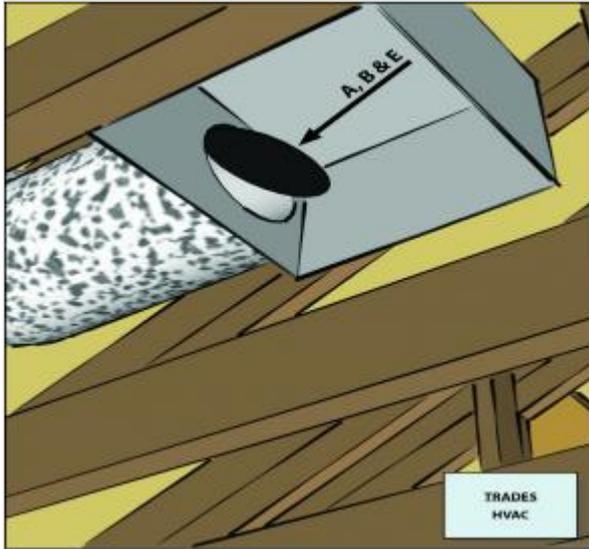


Back-Draft Dampers at Shared Common Exhaust Duct

Last Updated: 08/15/2013

Scope



If fans share common exhaust duct, back-draft dampers installed

Local Mechanical Exhaust

If fans share common exhaust duct, back-draft dampers installed.

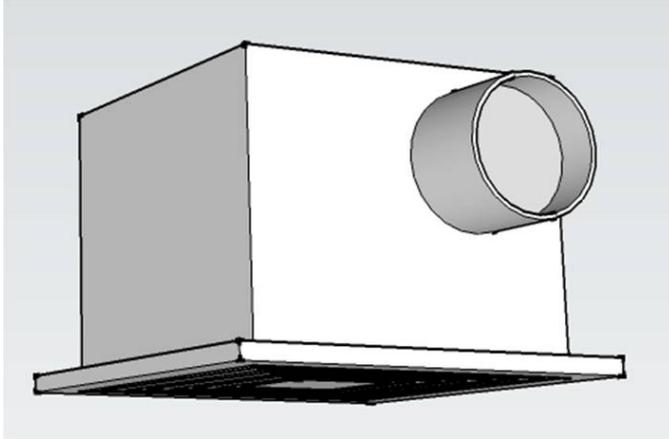
- A. Install back-draft dampers on all fans sharing a common exhaust duct.
- B. Remove all packing tape from back-draft dampers.

Description

Exhaust fans should always be ducted to a location outside the home (See [Kitchen Exhaust](#) and [Bathroom Exhaust](#)). Ideally, each exhaust fan should have its own individual duct to the outside. However, builders sometimes prefer to connect the exhaust fans to a common exhaust duct, for reasons of layout or a wish to minimize penetrations through the roof. A common exhaust duct can be used if each fan has a back-draft damper to prevent cross-contamination when the fan is not running. In very humid climates, HVAC installers will sometimes also install a motorized damper in the duct closer to the roof outlet to prevent moist air from drifting in when the fan is off and condensing on fan parts or grille or entering the room.

How to Install Back-Draft Dampers in Exhaust Fans to Make a Shared Duct Possible

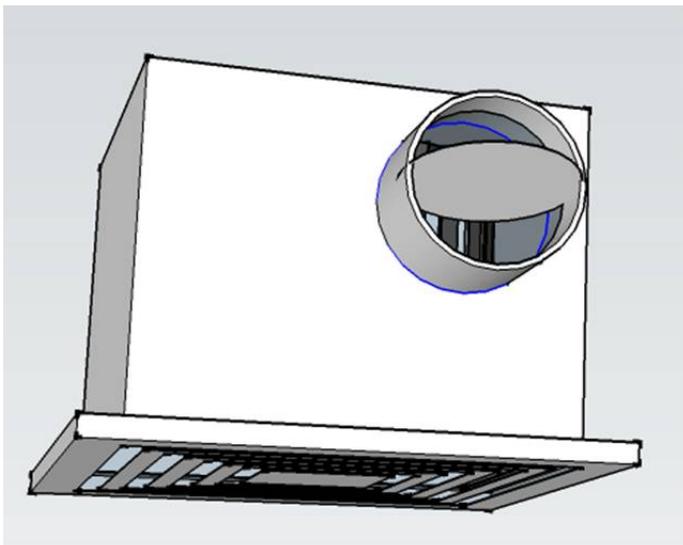
1. Install back-draft dampers where the exhaust duct meets the exhaust fan in each fan unit. The dampers should open when the fan is actively exhausting and should shut when the fan is off. When the exhaust fan is operating, the back-draft damper is pushed open by airflow to allow air to exit through the exhaust duct.



Back Draft Damper Closed

[Reference](#)

Figure 1 - The back-draft damper on this exhaust fan is closed to prevent cross contamination. Image not found
<https://basc.pnnl.gov/sites/all/themes>

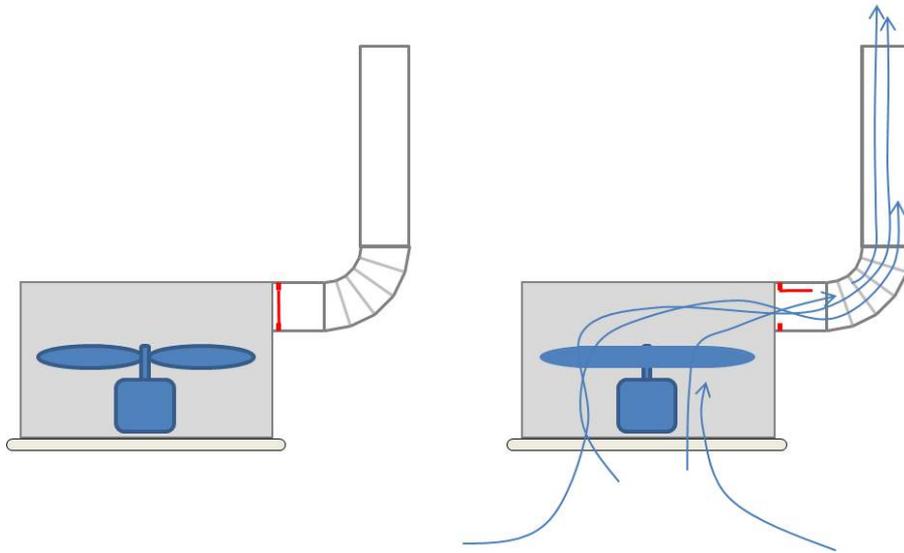


Back Draft Damper Open

[Reference](#)

Figure 2 - The back-draft damper on this exhaust fan is open when the exhaust fan is operating. Image not found
<https://basc.pnnl.gov/sites/all/themes>

2. Remember to remove any packing tape used to hold the dampers closed during shipping.



Reference

Figure 3 - The back-draft damper opens when the fan is actively exhausting and closes when the fan is off.

Image not found
<https://basc.pnnl.gov/s>

Ensuring Success

In homes with multiple exhaust fans, the HERS rater will inspect the ventilation system exhaust ducts to ensure that one of the following is true: 1) each unit has its own exhaust duct that is individually ducted to the outside, or 2) if the units share a common exhaust duct, each fan has a back-draft damper to prevent cross-contamination when the fan is not running.

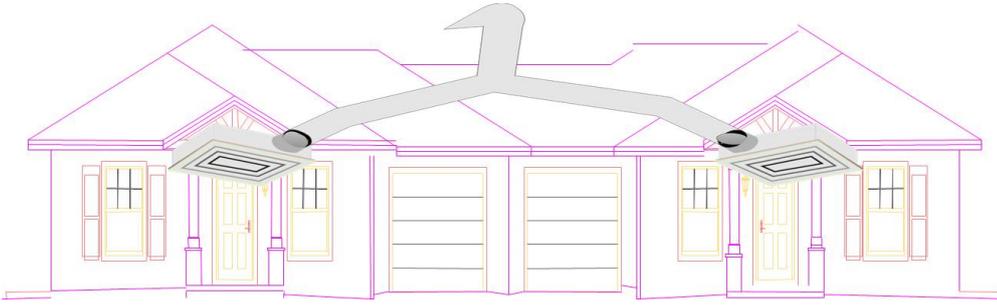


Figure 1 - Separate exhaust fans or shared common exhaust if each exhaust fan is equipped with a back-draft damper to prevent cross contamination. [REF icon](https://basc.pnnl.gov/sites/default/files/styles/large/public/images/REF_icon.png)

Climate

No climate specific information applies.

Training

Right and Wrong Images

None Available

CAD

None Available

Compliance

The Compliance tab contains both program and code information. Exact code language is copyrighted and may require purchase from the publisher. While we continually update our database, links may have changed since posting. Please contact our webmaster if you find broken links.

[ENERGY STAR Certified Homes](#)

[Note: Guidance for ENERGY STAR Certified Homes Version 3.0, Revision 08 is coming soon.]
ENERGY STAR Certified Homes (Version 3.0, Revision 07), HVAC System Quality Checklist, Local Mechanical Exhaust. If fans share common exhaust duct, back-draft dampers installed.

[DOE Zero Energy Ready Home](#)

Exhibit 1: Mandatory Requirements. Certified under ENERGY STAR Qualified Homes Version 3.

[2009 IECC](#)

This topic is not specifically addressed in the 2009 IECC.

[2009 IRC](#)

This topic is not specifically addressed in the 2009 IRC.

[2012 IECC](#)

This topic is not specifically addressed in the 2012 IECC.

[2012 IRC](#)

This topic is not specifically addressed in the 2012 IRC.

More Info.

Access to some references may require purchase from the publisher. While we continually update our database, links may have changed since posting. Please contact our webmaster if you find broken links.

Case Studies

None Available

References and Resources*

1. [DOE Zero Energy Ready Home National Program Requirements](#)

Author(s): DOE

Organization(s): DOE

Publication Date: August, 2015

Standard requirements for DOE's Zero Energy Ready Home national program certification.

2. [ENERGY STAR Certified Homes, Version 3 \(Rev. 07\) Inspection Checklists for National Program Requirements](#)

Author(s): EPA

Organization(s): EPA

Publication Date: June, 2013

Standard document containing the rater checklists and national program requirements for ENERGY STAR Certified Homes, Version 3 (Rev. 7).

*Publication dates are shown for formal documents. Dates are not shown for non-dated media. Access dates for referenced, non-dated media, such as web sites, are shown in the measure guide text.

Contributors to this Guide

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