

# METROPOLITAN NY CHAPTER Refrigeration Service Engineers Society

*Continuing Education for the HVAC/R Industry*

**“Better Service Through Knowledge”**

**October 2019**

**WWW.METRONYRSES.ORG**



## Maintaining Air-Cooled Condensers

Refrigeration systems that employ air-cooled condensers will greatly benefit from a regular maintenance program. Regularly scheduled maintenance on this equipment—or any equipment for that matter—saves both the service company and customer time and money.

One of the most important maintenance tasks when working on these systems is to inspect and clean the condenser coils. An increased amount of dirt on the condenser coils will increase the operating discharge pressure on these systems. Systems running with a higher than normal discharge pressure will reduce the life of the compressor, reduce its refrigerating capacity and consume more energy. As the running discharge pressure increases, so does the power consumed by the compressor. The power consumption of the compressor could easily increase 10% to 30% with a sufficient increase in its discharge pressure. The actual percentage will vary depending on the type of compressor, its application and the refrigerant used. For the actual increase you must refer to the compressor's performance data sheet.

Another problem associated with higher discharge pressures is the reduction in the refrigeration capacity. As the discharge pressure increases, the refrigeration capacity of the system decreases. The system will now need to run longer to refrigerate the same load, further increasing the power consumed by the compressor. With the combination of longer run times and increased power consumption, it is easy to see the importance of keeping the condenser coil clean and its operating discharge pressure within the normal operating parameters.

There are several ways to effectively clean a condenser coil. Coils that do not have a heavy build-up of dirt or grease can usually be cleaned

with a good stiff brush. Coils with a mild amount of build-up could be cleaned with a soapy water

solution. Coils with a heavy build-up of dirt or grease may need to be chemically cleaned. This would entail using some type of acidic or alkaline based chemical. Both types of chemicals have advantages and disadvantages; it is best to consult the manufacturer of either the equipment or the chemical for their recommendations.

When cleaning a condenser coil it is important to not damage the fins or coil surface. A condenser coil can be easily damaged. A technician must be careful not to smash the fins while brushing the coil surface. This will restrict the airflow through the coil and will result in possibly even higher discharge pressures than before cleaning the coil. If the coil needs to be chemically cleaned, the technician should carefully follow the directions from the chemical manufacturer. The technician should make sure the coil has been thoroughly flushed with fresh water after applying the chemicals per the manufacturer's recommendations. Chemicals left on the coil could easily deteriorate the fins' surface and possibly the tubing itself. It can also destroy the bond between the fins and tubes.

There are no real specifications on the frequency of coil cleaning. It is solely based on the ambient conditions of the coil's surroundings. Some coils may need cleaning every month, while others may need to be cleaned yearly or perhaps at even longer intervals. Each coil should be looked at on a case-by-case basis.

With the continued focus on energy usage today, it is important—as well as energy-efficient—to keep the condenser coils clean. This will not only reduce the energy consumption of the system, it will also extend its service life. ❖



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**In the unlikely event of scheduled meeting cancellations,  
announcement will be posted on our web site**

# Wednesday October 9th, 2019

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## ***"Energy Efficient Condensing Boilers" Now's The Time***

by Tim Warneke  
Platsky HVAC Company Inc.

## **PRESIDENT'S MESSAGE**

Your Board of Directors is actively discussing and formulating the Metro NY Chapter RSES Slate of Officers for the coming year. Elections will be held at our December meeting.

The new slate of Officers will be presented in next month's (November) Newsletter. Please make every effort to attend the following meeting (December) for the election of those officers. **THIS WILL BE AN OFFICIAL MEETING—THIS IS YOUR CHAPTER—THESE ARE YOUR OFFICERS!!**