

# Insulation Installation Fact Sheet

## Pennsylvania Energy Code Field Study

PSD recently completed a study of 171 randomly selected homes 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 improving upon 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 **insulation installation quality**.

### The Code on Insulation Installation:

- All materials shall be installed in accordance with the manufacturer's installation instructions
- Air permeable insulation is inside of an air barrier
- Batts in narrow cavities are cut to fit or narrow cavities are filled by sprayed/blown insulation
- Batt insulation is cut to fit around wiring and plumbing, or sprayed/blow insulation extends behind piping and wiring
- Corners and headers are insulated

### Study Findings:

- Over two-thirds of above-grade walls had RESNET Grade II or III installation (i.e. not installed per the manufacturer's instructions).
- Owners of new homes built in 2015 spent an estimated \$1 million more on their first-year energy bills than they would have if insulation had been installed to meet prescriptive R-values and manufacturer's installation instructions.



### How to Improve:

- Eliminate gaps by ensuring insulation fills the cavity top-to-bottom and cutting around obstructions like electrical receptacles
- Eliminate compression of insulation, particularly in narrow or irregularly shaped building cavities
- Fill the depth of the framing cavity completely
- Split batts or cut them fit around wiring, plumbing and duct work (Duct work is not recommended to be placed in cavities that make up the building thermal envelope.)

### Resources:

- Penn Residential Energy Codes: [www.pennenergycodes.com/resources/pa-energy-code-toolkit/](http://www.pennenergycodes.com/resources/pa-energy-code-toolkit/)
- Insulation Institute: [www.insulationinstitute.org](http://www.insulationinstitute.org)
- Building America Solutions Center: [www.basc.pnnl.gov](http://www.basc.pnnl.gov)

### Find a High-Performance Insulation Contractor:

- Visit: [www.hpipros.org](http://www.hpipros.org)

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