



GAS SAVING TECHNOLOGIES

- DUSTIN SCHAU



Michael'sEnergy

Hello!



Inefficiencies can be like **Mosquitoes**



Left - <http://2.bp.blogspot.com/-FyIC1CiGtPQ/TWRr9UayrGI/AAAAAAAAADTo/2kzGcZEEvQI/s1600/12.CREEK%2BFENCE.jpg>

Right - https://encrypted-tbn2.gstatic.com/images?q=tbn:ANd9GcQfp3riZ3HmVrvO1qtwSZoU-h5DevHdNfPL_rP1LEMi48hIB-9_Cg

Industrial and Commercial



Industrial Strategies



Infrared
Heating



Dust &
Particulate
Collection



Destratification
Fans



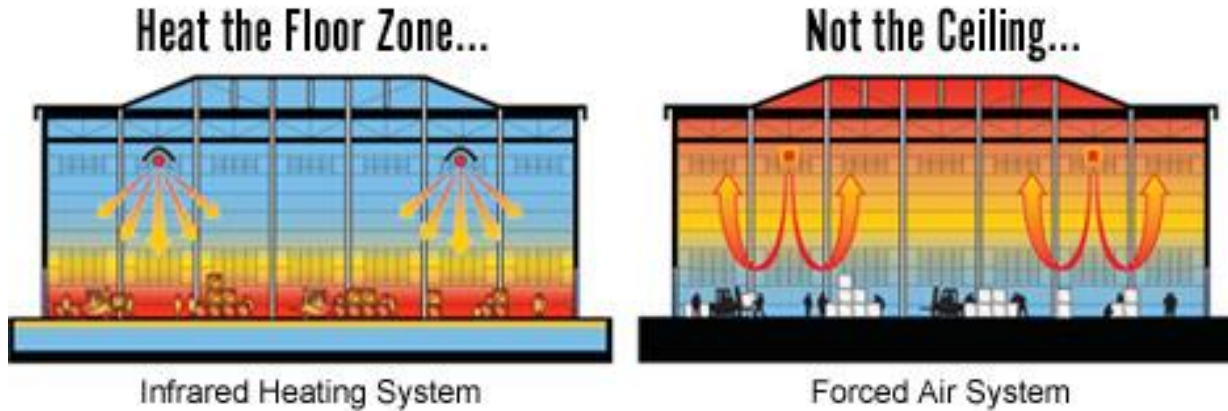
Exhaust Heat
Reclaim

Infrared Heating



<https://sc01.alicdn.com/kf/HTB1E3kVLXXXXtaXXXq6xXFXXf/gas-fired-overhead-radiant-tube-heater-system.jpg>

Infrared Heating



<https://www.infraredradiant.com/wp-content/uploads/2014/03/Wil-floor-diagram.jpg>

Dust and Particulate

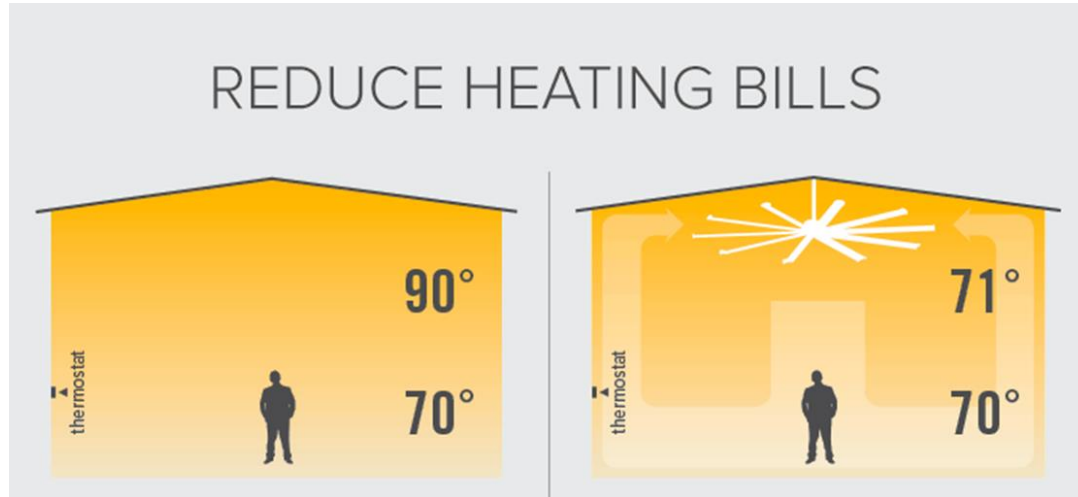
Collection Systems



- ✓ Welding
- ✓ Grinding
- ✓ Woodworking
- ✓ Machining

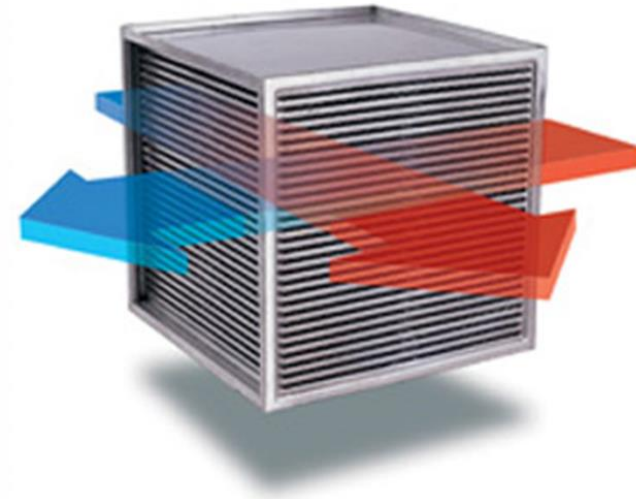
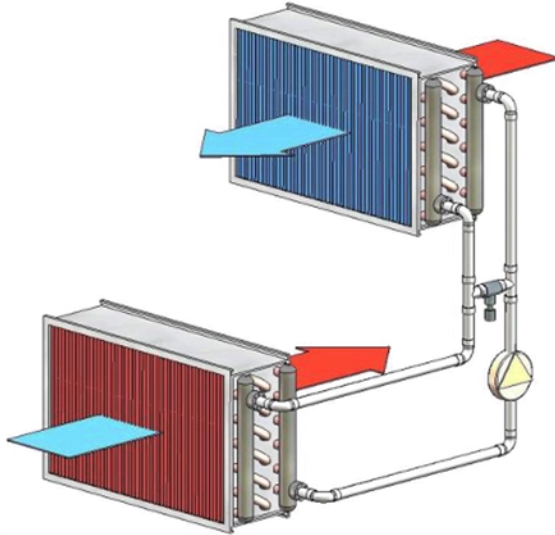
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Destratification Fans



https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwip8Pq8vZrTAhUs6YMKHc2bDyMQjRwIBw&url=http%3A%2F%2Fwww.bigassfans.com%2Fau%2Fheat-destratification%2F&psig=AFQjCNHpDzMdpWNo_piZcvMxBLnRidCdZQ&ust=1491934017205954

Exhaust Heat Reclaim



Left - <https://www.renewableenergyhub.co.uk/images/design/pages/Run-Around-Coil-or-Closed-Loop-Technology-heat-recovery.png>

Right - http://www.fantronix.com/acatalog/hrv_2.jpg

Commercial Strategies



Unoccupied
Spaces



Outside Air



Energy
Recovery

Unoccupied Spaces

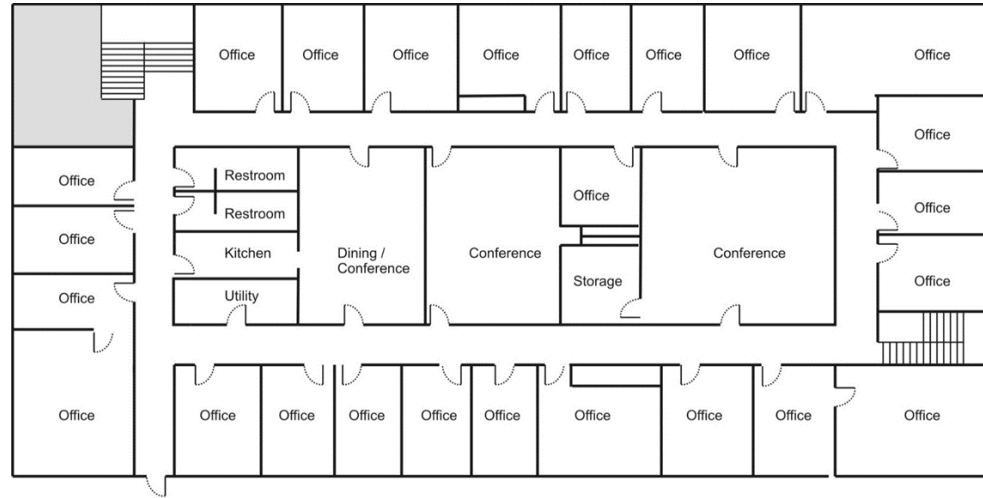
➤ Scheduling

➤ Zone Shutoff

➤ Temperature
Setback

Unoccupied Spaces

Zone Shutoff



<http://www.everythingbaba.com/sites/default/files/2730%20Adeline%20Floorplan%20-%20Second%20Floor.jpg>

Unoccupied Spaces

Zone Shutoff



<http://www.everythingbaba.com/sites/default/files/2730%20Adeline%20Floorplan%20-%20Second%20Floor.jpg>

Unoccupied Spaces

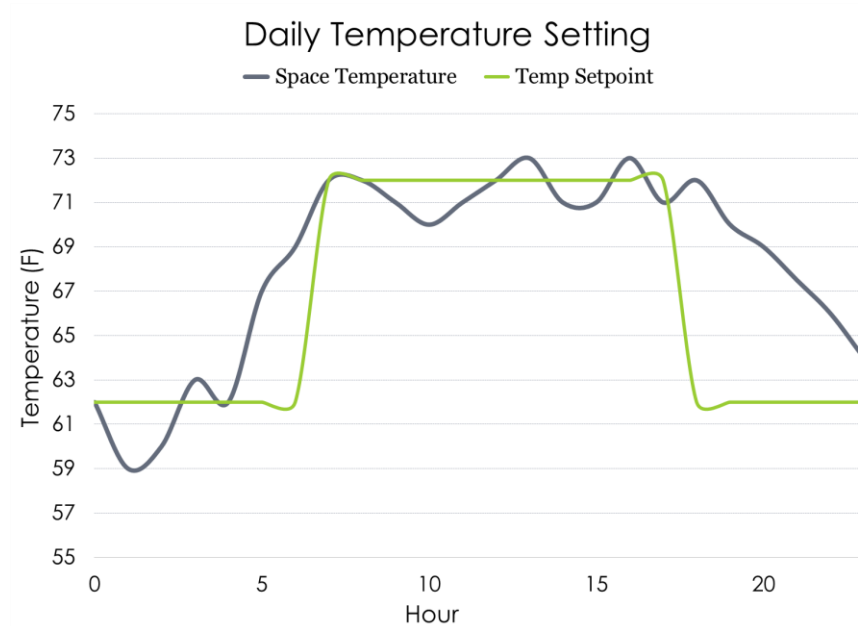
Zone Shutoff



<http://www.everythingbaba.com/sites/default/files/2730%20Adeline%20Floorplan%20-%20Second%20Floor.jpg>

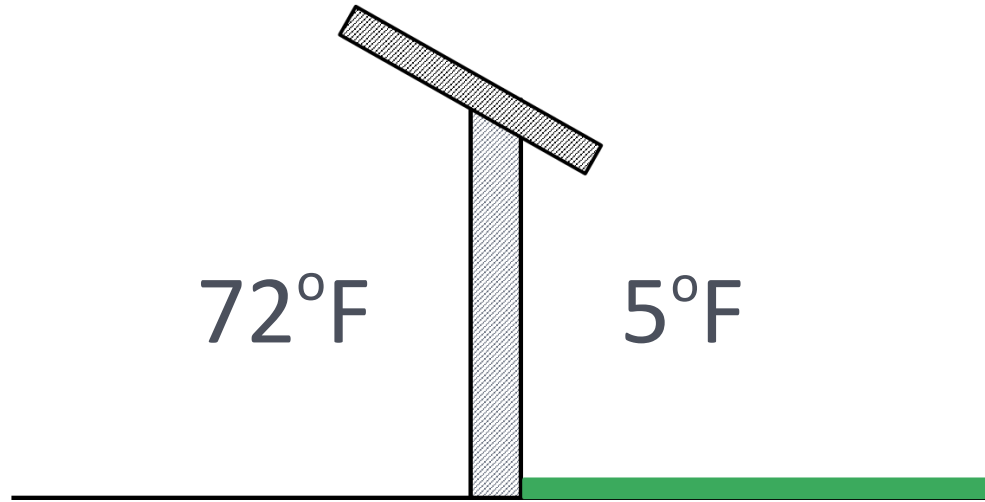
Unoccupied Spaces

Temperature Setback



Unoccupied Spaces

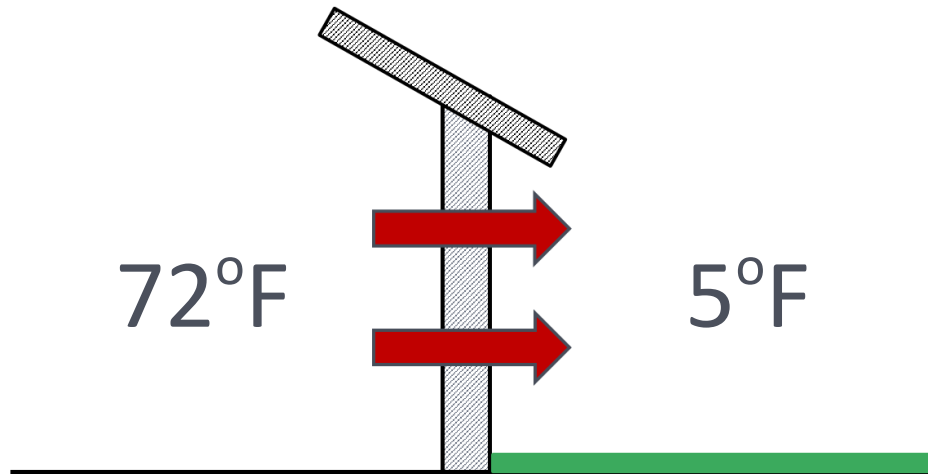
Temperature Setback

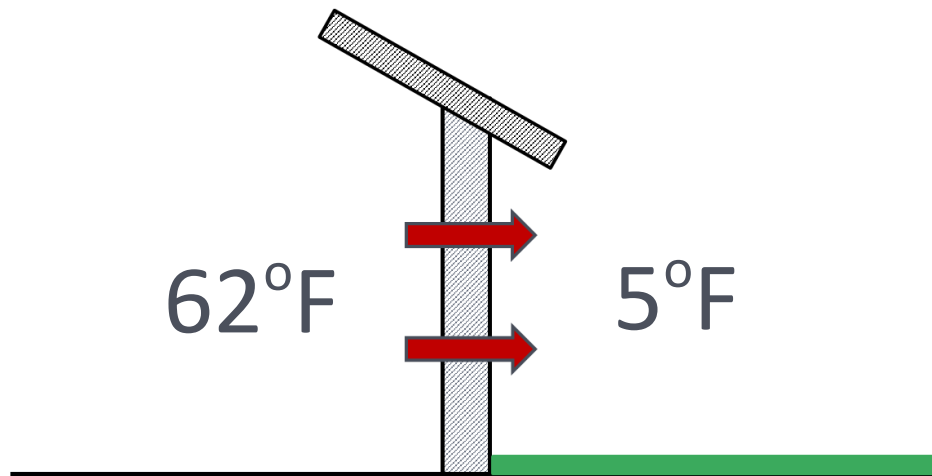


Unoccupied Spaces

Temperature Setback

Heat Loss = Insulation x Area
x Temp Difference





Unoccupied Spaces

Temperature Setback

Heat Loss = Insulation x Area
x Temp Difference

Outside Air



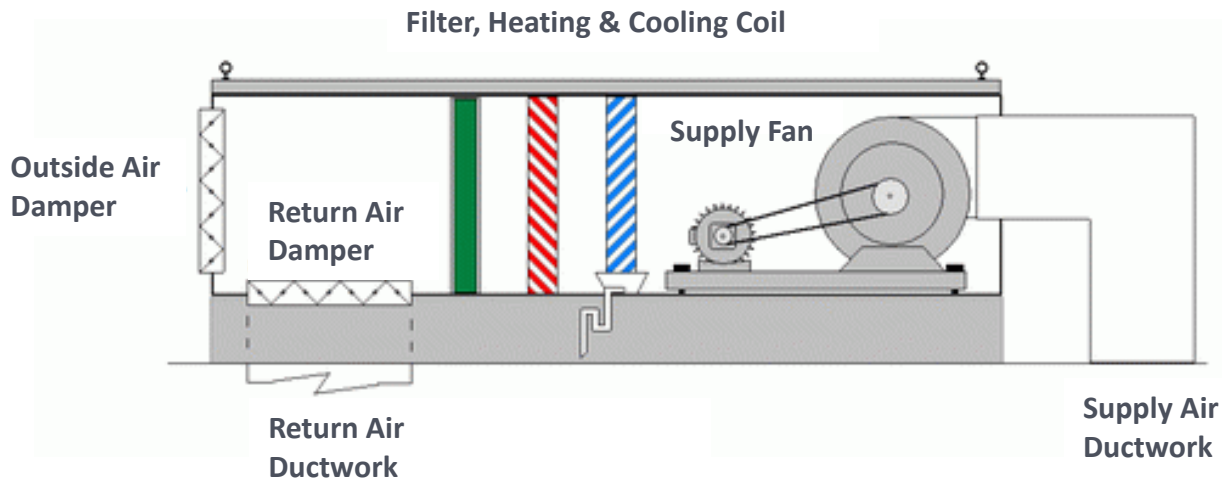
Close Outside
Air Damper



Demand Controlled
Ventilation

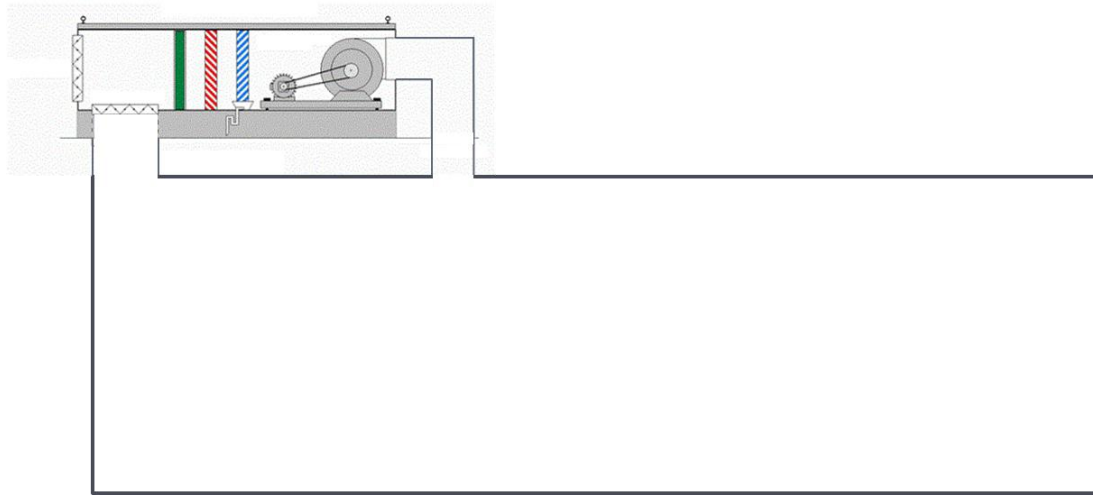
Outside Air

Close Outside Air Damper



http://ae391a4winter15.weebly.com/uploads/4/6/8/1/46818277/4816189_orig.gif

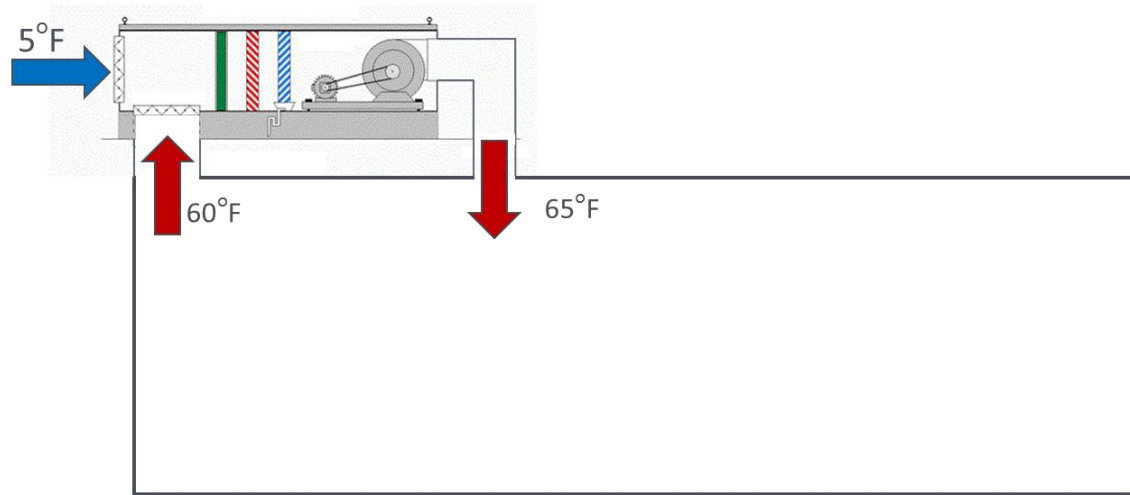
Outside Air Close Outside Air Damper



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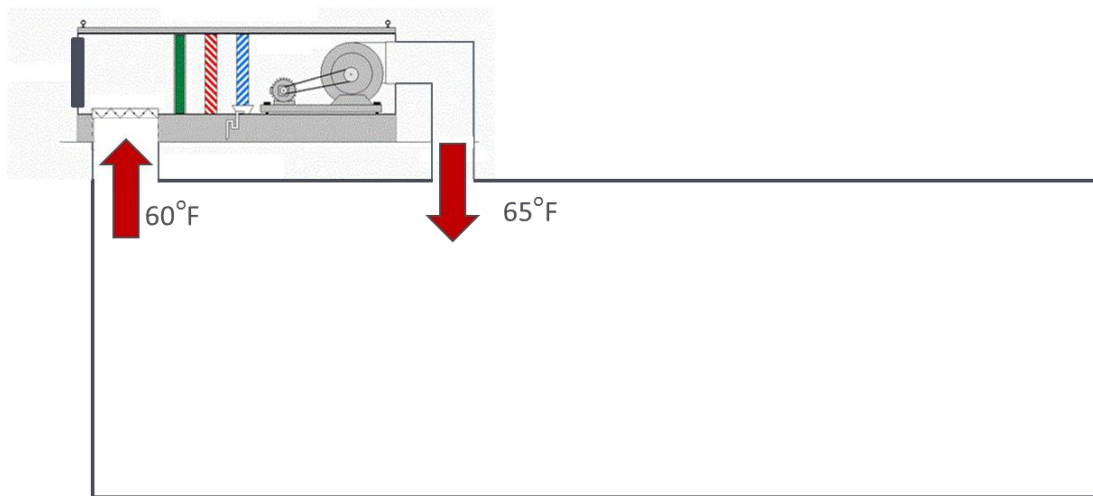
Outside Air

Close Outside Air Damper



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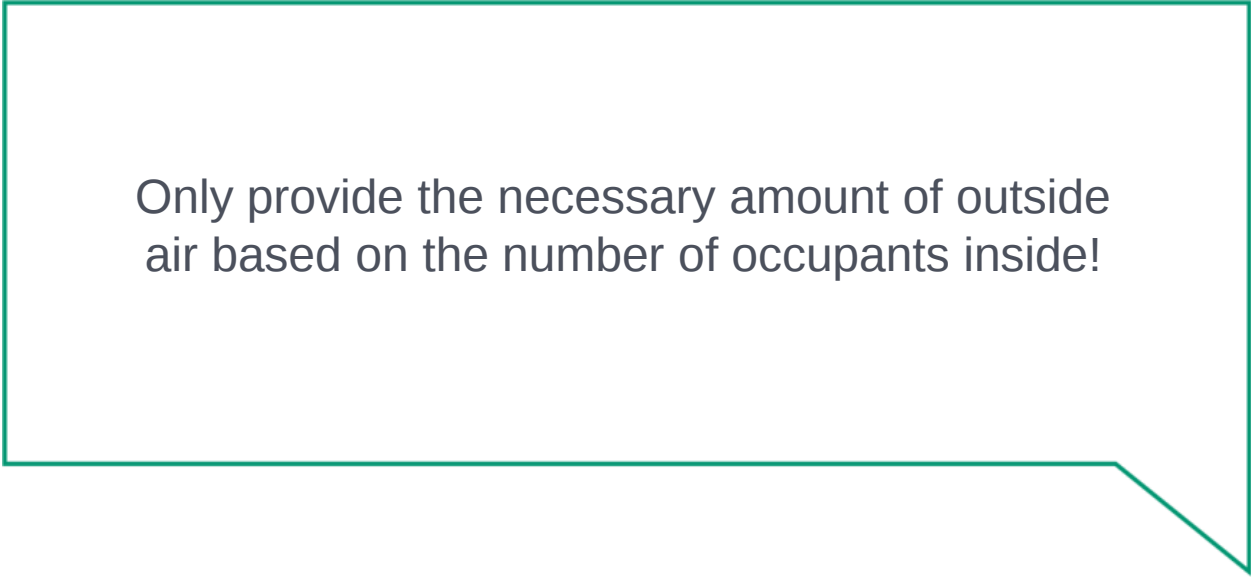
Outside Air Close Outside Air Damper



http://ae391a4winter15.weebly.com/uploads/4/6/8/1/46818277/4816189_orig.gif

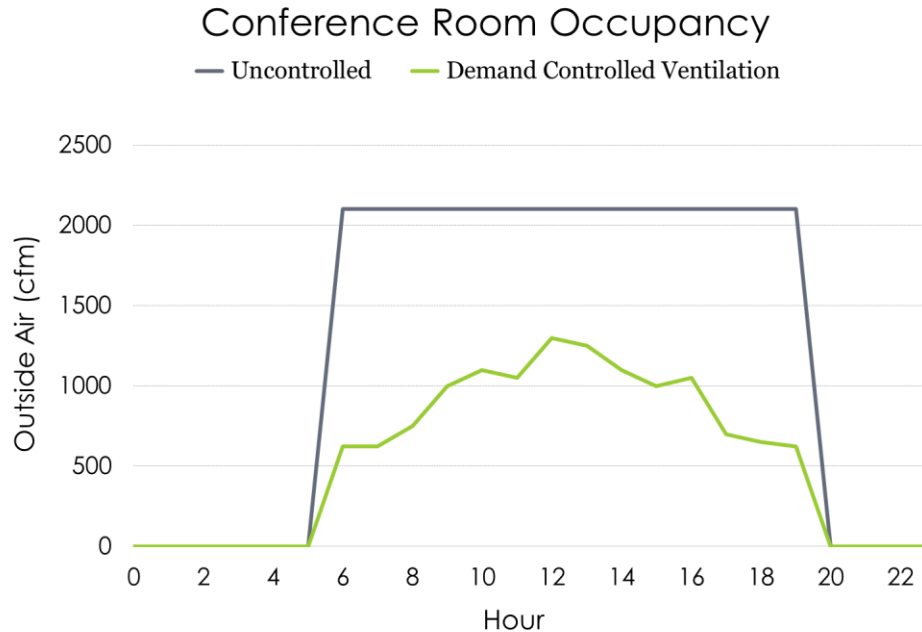
Outside Air

Demand Controlled Ventilation

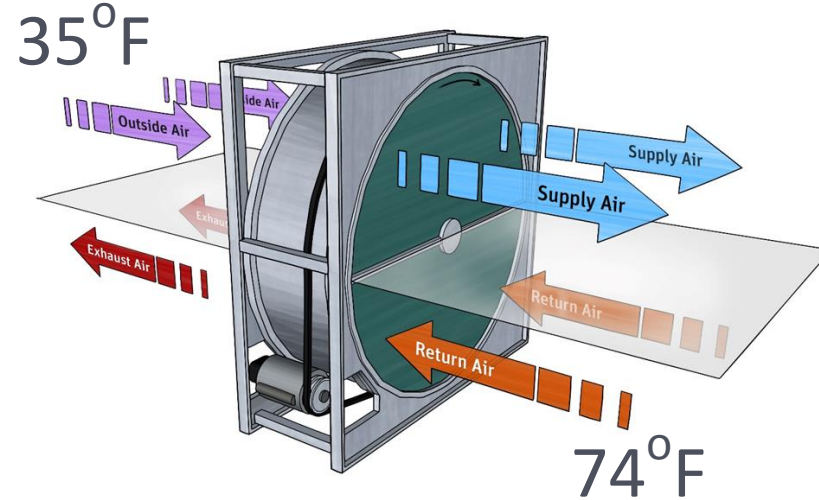


Only provide the necessary amount of outside air based on the number of occupants inside!

Outside Air Demand Controlled Ventilation

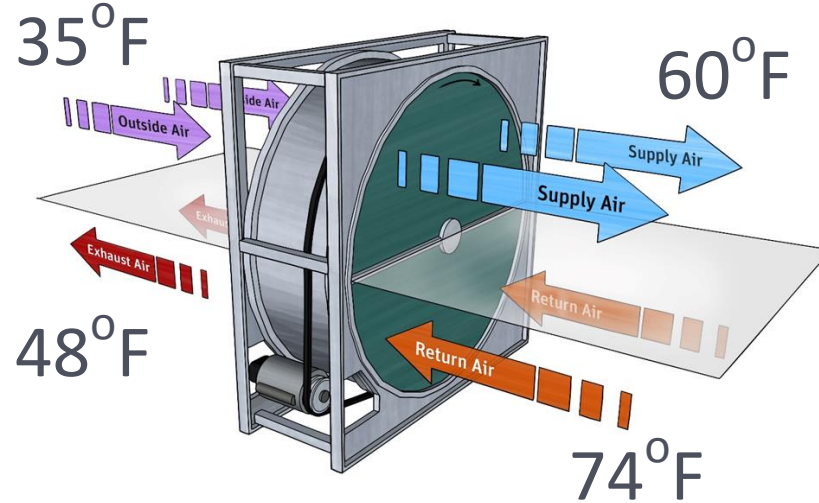


Energy Recovery



http://s3images.coroflot.com/user_files/individual_files/original_131681_yNSmnjCOh5BX9ObXhEn8neePd.jpg

Energy Recovery



http://s3images.coroflot.com/user_files/individual_files/original_131681_yNSmnjCOh5BX9ObXhEn8neePd.jpg

Boiler Strategies



Boiler
Tune-ups



Pipe
Insulation



Flue Gas
Temperature
Reductions



Steam Trap
Checkups

Boiler Tune-up



Increased
Efficiency



Increased Efficiency

Heavy Sooting



<https://pbs.twimg.com/media/C2Z0v7UXcAAYkG0.jpg>

Boiler Tune-up

➤ Increased
Efficiency

➤ Boiler Longevity

➤ Safety

Pipe Insulation

Heat Loss = Insulation x
Surface Area x Temp
Difference



<http://www.munsterinsulation.ie/wp-content/uploads/2010/11/isover-pi.jpg>

Flue Gas

Temperature Reductions



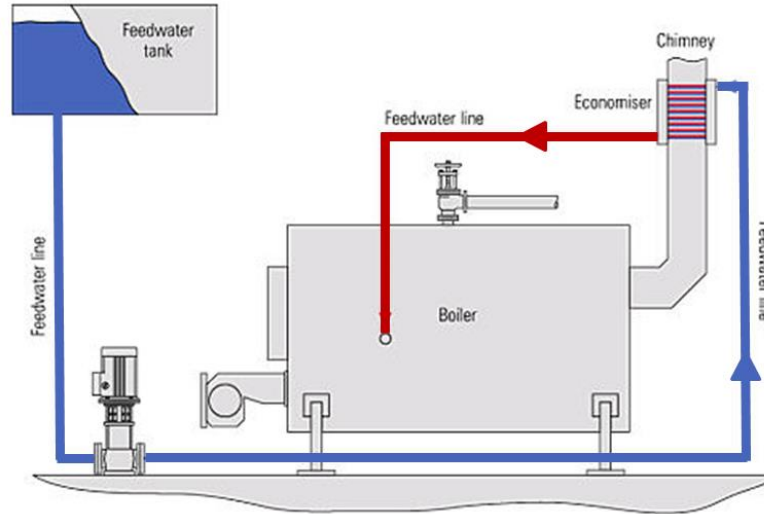
Stack
Economizers



Flue Gas
Condensers

Flue Gas Temperature Reduction

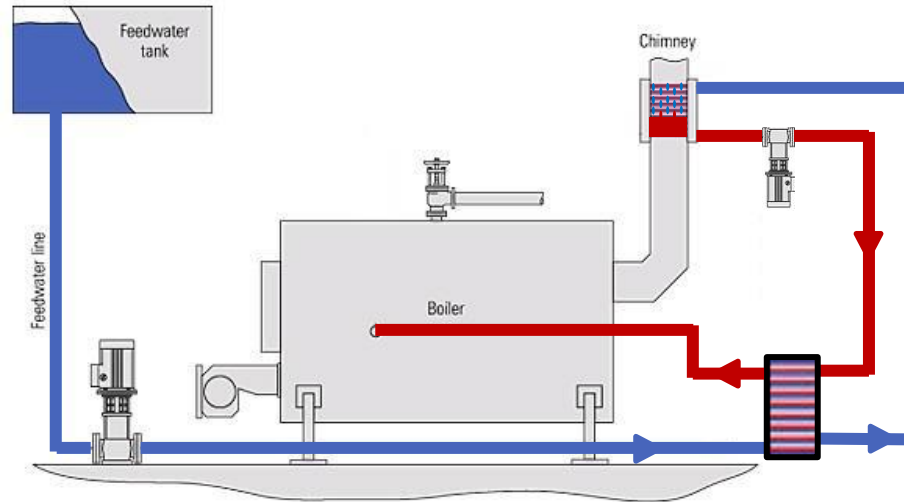
Stack Economizers



http://www.cleanboiler.org/Eff_Improve/Images/Economizer_Schematic.jpg

Flue Gas Temperature Reduction

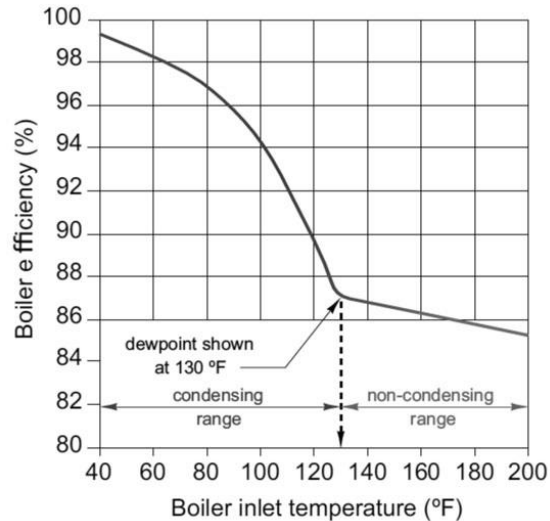
Flue Gas Condenser



http://www.cleanboiler.org/Eff_Improve/Images/Economizer_Schematic.jpg

Flue Gas Temperature Reduction

Boiler Condensation

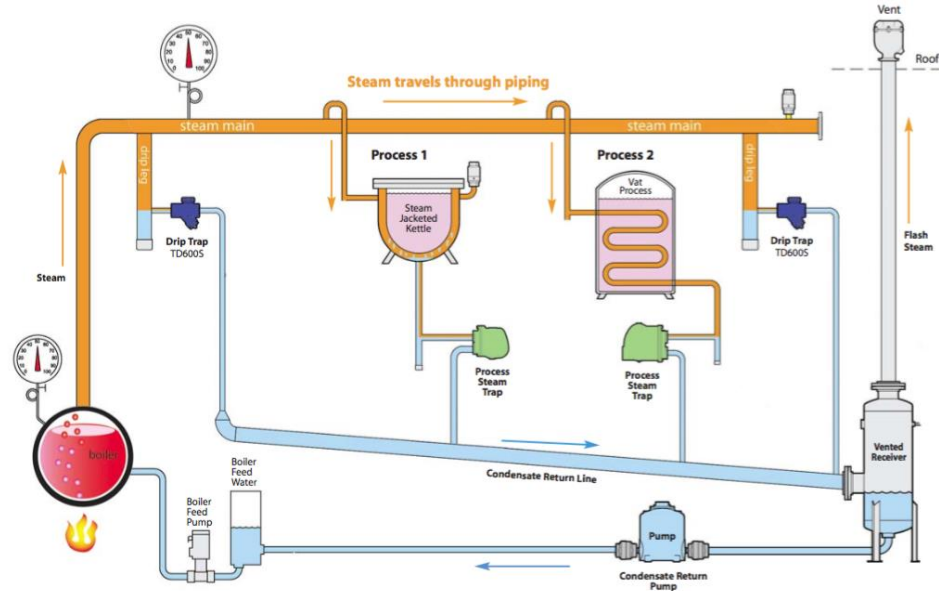


✓ Hot water boiler

✓ Steam boiler

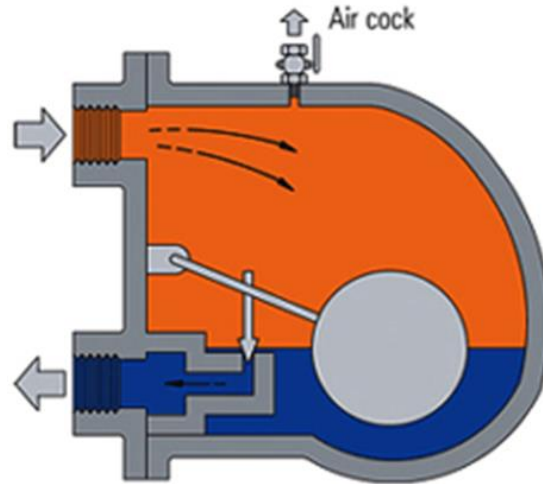
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Steam Trap Checkups



https://1.bp.blogspot.com/-6WO_gU1vB7s/VsodqygQw9I/AAAAAAAAAKY/bEEIilfxHIs/s1600/ives-steam-system-dia.png

Steam Trap Checkups



<http://www.enggcyclopedia.com/wp-content/uploads/2012/02/ball-float-steam-trap.png>

Other Efficiency Ideas?



Contact your account manager!

THANK YOU!

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