

METROPOLITAN NY CHAPTER Refrigeration Service Engineers Society

Continuing Education for the HVAC/R Industry

“Better Service Through Knowledge”

April 2018

WWW.METRONYRSES.ORG



THIS IS A SAMPLE OF OUR MONTHLY NEWLETTER

If you are not familiar with our organization –READ ON.....

There is an organization for you!! This organization was founded over eighty years ago and is dedicated to **YOUR** education. It is devoted to achieving perfection in our trade by improving the educational standards and technical ability of its members. This organization can keep you up-to-date on the latest installation, service and troubleshooting techniques as well as the availability of the newest equipment and tools. Its members are your fellow mechanics, service managers, owners, engineers and wholesalers. We are:

The “REFRIGERATION SERVICE ENGINEERS SOCIETY” (RSES) –*an international organization.*
In the New York City area we are “*The Metropolitan N.Y. Chapter, RSES*”.

TEST YOUR KNOWLEDGE

Gas Furnace Installations

Answer the following questions as they relate to gas furnace installations.

1. True or False. All furnaces manufactured before 1992 must have an AFUE rating of at least 78%.
2. True or False. Special joint compound needs to be used when piping a furnace using propane as its fuel.
3. True or False. Natural gas is lighter than air.
4. True or False. A natural gas furnace can use propane as its fuel without any system modifications.
5. True or False. A vent connector should be sloped upward 1/4” per foot towards the main vent.
6. True or False. Condensing furnaces require a Category I vent system.
7. True or False. Category IV furnaces can be vented into existing chimneys.
8. True or False. There must be adequate combustion air supplied to a furnace. A Category I furnace and all other combustion appliances must be located in an area of at least 50 cubic feet per 1000 BTUs of the total input rating.
9. True or False. The electrical service to a furnace can be shared with the basement lights.
10. True or False. A Category IV multi-post furnace can be installed in any position and no special modifications need to be done.
11. True or False. All Category IV furnaces need to be terminated with a two-pipe termination kit.
12. True or False. A contractor must always replace or add a new lining when venting a Category I furnace into an existing masonry chimney.

ANSWERS: 1) F, 2) T, 3) T, 4) F, 5) T, 6) F, 7) F, 8) T, 9) F, 10) F, 11) F, 12) F

METROPOLITAN NEW YORK CHAPTER, RSES
For Information Call: Stan Hollander, CMS (718) 232-6679

Happiness is a By-product of Activity

☞ Happiness lies in the joy of achievement, in the thrill of creative effort. The human spirit needs to accomplish, to achieve, to triumph to be happy.

☞ Happiness does not come from doing easy work, but from the afterglow of satisfaction that comes after the achievement of a difficult task that demands your best.

☞ Your growth itself contains the seed of happiness. There is no happiness except in the realization that you have accomplished something. You cannot pursue happiness by itself.

☞ Happiness thrives in activity. It is a running river, not a stagnant pond. ☞

Wednesday April 11th, 2018

at 7:30pm

at

RICCARDO'S
21-01 24th Avenue, Astoria NY 11102

***Variable Refrigerant Flow Systems –
What's It All About?***

By Bill Artis—Certified Trainer

PRESIDENT'S MESSAGE

This meeting notice is being distributed at the Johnstone Trade Show. Therefore, my message is directed at those technicians in attendance, who may not be aware of our organization.

Our chapter, Metropolitan NY Chapter RSES, meets every month from September thru May. The meetings are educational and reflect member interests. Tomorrow's program will be **VARIABLE REFRIGERANT FLOW** presented by Bill Artis, an acknowledged trainer in this field. Also included with this meeting notice is a handout with the benefits of joining RSES.

Please feel free to join us at tomorrow's meeting/presentation at Riccardo's, 21-01 24th Avenue, Astoria. The presentation starts at 7:30 PM. All are welcome and there is never an admission charge. We will also give you Coffee and Cake, and free parking for your vehicles is available. Did we mention –NO CHARGE?

Hope to see you There

BASIC PIPING TIPS

One of a service technician's many responsibilities is to pipe together refrigeration system components. When piping a system together a service technician must decide which pipe size to use—and this is not always as simple as it may appear. A general knowledge of piping practices is required to make an intelligent choice. Normally each of the system components has a stub connection of a specific pipe size. Using the stub connection size as a guide to determine which pipe size to use is generally not a good practice. Equipment manufacturers design their stub connections for the average or most common pipe size used—the actual pipe size used may need to be larger or smaller. Several factors help determine which actual pipe size to use: type of refrigerant used, the system's capacity, and total length of pipe between the two components.

Of the three major sections of piping, the suction line is the most critical to size properly. Generally the suction line is sized for a minimum pressure drop through the line and a maximum velocity in order to ensure good oil return to the compressor. Incorrectly sizing the suction line can lead to oil return problems or a reduction in the system's capacity. If the pipe size chosen is too large, the velocity of the refrigerant flow will be reduced. Since the refrigerant is in a gaseous state in the suction line, it does not mix well with the refrigeration oil. The velocity of the gaseous refrigerant helps to push the oil along the suction line. If the velocity is too low the oil will collect in the suction line or in the evaporator. This will eventually lead to a shortage of oil at the compressor which can cause it damage. If the suction line is too small, oil return will not be a problem. However, there may be an excessive pressure drop through the suction line. This will reduce the system's capacity. Deciding which pipe size to use for the suction line is generally a compromise between ensuring good oil return and maintaining a minimum pressure drop through the line.

It is also important to correctly size the discharge and liquid lines. However, in the discharge line the refrigerant is traveling at a higher velocity, the oil is pushed along and the pipe size is not as critical. In the liquid line, since the refrigerant is in its liquid form, it tends to mix well with the refrigerant and is carried along easily.

(continued next column)

Most manufacturers will include with their installation and service literature recommended pipe sizes for the various installation requirements for their equipment. It is important for any service technician to refer to this material when piping in any component. If the original installation and service literature is not available, there are universal tables and charts available to aid in choosing the right pipe size. Always refer to the appropriate sizing chart rather than simply basing the pipe size on the component's stub connection. This will ensure the right size pipe is chosen for the job and that the system will function properly at its design refrigeration capacity. <<

OIL-LOGGED EVAPORATORS

Systems with loss of capacity and poor performance may be the result of an oil-logged evaporator. An excessive amount of refrigerant oil can collect in the evaporator which will severely inhibit the heat transfer capacity of the evaporator. This type of problem can occur on all types of systems; however it is more common with lower temperature systems where the lower temperature causes the oil to be more viscous, making it harder for it to return to the compressor.

Systems with an oil-logged evaporator will exhibit a low oil level in the compressor's sightglass, since the oil is trapped in the evaporator. The system's TXV will also have a hard time controlling the correct superheat value of the refrigerant leaving the evaporator. The remote bulb of the TXV may not be able to sense a true evaporator outlet temperature because of the excessive amount of oil lying in the tubing. The TXV bulb will sense a warmer temperature, causing the TXV to allow an excessive amount of the refrigerant to enter the evaporator and the actual superheat valve of the refrigerant leaving the evaporator to be lower than normal.

Some causes of oil being logged in an evaporator are:

- Too much oil in the system;
- Improper piping of the suction line;
- Not enough defrost cycles for low temperature systems;
- Improper/no P-Traps on vertical runs
- Wrong type or viscosity of oil being used in the system. <<

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COMING TOPICS

*Variable Refrigerant Flow Systems –
 What's It All About?*


*Identifying and Correcting Voltage Leak-
 age Problems w/VFD Motors & Drives*

*What Else is New in Motor Technology
 for the HVAC Industry*

The Latest in Compressor Technology

If you have any suggestions or requests for **FUTURE
 EDUCATIONAL PROGRAMS**, please let us know!

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