

October 2014 EnergyWiseSM Tip:
Rim Joists

When most people hear the words, “rim joist,” the last thing that probably comes to mind is an opportunity to reduce heat losses and lower energy use in their home during the winter. A majority likely do not know where a rim joist is or if they have one. Even with its other names like band joist, rim board, band board, ribbon, box band, box closure, or header joist, few realize this is typically one of the leading heat-losing parts of their home’s assembly.

So where would you find your home’s rim joist? If you have a basement with drywall on the ceiling, you will not see it and you cannot access it. If you have a drop ceiling basement, you cannot see it but you can access it by moving some panels around. If you have a crawlspace, you have one but it is probably not your favorite part of the house to visit. Only houses built on a slab do not have a rim joist. The rim joist usually runs around the entire perimeter of the home, just on top of the foundation and sill plate.

In older homes, rim joists are often uninsulated. The only thing separating inside from outside is two inches of wood and outside siding material. If the basement is heated or contains heating or water heating equipment, the loss through an uninsulated rim joist can be even greater.

Fortunately, insulating a rim joist is often an easy way to improve your home's energy efficiency. The amount of materials needed is minimal due to the relatively small area involved; there are no expensive or specialized tools required, and the skills required are very basic. As a result, the cost of insulating a rim joist is relatively low compared to the potential energy savings.

The time-honored practice of insulating rim joists with fiberglass batts is no longer recommended. Because fiberglass batts are air permeable, they do nothing to prevent warm, humid interior air from contacting the rim joists. During the winter, when the rim joists are cold, warm, moist air comes in contact and water vapor condenses. This condensation can eventually cause mold and/or rot in the joist.

To prevent these problems, only air-impermeable insulation, either rigid foam or spray polyurethane foam, should be used to insulate the interior of a rim joist. These products serve the dual purpose of insulating while removing the risk of condensation. Rigid foam board can be cut into rectangles and held in place around the perimeter with a one-part spray foam available at most hardware stores. Two-part spray foam is great, too, for insulating the entire area, but often a little more complicated and messy to apply. Whichever solution you choose, a minimum of 2- inches of insulating material should be applied.

In a recent case study, an older home with an uninsulated rim joist was tested via an industry- standard “blower door test” to verify the energy savings and the reduction of uncontrolled air infiltration through the rim joist area. Results of this case study showed a reduction in annual infiltration rate, estimated at 11.4 percent, was achieved in the house simply by applying sprayed-in insulating foam in rim joist locations. This translated to an estimated annual cost savings of approximately 19.3 percent for heating and cooling.

Your local utility and Nebraska Public Power District want to help you make the most of the energy they provide you. This includes reducing the energy you use to heat and cool your home!

For more ideas on how you can make your home, business, or farming operation more EnergyWiseSM, contact your local utility or visit www.nppd.com.