



Duct Sealing

Lesson In Minnesota, ductwork is not consistently well sealed with the proper sealant—mastic. As a result, homes and apartments are uncomfortable and energy efficiency is compromised.

Goal Seal ductwork so it can move air efficiently and as designed.

What Happened The ducts in three green single family demonstration homes where the ducts were sealed with mastic were tested for tightness. On the first home, the ducts had to be sealed twice because the first time the subcontractor had disregarded the specs and sealed them with tape. The test results showed duct leakage to the outside ranged from 10 to 22 cfm at 25 Pascals, and total duct leakage ranged from 197 to 432 cfm at 25 Pascals. Standard homes by the same developer were tested for a baseline. *The green homes were three to seven times tighter.*

Recommendations Ductwork has many seams that can create places for air to leak out into walls or spaces other than where the air is intended to go. When it leaks, it reduces the efficiency of the heating or cooling system using the ducts, and can result in a less comfortable home.

There is an easy solution. After duct installation, seal them with mastic (not tape). Mastic is flexible, with-stands water, and often comes in a bucket. It's also very forgiving, and together with mesh tape designed to work with mastic, can be used to seal holes or gaps from installation. Use low-VOC water-based mastic versus petroleum-based mastic.

Additionally, require a visual inspection of the ductwork installation and sealing before signing off on the work and before the walls are closed up around the work. Even better, consider specifying pressurization testing (duct blasting) for satisfactory completion of the work—at least on a first unit or section of the home.

Take Away Duct sealing is important and easy, but only happens properly when the developer or architect insists on it.

For more information on green ductwork, see related Lessons Learned fact sheets: Ductwork, Duct Design, Kitchen Ventilation, and Pressure Balancing Between Rooms.

Relevant Green Communities Criteria:

- 5.1 a, b Energy Efficient Building Design
- 7.5 a, b, c Exhaust Fans
- 7.6 a, b Ventilation



Photos courtesy of Advanced Energy

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LESSONS LEARNED Minnesota Green Communities Demonstration Projects

This publication is part of a series of lessons learned originating from Minnesota Green Communities demonstration projects. The Minnesota Green Communities initiative is currently the largest green building program in Minnesota, with 497 units completed, 908 under construction, and another 1,645 under development. Eight demonstration projects were funded through the Minnesota Green Communities program. The initiative is completing building performance testing on the demonstration projects, and has gathered lessons learned in several areas.

The Lessons Learned series includes the following publications: Integrated Design, Multifamily Green Rehabilitation, Construction Training and Monitoring, Ductwork, Duct Design, Duct Sealing, Kitchen Ventilation, Radon Testing and Mitigation, Pressure Balancing Between Rooms, Water Efficiency, and Cost Increase Triggers in Plans and Specifications. **All publications can be found online at www.mngreencommunities.org.**

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Minnesota Green Communities, a collaboration of the Greater Minnesota Housing Fund, the Family Housing Fund, and Enterprise, is an initiative designed to foster the creation of affordable, healthier, and more energy-efficient housing throughout Minnesota. The initiative will support the production of affordable housing with markedly reduced energy costs, use of materials beneficial to the environment, conservation-minded land use planning, and attention to the creation of healthy environments and lifestyles for individuals, children, families, and communities. For more information, please visit www.mngreencommunities.org.

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