



**NATIONAL FIBER**  
CEL-PAK INSULATION

Professional Cellulose for Cellulose Professionals

## Ten Things You Should Know About Glass Fiber Insulation

**1.** Insulations are compared on the basis of R-Value, or resistance to thermal conduction, but the gaps and voids that are common in all but the most meticulously installed glass fiber batt installations can result in real-world performance well below published R-Values. Dense packed cellulose is installed pneumatically (i.e., using air), which means no gaps or voids. High installed density, typically around 3.5 lbs. of material per cubic foot, means there will be no settling.

**2.** Heat also moves by convection. Convection occurs within low-density insulation, like blown glass fiber, and around the perimeter of batt type glass fiber insulation if there are gaps. The higher installed densities of cellulose eliminate convective air movement.

**3.** Heat also transfers by radiation. Blown glass fiber is installed at such low densities that heat radiates right through it. The higher installed densities of cellulose effectively block radiant heat transfer.

**4.** The same issues that reduce the thermal performance of glass fiber also reduce its effectiveness in preventing sound transmission. A home insulated with cellulose will be much quieter than a glass fiber insulated home.

**5.** According to a University of Minnesota life cycle analysis, compared to cellulose, glass fiber insulation consumes 638% more energy, has a 728% higher global warming potential, and a 1,850% higher air pollution index.<sup>1</sup>

**6.** Glass fiber melts at temperatures likely to be found in a house fire. Glass fiber insulation and kraft paper vapor barrier facings can allow fire to spread quickly, while cellulose can work to prevent fire spread.

**7.** Glass fiber insulations are hydrophobic, which means they can't manage moisture, allowing it to pass right through, where it can condense on cool surfaces.

**8.** Glass fiber manufacturers claim an average of up to 50% recycled content. Cellulose has a genuine 82%+ recycled content.

**9.** Air, dust and moisture pass easily through glass fiber, which can feed mold and rot causing organisms. High-density cellulose helps prevent airborne moisture movement. Borates (minerals) in the insulation resist the growth of these organisms, improving building durability and longevity.

**10.** Testing of loose-fill fiberglass in simulated attic installations by Oak Ridge National Labs revealed that when the temperature between the living space and attic was at its greatest, as in winter conditions, the thermal resistance (R-Value) of the fiberglass was as much as 50% lower than the estimated nominal thermal resistance (R-Value) of the insulation.<sup>2</sup>

<sup>1</sup><http://www.buildingmaterials.umn.edu>

<sup>2</sup>ORNL/M-1646, Evaluation of a Loose-fill Cellulose Insulation in a Simulated Residential Attic Under Winter Conditions, K.E. Wilkes and P.W. Childs, Nov. 1991, ORNL/M-1644, Evaluation of Attic Seal Products Applied to Loose-fill Fiberglass Insulation in a Simulated Residential Attic, K.E. Wilkes and P.W. Childs, Aug. 1991