

# LOG HOME TAPE



Member International  
Log Builder Association



The Sealant Choice of  
Professional Log Home Builders





## WHY USE EMSEAL LOG HOME SEALANTS

EMSEAL Log Home Tapes are high performance sealants with the following characteristics:

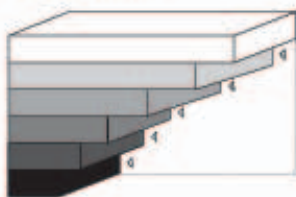
- Permanent elasticity/memory enables it to fill gaps caused by changes in log size (shrinking and settling)
- Continuous backpressure enables the foam sealant to fill contours and irregularities
- Maintains weathertight seal and thermally insulates over extreme temperature ranges
- Does not dry out, become brittle or crack
- Unlike putty-type (butyl) and liquid sealants which squeeze-out under compression, LogHomeTape compresses into itself and remains in place between the logs where it is needed.
- Resistant to ultraviolet light and ozone
- Does not cause "log-float" (suspension of logs by air-filled cells of closed-cell gaskets)
- Easy to install with mounting-adhesive on one side—strong polyester scrim embedded in adhesive resists stretching of material during installation
- Highly resistant to vermin (bugs, rodents, birds, etc.)
- No ozone-depleting chemicals used in manufacturing and contains no volatile organic compounds (V.O.C.'s)

## THE EMSEAL ADVANTAGE: HOW IT WORKS

Open-cell foam is impregnated, compressed to the size of the opening to be sealed, and shipped in reels. The stored strain-energy of compression in the foam means continuous back-pressure is exerted against the logs. This pressure, combined with the adhesive nature of the impregnation, assures reliable adhesion to both upper and lower log surfaces. As the logs shrink and expand with seasonal temperature and humidity changes, long-term sealing contact with the log surfaces is maintained.

## EMSEAL SIZE SELECTION

EMSEAL Log Home Tape is available in a variety of sizes and widths. The size is the compressed "thickness" or "height" of the tape that matches the final anticipated opening of the joint after allowance for shrinkage and settlement. At this point, the correctly sized foam seal will be compressed to 1 or 25% of its uncompressed dimension for weathertight performance.



No Seal (material needs some compression to stay in joint)
18% Compression: Heat & Cold, Dust, Acoustic
66% Compression: Heat & Cold, Dust, Acoustic, Air
75% Compression: Heat & Cold, Dust, Acoustic, Air, Vapor
80% Compression: Heat & Cold, Dust, Acoustic, Air, Vapor, Water

Figure 1: Compression Chart

## HOW TO SEAL YOUR LOG HOME

The correct choice of a sealant for the horizontal joints in your log home is as important as your final choice of species of wood.

## WHY?

- The cost of trying to reseal a log home if the sealant fails, far outweighs initial sealant costs
- The incremental cost of using a high performance

sealant during construction may be saved in energy costs alone in the first few seasons.

- High performance sealants, correctly sized and installed are "lifetime" sealants.

## JOINT MOVEMENT

In log home construction, the sizes of the gaps between and at the end of the logs is changing constantly. This is due to various factors including:

- drying out of the logs
- changes in relative humidity
- settlement



EMSEAL Classic LogHomeTape between the logs of this classical machine-tongue-and-groove log home, ensures its beauty is more than skin deep.

The effects of these variables are significant. Even with kiln-dried logs, further drying out over time causes log shrinkage resulting in changes in gap size between logs. The effects of daily and seasonal changes in relative humidity will likewise affect the gap size at any given time in different parts of the structure.

Settlement will result in significant joint gap size changes, particularly above doors and windows where the structure above settles downwards while the door or window mullion remains at its original level.

These movements as well as movement caused by less predictable factors such as wind and vibration must be accepted and accommodated by a good sealant.

## FOAM GASKETS

Most expanding gaskets are made of either closed-cell or open-cell foams. Exceptions are butyl tape and liquid sealant that relies on adhesion to the log to pull them open. Closed-cell foams are less suitable as seals because their individual cells are essentially gas bubbles which tend to deflate over time. Known as "compression set" this failure to recover typical of closed-cell foams results in the failure of the product to fill and seal changes in gap size caused by movement.

Open-cell foams that have been filled with an impregnating sealant, on the other hand, retain their sealant and recovery properties when compressed to as little as 12% of their original uncompressed dimension.



**FACTORS IN COMPARING GASKETING MATERIALS:**

- **Backpressure** – The pressure exerted by the seal against the log surfaces. This must be sufficient to cause the seal to expand as a gap opens but not so great that it causes “log float”.
- **Recovery** – This indicates how completely the foam recovers to its original dimension after extended compression. The higher the recovery percentage, the better the seal.
- **Durability** – This includes the ability to resist ultraviolet light and ozone exposure that can cause brittleness, cracking and ultimately seal failure.
- **Wood-Preservative Compatibility** – Some foam sealants can be applied to treated wood, others only to wood that has not been treated. The foam sealant should work with preservatives, whether applied before or after installation of the seal.
- **Ease of Installation** – Some foams are self-sticking, with removable release for easy installation.

**AVOID COMMON MISTAKES**

**Sealant sizing:** Perhaps one of the most costly mistakes made in log home sealing is to undersize the preformed sealant used between horizontal log courses. The sealant should match the joint-gap size **after** settlement and shrinkage have been allowed for.

**High performance sealant vs. low-cost short-life alternatives:** High performance sealants, properly sized and applied are the better choice. Consider the cost of routing-out and replacing old sealant against the up-front cost of a high performance sealant.

**Check available sealant depth:** As the tape width is increased, so does the ultimate margin of safety. However, tape width is also determined by the tongue and groove or other configuration present. Ensure that within these parameters maximum use is made of tape width.

**Correct sealant termination:** If your log home had no openings (i.e. windows or doors let into the walls), then the correct sealant configuration would be continuous seals running completely around each log course. This means that at each corner the sealant would be lapped to provide suitable horizontal seal integrity. Since openings are present in the structure for doors and windows, seal integrity must be preserved both, horizontally and vertically. Care must be taken to ensure that horizontal and vertical seals terminate into one another.

**Double vs. single sealant System:** It is generally accepted that the use of a double gasket system is preferable to the use of a single gasket system. A “dead-air” void is created between the two seals which greatly enhances the thermal insulation properties of the log home.

**Sealant positioning:** Good joint design provides for the seal to be positioned at a high point in the joint detail so that as much as possible, water tends to drain away from the seal area.

**ALASKA 5-STAR ENERGY RATING**

It had long been considered impossible to achieve Alaska’s highest energy-efficiency rating in a log home. That is until a home was sealed with two strips of EMSEAL LogHomeTape between and at the end-joins of the logs, and with large-size LogHomeTape as compression gaskets in the settling voids above windows and doors.

The result was the first-ever 5-Star, “very efficient” rating for an Alaskan log home.

Log Home Tape compression gaskets provide excellent insulation and air-infiltration from the outset and are installed in conjunction with a vapor barrier membrane. Over time they compress to a point where long-term watertight sealing is achieved.



The home energy rating is a standard measurement of a home’s energy efficiency. An energy rating allows a home buyer to easily compare the energy costs for homes being considered. The home receives a point score between 1 to 100, depending on its relative efficiency. An estimate of the home’s energy costs is also provided. The home’s energy rating is then equated to a Star rating ranging from a 1 Star for a very inefficient home to a 5 Star for a highly efficient home.



**CORNER PADS & SADDLE-NOTCH GASKETS**

Contact EMSEAL to discuss the unique ways in which sealing these critical areas can be handled using LogHomeTape.



*The pride-in-ownership of a handcrafted log home should be matched by the choice of a sealant of equal durability and function.*



## EMSEAL *Classic* LOGHOMETAPE

For more than 30 years EMSEAL has offered an economical, expanding, open-cell, foam tape impregnated with water-based, acrylic-modified asphalt.

EMSEAL Classic LogHomeTape provides UV stability and sealing ability, as well as resistance to aging and to vermin (bugs, rodents, birds, etc.).

For these same reasons, asphalt has been the choice for sealing ships, roofs, foundations, roads and many other structures throughout history and therefore it is not unreasonable to expect that EMSEAL Classic LogHomeTape will last the life of your log home.

The minor trade-off for this performance is slight spotting on surfaces which make contact with the seal, for example: on logs, paper and skin during handling.

If you're concerned about minor contact spotting, or if you will be using solvents that will come in contact with your gaskets, EMSEAL Acrylic LogHomeTape provides an excellent clean-handling alternative.

## EMSEAL *Acrylic* LOGHOMETAPE

Also an expanding, impregnated open-cell, foam tape, EMSEAL AcrylicLogHomeTape was developed in the early 1980's using in place of asphalt, a water-based, acrylic impregnation.

Compatible with liquid sealants, chinking, and stains and preservatives, it is clean-handling and free from visible contact staining.

EMSEAL Acrylic LogHomeTape is particularly suitable for construction methods such as Swedish cope and is widely used by handcrafters. It is also suitable for flat-on-flat construction where sealant tape is installed at the outer edges of the logs AND where sprayed-on log sealer or stain may come in contact with the tape.

