

Air Infiltration

Heat is transferred through convection, conduction, and radiation. Convection is the most likely cause of heat transfer through the outside envelope of a building.

National Fiber's Thermo-Cel and Cel-Pak are far more effective than fiberglass in suppressing the flow of air through insulation. These cellulose products prevent air infiltration through two inherent qualities:

1. Cellulose is two to three times denser than similar fiberglass products; this greater mass blocks air more effectively than lightweight fiberglass batts.
2. Cellulose completely fills the cavities in installations, eliminating the voids and gaps common with batts, which lead to convective heat transfer.

Numerous studies conducted through universities and other respected institutions have demonstrated the superior performance of cellulose over fiberglass.

- In 1990, the University of Colorado-Denver compared cellulose and fiberglass batt insulation in identical structures during the winter heating season. They found that cellulose insulation was 38% tighter and required 26% less energy.
- In a Princeton University study, a group of homes with cellulose-reinsulated walls showed an average 24.5% reduction in air infiltration. In these homes, only the walls were reinsulated.
- In another side-by-side test, the Leominster MA Housing Project for the Elderly found the cellulose-insulated building to have an effective leakage area 40% lower than similarly constructed buildings insulated with R-13 fiberglass batts in the walls and R-38 fiberglass batts in the ceiling.
- According to test results at Oak Ridge National Laboratory, cellulose insulation maintains its insulating capability, or R-value, over a full range of temperatures, while leading brands of loose-fill fiberglass lose up to 50% of their R-value in cold temperatures.

The superiority of National Fiber's cellulose insulation is obvious. When its high performance insulating capability is added to its value as a highly effective air infiltration control agent, the result is a whole-house system that outperforms fiberglass batts by a significant margin.