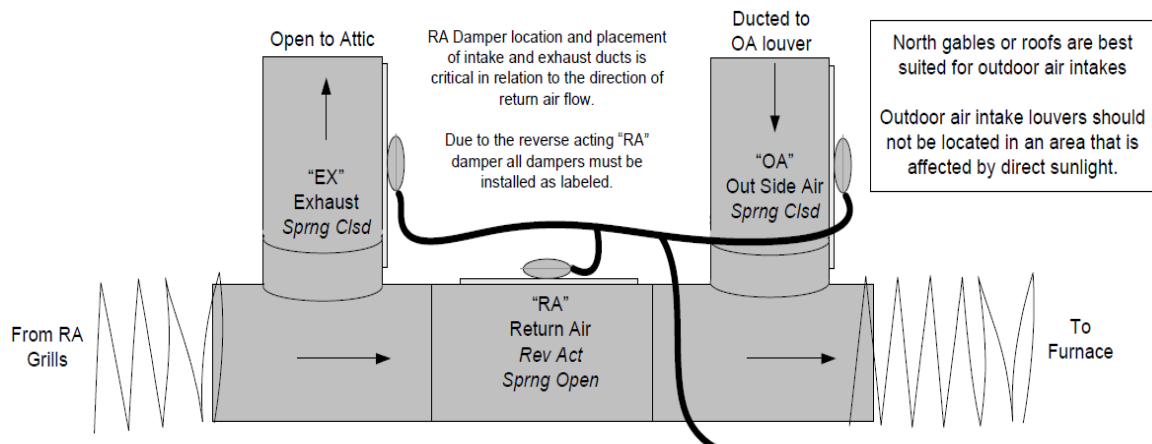


Economizer Duct Sizing for Arzel CoolMizer Applications

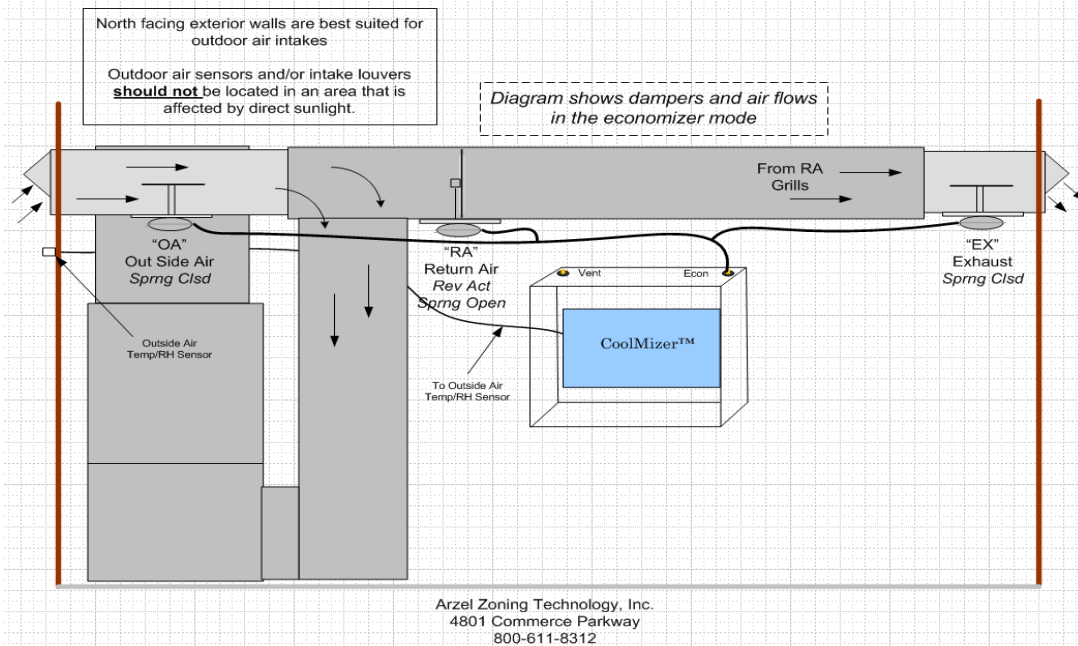
The following are guidelines only

Each system must be designed to meet the BTU requirements and physical limitations of the structure

1. Always run a load calculation using a design temperature equal to the highest outdoor temperature that they will be utilizing economizer mode.
 - a. If zoning is applied, calculate the load and cfm requirements for the zone(s) requiring cooling when outdoor conditions are favorable for economizer usage
 - i. This could reduce the required OA Duct size
 - b. If zoning is not applied, size the OA Intake to bring in 100% of the return air volume from outside
 - i. Standard, single speed blower motor (cooling is High speed)
 1. Size the OA duct to an equivalent size of the RA duct
 - ii. Variable Speed ECM blower motor wired for two stage operation
 1. Size OA duct to handle the Low Cooling CFM (70% of total)
 - c. Other considerations
 - i. When designing for a fixed, mixed air solution
 1. Install a Reverse Acting damper in the RA duct to close of a percentage of the return.
2. Always recommend an exhaust duct or pressure relief vent to relieve structure pressure
 - a. Duct or opening should be equivalent in size to the OA duct
 - i. Simple attic and basement duct layouts shown below



CoolMizer Basement Duct Application & Tubing Connections



3. Pressure relief resources

- i. http://www.greenheck.com/media/pdf/submittals/BR10Series_submittal.pdf
- ii. <http://www.registers-direct.com/damper-louver/pressure-relief-hd.html>
- iii. <https://www.dialmfg.com> (MAX AIRE Barometric ceiling vent)
- iv. <https://www.plumbersstock.com/product/179866/dial-78236-max-aire-barometric-downdraft-damper/?qclid=CMjY4p7KnbcCFSVp7AodXxQAOW>

4. Web resources for Intake Louvers

- i. http://www.greenheck.com/media/pdf/catalogs/GravityVentilators_catalog.pdf
- ii. http://www.archlouvers.com/Louver_E2JS.htm
- iii. <http://www.webrepswholesale.com/category.jhtm?cid=2194>
- iv. <http://grilles.hvacquick.com/products/residential/Louvers/2-Inch-Exterior-Louvers>

5. Additional resources

- a. <http://www.taylor-engineering.com/downloads/articles/ASHRAE%20Journal%20-%20Economizer%20Relief%20Systems.PDF>

The guidelines on this document are not intended to supersede HVAC Industry Standards

The contractor accepts full responsibility for compliance and functionality of the design for their particular installation.