

Duct Leakage Fact Sheet

Pennsylvania Energy Code Field Study

PSD recently completed a study of 171 randomly selected homes in an effort to assess implementation of the 2009 energy code in eastern Pennsylvania. This study revealed three main areas for improvement: duct leakage, insulation quality, and high-efficacy lighting. We estimate that correcting these items statewide could result in a **savings of nearly \$39 million** over five years. This fact sheet contains information and resources aimed at improving the efficiency of new residential construction by focusing on **duct leakage**.

The Code on Duct Leakage:

- The 2009 IECC and other PA compliance paths require that all ducts, air handlers, filter boxes, and building cavities used as duct are sealed.
- Further, the code requires duct leakage testing for all systems, unless the air handler and all portions of the ducts are completely within the conditioned space.
- Duct leakage testing may be performed at rough-in or final construction phases with leakage limits depending on the type of test performed.



Unsealed Duct Runout



Ducts Sealed with Mastic

Study Findings:

- The PSD study found that, of the HVAC systems requiring testing, **44% did not meet the code leakage limits** for a Total Leakage test.
- Many of these systems were far in excess of the leakage limit, indicating serious leakage problems.

How We Can Improve:

- Test the ducts. The only way to really know if the ducts have been well-sealed is through performance testing. Not only is testing required by code, but it can be an effective quality assurance tool.
- Limit the use of building cavities as return ducts. With typical installation practices, this approach results in high duct leakage rates.
- Use duct mastic. Mastic is the most effective and durable way to seal duct joints, seams, and connections.

Go to pennenergycodes.com/resources/pa-energy-code-toolkit/ to access the following resources:

- [Duct leakage verification form](#)
- [Air Diffusion Council Flex Duct Installation Standards](#)
- [Webinar: Understanding Duct Leakage Testing and Documenting Results](#)

Find a duct and envelope testing professional:

- PennEnergyCodes.com/energyexperts
- NEHERS.org/find-hers-rater
- BPIhomeowner.org/find-a-contractor

The Penn Energy Codes Program offers a variety of free and low-cost energy code support services, including seminars, custom training, on-site demonstrations, the E-CODE Assistant App, and more.

View upcoming events at pennenergycodes.com/events or contact Mike Turns at 484-684-5625 or mturns@psdconsulting.com to schedule an event for your organization.

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