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## [MAKE-UP AIR SYSTEMS]

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## Make-Up Air Systems

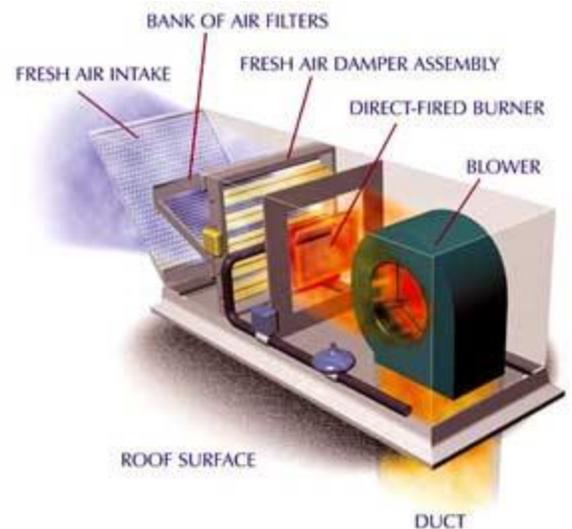
Building exhaust systems take out large volume of air from the building space. If this air is not replaced at the same rate that it is expelled, the building will experience a negative pressure (the air pressure outside the building is greater than the air pressure inside the building).

Some of the most common indicators of a negative pressure problem include the suction pressure that makes exterior doors difficult to open, exhaust fans that don't work properly, drafts around doors and windows, poor indoor air quality, and infiltration of outdoor air. These problems are more pronounced during the rainy season when windows are kept closed, reducing the natural pressure-balancing effect.

A make-up air system replaces the air that is expelled by a building's exhaust system, maintaining the proper balance between inside and outside air pressures while also providing many other benefits:

- Supplies conditioned replacement air that can be heated, cooled, humidified or dehumidified
- Promotes proper operation of exhaust systems
- Improves indoor air quality
- Eliminates suction pressure at exterior doors
- Decreases load on existing HVAC system
- Lowers energy costs by as much as 35%
- Maintains a more comfortable and productive working environment

The illustration shows a typical rooftop-mounted make-up air unit. The make-up air unit takes in fresh air and passes it through a bank of filters to remove dust and other contaminants. The amount of fresh air brought in is regulated by the dampers in the damper assembly. An actuator opens the dampers to varying degrees depending on how much fresh air is needed at the time. In a heating/cooling application the passing air is then efficiently heated or cooled by a direct-system. The heated or cooled air is then either blown directly into a building space or it can be ducted to target locations inside a building via the air distribution system.



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