



Reduce Your A/C Costs with Economizers

As the cost of electricity continues to rise, the cost of keeping your building at a comfortable temperature rises as well. Wouldn't it be nice if you could slash your energy use by decreasing your need for mechanical air cooling? You can, with economizers.

What is an Economizer?

An economizer is a device that is installed on your rooftop HVAC unit. It works in unison with your mechanical cooling system. During certain parts of the season or day when the temperature of the outside air is comfortable, the economizer controls a set of movable metal plates (i.e. dampers) that brings filtered outside air in to the ventilation system.

How does an Economizer Work?

The economizer is equipped with a series of sensors that read the temperature and carbon dioxide levels of the outside air. At any point in time the system determines the best mix of air based on the sensor readings.

If these sensors show that the outside air is sufficiently cool, the damper fully opens. This lets your system run 100% on this filtered outside air. In this situation, mechanical cooling is completely blocked. At other times the economizer opens and closes the damper to varying degrees, so that building occupants get a mix of filtered outside air and mechanically cooled air. Of course, sometimes the economizer closes the damper completely, so that your system runs 100% on mechanically cooled air.

Are Economizers Required by Law?

The answer depends on the size of your building and cooling system.

California state law Title 24 states: "Each cooling fans system that has a design total mechanical cooling capacity over 54,000 Btu/hour shall include either (A) an air economizer capable of modulating outside-air and return-air dampers to supply 100 percent of the design supply air quantity as outside-air; or (B) a water economizer" [with certain specifications].* The law also states a variety of exceptions to this rule.

How Much Energy Can Economizers Save?

When outside conditions are optimal, a well-functioning economizer gives your mechanical system an assist from nature. This makes your mechanical system more energy efficient, as it does not need to work as hard to produce air at the desired temperature.

What we've seen in the field is that facilities can realize substantial energy savings through the use of economizers. For example, for an office building with 20 to 30 pieces of A/C equipment, installing economizers on all of these units can slash energy use by 20 to 30%.

To obtain these energy savings, though, economizers must operate effectively. Stay tuned for the next article in this series, where we'll take a look at why economizers are going digital.

* California Energy Commission, CEC-400-2012-004-CMF-REV2, "[2013 Building Energy Efficiency Standards for Residential and Nonresidential Buildings](#)," page 172.

About Evolution Mechanical

EvolutionMechanical is an experienced and reliable HVAC and refrigeration contractor that can design and install your HVAC system and keep it running smoothly. In addition, we're also highly knowledgeable energy consultants offering a full range of energy management services. Give us a call for all of your HVAC and energy needs!

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