METROPOLITAN NY CHAPTER

Refrigeration Service Engineers Society

Continuing Education for the HVAC/R Industry

"Better Service Through Knowledge"

September 2018

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Control Loops

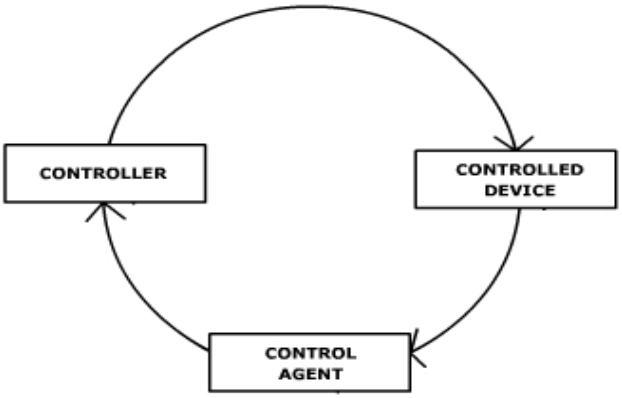
A control loop is a series of components which operate together to achieve a desired goal. For example, a building's air conditioning system is one example of a control loop. The system's thermostat controls the operation of the air conditioning components to maintain a desired building temperature.

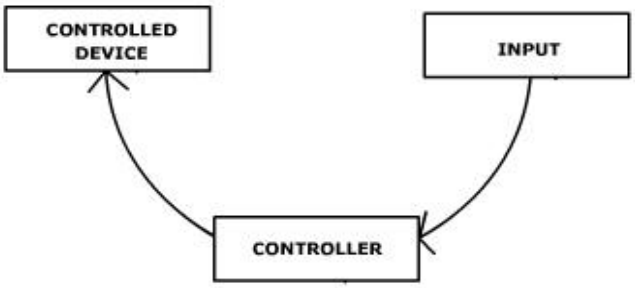
There are two basic types of control loops: closed loop systems and open loop systems.

A closed loop system consists of a controller, a controlled device and a control agent. All of these components work in unison to achieve a desired condition. Each component feeds information to another component in a continuous loop. A change in a control agent is sensed by a controller. In response, the controller activates the controlled device. As the controlled device operates, it causes a change at the control agent. The change in the control agent is sensed by the controller and deactivates the controlled device.

An example of a typical closed control loop is a typical residential heating system. As the house temperature (control agent) falls, the thermostat (controller) senses this change in temperature. In response the thermostat (controller) turns "on" the heating system (controlled device). As the heating system operates, it increases the house temperature, which is sensed by the thermostat. When the house temperature increases to the thermostat's set point, the heating system is turned "off" by the thermostat.

An open loop system is opposite of a closed loop system. Not all of the components feed information to another component. A controller with a sensing element receives an input; as a result of the input the controller causes a change at the controlled device. However this change of the controlled device has no influence on the input to the controller. An example of an open loop system is a hot water boiler controller which resets the boiler temperature based on the outdoor air temperature. As the outdoor air temperature drops the controller increases the boiler temperature. This increase in the boiler temperature has no influence or does not change the outdoor temperature.





Safety First

Working on any type of mechanical system--especially heating, air conditioning and refrigeration systems--can be hazardous at times. Working safely should always come first for a technician. A technician should never attempt to make a repair that could place him in an unsafe situation. Many times, a technician will take unnecessary risks either to save time on the job or as a result of simply being lazy or careless. This should be avoided--always take the extra time needed to work safely and avoid being lazy.

Another situation that can cause injury to a technician is trying to do a two man job, alone. If help is needed, ask. Don't be a hero on a job by not taking help.

Remember: **safety first, no exceptions.**

COMING TOPICS

Indoor air quality, Ventilation, building codes and standards, Energy recovery technology, and ERV applications

What Else is New in Motor Technology for the HVAC Industry

The Latest in Compressor Technology

New Technology for Controlling Humidity

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

METROPOLITAN NEW YORK CHAPTER, RSES

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

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

Wednesday September 12th, 2018

at 7:30pm

at

RICCARDO'S

21-01 24th Avenue, Astoria NY 11102

Indoor Air Quality, Ventilation, Building Codes and Standards, Energy Recovery Technology, and ERV Applications

Adia Bodden - HighMark

PRESIDENT'S MESSAGE

Welcome back from what I hope was a safe and profitable Summer. Rich Bruno and Stan Hollander CMS are working on setting up interesting and informative speakers. However, they can use your help. In the past we have focused on product information and knowledge. However, there are many other aspects of this business that may be of interest to you. With the heating season starting soon are there things you are weak in and could use a refresher on? When replacing a 80% efficient furnace with a 98% efficient is there anything else you need to consider? Please give this some thought. Our goal is to educate our members, and what you want matters. Contact Rich Bruno at educationandwebmaster@metronyrses.org with your suggestions.