and make-up water must be checked at least once a year or more frequently if so specified in the application guidelines from the inhibitor manufacturer.

Those parts of the boiler in contact with water are manufactured with ferrous materials and corrosion-resistant stainless steel. The chloride content of the heating water should be below 250 ppm. The pH level should be between 8.3 and 10.5 after six weeks of operation.

**Table 2-1** gives recommended CFC-E water chemistry parameters. Adherence to these limits will help to maintain efficiency and will aid in preventing overheating of the boiler's heating surfaces.

**Table 2-1 Model CFC-E Water Chemistry**

Parameter	Limit	Means of control
Glycol	50%	Glycol fill/mixing station
pH	8.3 - 10.5	Buffering agent
Sulfates	50 ppm	Chemical additives
Chloride	< 250 ppm	RO filtration; Ion exchange
Oxygen	< 0.1 ppm	Air separator/eliminator
Specific Conductivity	< 1500 mmho/cm	
Total Hardness	< 10 ppm	Softener

Water make-up during the lifetime of the boiler should not be greater than 3 times the system volume. A water meter should be installed on the feed line to monitor makeup water volume.

**New Installations** - A new hydronic system may contain various kinds of debris from the construction process, including weld slag, metal shavings, etc. The piping system should be thoroughly flushed with the boiler isolated from the system to ensure particulates do not enter the boiler.

During this and any subsequent cleaning or flushing of the system, take care to ensure that no debris enters the boiler during the cleaning process. Consult with the installation contractor and/or water treatment provider for filtration recommendations.

A pre-start "boil out" of the vessel is not required; the interior boiler surfaces are cleaned following production of the pressure vessel.

**Retrofit Installations** - Older hydronic systems often contain impurities due to deteriorating piping, fittings, and other hydronic specialties. **Corrosion and sludge deposits in old systems must be removed prior to installation of the new boiler** to ensure existing debris does not enter the new boiler.

After the system is cleaned with the boiler isolated, and the new boiler is installed, a side-stream filter is recommended for continuous removal of suspended and dissolved solids that could remain. For assistance with selection and installation of a suitable filter, consult your water treatment provider.

If the system contains a significant amount of suspended or dissolved iron, a magnetic filter is recommended.

- e. Drawings of the DTA's HVAC systme are available on the website at [www.duluthtransit.com/procurement](http://www.duluthtransit.com/procurement).
- f. The DTA is seeking a timely completion of this project in order to coincide with the current remodel construction in the building so the system only needs to be taken offline one time for all work. Coordination with the DTA's remodel contractor is required.