U.S. Department of Energy - Energy Efficiency and Renewable Energy

Energy Savers

Minimizing Air Leakage in Log Homes

Log homes are susceptible to developing air leaks. Air-dried logs are still about 15%–20% water when the house is assembled or constructed. As the logs dry over the next few years, the logs shrink. The contraction and expansion of the logs open gaps between the logs, creating air leaks, which cause drafts and high heating requirements.

To minimize air leakage, logs should be seasoned (dried in a protected space) for at least six months before construction begins. These are the best woods to use to avoid this problem, in order of effectiveness:

- Cedar
- Spruce
- Pine
- Fir
- Larch

Since most manufacturers and experienced builders know of these shrinkage and resulting air leakage problems, many will kiln dry the logs prior to finish shaping and installation. Some also recommend using plastic gaskets and caulking compounds to seal gaps. These seals require regular inspection and resealing when necessary.

See our section on air sealing for more information.

Learn More

Reading List

- "Air Leakage of Log Homes." (November/December 1991). *Home Energy* (8:6) p. 40.
- Nisson, J. (October 1990). "Finding Air Leakage in Log Homes—A Few Surprises." *Energy Design Update* (9:10); p. 6.
- Roos, C.; Eklund, K.; Baylon, D. (1993). *The Thermal Performance and Air Leakage Characteristics of Six Log Homes in Idaho; RCDP Cycle 3*. NTIS Order Number DE94000943. Portland, OR: Bonneville Power Administration, 58 pp. Available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161; Phone: (800) 553-6847 or (703) 605-6000; Fax: (703) 605-6900; Email: info@ntis.gov.
- Nisson, J. (May 1991). "Airtightness of Log Homes." *Energy Design Update*, (10:5) p. 9.

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