

# METROPOLITAN NY CHAPTER Refrigeration Service Engineers Society

Continuing Education for the HVAC/R Industry

“Better Service Through Knowledge”

\*\*\*\*\*

January 2016

[WWW.METRONYRSES.ORG](http://WWW.METRONYRSES.ORG)



## OIL SEPARATORS

During the normal compression cycle, as the refrigerant is discharged from a compressor, a small amount of refrigeration oil will also be discharged. It is important that this discharged oil returns back to the compressor. In order for the oil to return back to the compressor good piping practices must be followed. If the refrigerant lines are not properly sized or configured the oil may become trapped out in the system. If enough oil becomes trapped out in the system, the compressor could become starved for oil and bearing and cylinder damage could occur.

An oil separator is an accessory used on some larger refrigeration systems to help limit the amount of oil in circulation. It is typically used on low temperature applications where the refrigerant's mass flow rate is low, but it can be used on **any** system. An oil separator will separate a major portion of the oil from the refrigerant as it is pumped from the compressor. It will also collect this separated oil and safely return it to the compressor's crankcase. Oil separators are installed in the discharge line close to the compressor's discharge. Sometimes they are heated and/or insulated to prevent the refrigerant inside from condensing at low ambient conditions.

As the refrigerant/oil mixture is discharged from the compressor it enters the oil separator. The velocity of this mixture is slowed down from the use of internal baffles and impingement screens. This slowing down causes a major portion of the oil to drop out of the mixture and fall to the bottom of the oil separator. At the bottom of the oil separator is a float assembly connected directly back to the crankcase of the compressor. As the oil level at the bottom of the oil separator increases, the float will cause a valve to open and, due to the pressure difference between the oil separator and the compressor's crankcase, some of the oil will be returned to the crankcase until the float level in the oil separator drops and the valve closes.

While servicing systems with oil separators one item to check is the temperature of the oil return line from the oil separator to the compressor. It should be just above room temperature most of the



time. If it is hot all the time, this is an indication that the float assembly inside the oil separator may be stuck open or leaking and allowing hot discharge vapor to enter the compressor's crankcase. This can lead to excessive crankcase pressures, overheating, and serious damage to the compressor.

Although oil separators can be quite efficient (some as high as 98% efficient), they do not separate all of the oil from the refrigerant. Some quantity of oil will always travel with the refrigerant throughout the system. They are not a cure for oil return problems. Good piping practices must always be followed while installing a system. Even with an oil separator, poor piping practices will eventually lead to oil being trapped out in the system causing a shortage of oil in the compressor's crankcase and possible compressor damage.

## Refrigerant Cylinders

We regularly handle various types of refrigerant cylinders, which can cause injury to a technician if mishandled, so keep these safety guidelines in mind:

- Use only DOT approved cylinders for the recovery of refrigerants from a system.
- Do not overfill refillable refrigerant cylinders to more than 80% of their internal volume.
- Disposable cylinders **are not reusable**.
- Disposable cylinders must be transported in their original cartons.
- Always transport refrigerant cylinders in an upright and secured position to prevent movement during transportation.
- Recovery cylinders must be re-tested every five years. Do not use a recovery cylinder which has not been re-tested within the 5-year required period.
- If the cylinder looks damaged, do not use it. Any dents, rusting locations or gouges may indicate an unsafe condition.
- Do not warm refrigerant cylinders above a temperature of 130°F.

We hope everyone had a Happy and Safe Holiday and New Year celebration.

As we begin another year, the chapter newsletter continues its transition to an emailed version. This month you will receive both a mailed copy and an emailed copy. If you have not received your emailed copy, then you must update your RSES information IMMEDIATELY. The emailed copy will usually be transmitted on the Wednesday before the meeting.

We only ask that you do one thing (there is no charge). Please go to [www.rses.org](http://www.rses.org) and log in. If you have not established a log-in with RSES you will have to do so at this time. After you log in, check that your email address is correct and that it is where you would like your meeting notice sent. We will be using the RSES database of chapter members for our email list. This is the only way you can ensure that you continue to receive our monthly meeting notices. **ACT NOW.**

Are you going to the AHR show in Florida this month? If you do, and you see something that might make a good meeting or seminar topic, email the information to Stan Hollander, CMS at:

[www.educationaldirector@metronrses.org](mailto:www.educationaldirector@metronrses.org)

***Feel free to forward this email to anyone you think might be interested in 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 TO TEST YOUR KNOWLEDGE

1) False 2) True 3) True 4) False 5) True 6) False 7) False 8) True 9) False 10) False 11) False 12) False



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**COMING TOPICS**

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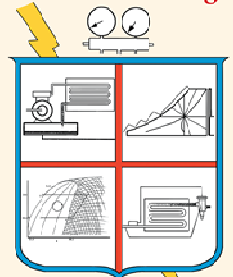
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For Information Call: Stan Hollander, CMS (718) 232-6679

**OPPORTUNITY FOR MINORITY and/or WOMEN OWNED CONTRACTORS**

My name is Claudia Castro and I am the Director of Contractor Outreach at the New York City Police Department (NYPD). The NYPD intends to pre-qualify a list of mechanical contractors that are Minority and/or Women-owned Business Enterprises (M/WBE's) to perform various HVAC projects in precincts citywide. These projects will be initiated within the next few months. The services will require removal and replacement of existing boiler/heating systems and installation and upgrades of air conditioning systems. The NYPD wants ensure M/WBE's have opportunities to participate on these upcoming projects. Vendors interested in participating in our upcoming projects can contact me directly.

Claudia Castro  
Director of Contractor Outreach, NYPD  
Claudia.Castro@nypd.org  
Phone: 646-610-4786

**Wednesday January 13th, 2016 at 7:30pm**

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**EDUCATIONAL PROGRAM**  
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**SEE DETAILS THIS PAGE**

