Safety

The Fin-Fan heat exchanger poses a number of safety concerns as listed below:

Electricity and Water

Rotating equipment – Fan

Trip Hazards – power and signal cables

Do not open the control enclosure.

Do not modify the equipment or alter the wiring.

Exercise caution when draining and filling the ballast container.

Always wear safety glasses when operating this equipment.

Equipment Description

1. The Fin-Fan Heat Exchanger consists of the following components:
   a. Water Heater
   b. Ballast Tank
   c. Pump
   d. Fan
   e. Fan Housing
   f. Copper and Stainless Steel Tubing Assembly

The following items provide control and data acquisition via the Opto 22 Control System.

Data is sampled once every second. All data points on the control window are saved to the data file.

   a. 2 – Valtec Control Valves
   b. Type – T Thermocouples
   c. EE65 Hot-wire anemometer. Range 0 -04000 ft/min
   d. Proteus Vortex Flow Meters. Range 0.48 to 8.5 GPM
Operating Procedure

1. Ensure that the ballast tank is filled to the fill line marked on the ballast tank.
2. Ensure that the tubing into and out of the ballast tank is secure.
3. Plug the water heater power cord into the yellow power strip.
4. Turn on the water heater. Set at desired temperature. The water heater temperature is set manually using the rotary control located on top of the water heater.
5. Log on to the Fin-Fan computer. The log on credentials are posted on the monitor.
6. Open the Fin-Fan, Opto control program by clicking on the desktop shortcut.
7. Using the Opto software, open the control valves to the cooper and stainless steel tubing as desired. These valves must be open before the pump will start.
8. Set the pump at the desired flowrate. The recommended set point is 100% open.
9. While the pump is on, continuously monitor the system for leaks.
10. When the water side of the system has reached steady-state plug the fan power chord into the yellow power strip located on the side of the equipment cart.

Shutdown Procedure

1. Unplug the fan
2. Turn off the water heater
3. Unplug the water heater power cord.
4. Stop the pump
5. Log off the Opto 22 control software
6. Do Not Shut Down The Computer
7. Safe your data to a flash drive. The data is located at C: