



Log Home Sealant Application Guide

DIRECTIONS FOR USE

There are two types of sealants used in construction and maintenance of log homes or log siding. They are:

External Sealants - Perma-Chink, (matches the look and appearance of traditional mortar chinking) and **Energy Seal** (which blends in to hide wall joinery). External sealants are installed after stacking logs and are visible when construction is finished.

Internal Sealants - Stack-n-Seal (specialty sealant used between mating surfaces of stacked logs) and **Gasket Tape**. Internal sealants are installed during the log stacking process and are hidden when construction is finished.

To obtain maximum performance from your sealants, follow these basic guidelines:

1. Log Preparation: The surfaces to be sealed must be clean, dry and free of foreign material. Do not apply sealants to waxy or oily surfaces. Some stains or previously applied sealants interfere with adhesion and performance of new sealant. If in doubt, call us or test for adhesion.

2. Weather Conditions: Avoid temperature extremes when applying any sealant. During periods of high temperatures (especially at low humidity) it is best to apply sealants in shaded areas. Also, apply

only as much as you can tool before a skin starts to form on the sealant. Avoid application if the air temperature is over 90° F and the surfaces are in sunlight.

During periods of low temperatures, never apply sealants to surfaces that have ice on them. If daytime temperatures rise to at least 40°F, Perma-Chink, Energy Seal and Stack-n-Seal may be applied. Remember that below freezing temperatures can adversely affect the adhesion and integrity of the sealant. These conditions also prolong curing time.

After application, Perma-Chink and Energy Seal must be protected from washing water or windblown rain until they are adequately cured at their surface. Be aware of roof drainage when rain is threatening.

3. Two Point Adhesion: In order for Perma-Chink or Energy Seal to maintain their seal while retaining their ability to stretch and contract with log movement they must be applied in a manner that allows good adhesion to the two wood surfaces with a free-floating band of sealant in between (*see Diagrams A & B*). One purpose for using the appropriate backing material is to prevent the back side of the sealant from bonding to the backer or the wood, thus forming a free-floating, uniformly thick band of sealant between the logs.

4. Backing Materials: Use a backing material in sealant application to insure the two point adhesion referred to in #3 above. Backing material may be round Backer Rod, flat beadboard, Grip Strip, masking tape or material supplied by your log home manufacturer. Be sure it is suitable for this use (see **Avoiding Blisters** in #6).

Note: we've found that EPS can melt behind chinking in hot environments and walls are exposed to high temperatures. When this happens, chinking takes on an unsightly appearance, however it is otherwise unaffected. The melting temperature for EPS from all manufacturers that we've contacted is similar, so we cannot suggest one type over another. Foil-faced EPS is available from at least one supplier and has not demonstrated this tendency in our evaluations. We have never seen this happen on Grip Strip or Backer Rod. Contact Perma-Chink Systems or your log home manufacturer for more information.

5. Sealant Reservoir: To maintain a good seal and allow log movement you must create an adequate sealant reservoir. For example, if you expect a movement of 1/8" across a joint, the minimum sealant joint width should be 1/2" (four times the expected movement). The larger the sealant joint width, the less likely log movement will exceed the sealant's capabilities. We've found that a good guideline for the width of chinking is one-sixth the log diameter, i.e., 8" diameter ÷ 6 = 1.3" sealant joint width. Observation of this rule will help create a sealant reservoir for highest performance.

6. Avoiding Blisters: Elastomeric sealants can blister when applied over an inappropriate surface such as certain previously applied sealants, improper backing materials or a hot surface. It may be necessary to shade walls exposed to direct sunlight until the sealant is at least partially cures. Selecting the correct backing material is critical for proper sealant performance.

DO USE

- Grip Strip.
- Backer Rod.
- Expanded Polystyrene (EPS), foil-faced.
- Water-proof masking tape.
- Backing materials recommended by your log home manufacturer.

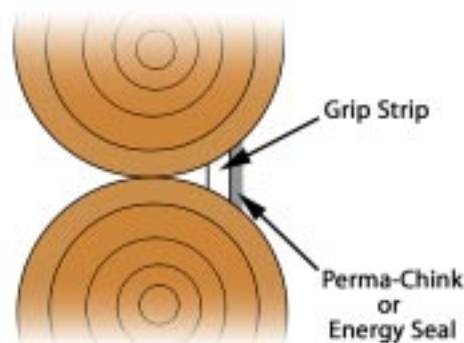


Diagram A

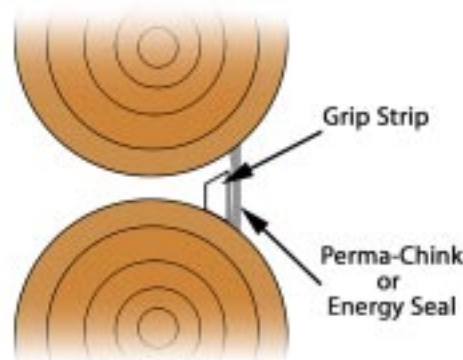


Diagram B

DO NOT USE

- Extruded Polystyrene (causes blistering).
- Blue Board, Pink Board, or any other colored board (causes blistering).
- Anything that you are unsure about. If you don't know if it will work, don't use it!

7. Use the Proper Tools: Before you start, have all of the tools you will need at hand. Be sure they are clean and in good working order. Using tools intended for applying sealants makes the job easier, quicker and more professional looking. Perma-Chink Systems can provide your accessories, tools and application equipment including:

- Grip Strip and Backer Rod in various sizes for all types of log styles.
- Hot knives and blades for cutting expanded polystyrene (EPS) board.
- Large and small applicator bags.
- Manual and air powered bulk loading guns and accessories.
- High quality caulking guns.
- Powered chink machines for large jobs for professional contractors.
- A wide range of trowels and spatulas.

8. Tooling and Finishing Sealants: Perma-Chink and Energy Seal are easily tooled by spraying a light mist of water onto the wet sealant and then smoothing to the desired finish (*see photos 1 & 2*).

Always trowel in such a way as to form a tight seal to the wood making sure to extend the sealant at least 3/8" outside the edges of the backing material or bond breaker. This insures good adhesion to the log surfaces. Also, be sure to maintain a sealant depth of 3/8" to allow for shrinkage during curing.



Photo 1



Photo 2

9. Clean Up: You can clean up our water-based sealants with soap and water as long as they are still wet. Once cured, they are difficult to remove. That is why it is important to immediately clean any runs or spills during the application process.

10. Sealant Storage: Pails or tubes of Perma-Chink, Energy Seal and Stack-n-Seal should be stored at moderate temperatures. Avoid hot summer direct sunlight or sub-freezing temperatures. Although these sealants are freeze-thaw stable it is best to not allow them to freeze. If they do get frozen, it is best to keep them frozen until ready to use rather than allow them to go through several cycles of freeze and thaw.

Store containers away from intense radiant heat sources like stoves or fireplaces.

CHINKING SQUARE (RECTANGULAR) LOGS

Foam Board Backer Systems

Many pre-cut log systems have expanded polystyrene (EPS or "bead board") backer that has been installed at the time the logs were stacked. Others leave it up to the homeowner or contractor to install backer before chinking. Bead board should be installed according to the instructions furnished by the log home manufacturer. (*See note in #4 on page 2*) The board should fit evenly and snugly into the chinking joint without gaps or protruding sharp edges (*see photo 3*).

Any fasteners used to secure the beadboard should be rust-resistant. Take care not to sink the fasteners below the surface of the backing material because this can create a dimple in the surface after the chinking has cured. Cover seams in the backing material with water-proof masking tape. The smoother the backing surface, the smoother the chinking will be.



Photo 3

Hard Spline Systems

Install splines in accordance with the log home manufacturer's instructions. Spline board should fit tightly to upper and lower logs without gaps at the spline butt joints. In some joinery there will be a slot in the bottom of the upper log to slide the spline into to create a floating spline to accommodate log movement (*see diagram C*). Cover any joints or gaps in the spline with tape.

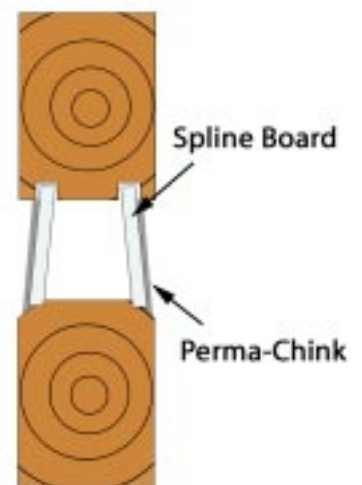


Diagram C

Old Mortar

It is possible to apply Perma-Chink over old mortar chinking. However, it is best to remove old mortar and clean the log surfaces. Appropriate backing material should then be installed. However, if the mortar is intact and not crumbling, a layer of Perma-Chink can be applied as long as the following conditions are met:

1. The mortar is dry.
2. There is at least 3/8" of wood surface outside of the mortar as an adhesion surface for the new chinking.
3. Gaps or voids in the mortar are filled with appropriate backing material. This includes cracks where the mortar may have pulled away from the logs.
4. Water-proof masking tape is applied over the entire mortar surface to act as a bond breaker and to prevent blistering.

Log-on-Log or Solid Wall Systems

Many log-on-log or solid wall systems have a groove milled into them to accept a band of chinking. If this groove is deeper than 1/2 inch, backing material should be inserted to bring the depth of the groove to within 1/2" of the surface of the logs. Follow manufacturer's instructions.

Again, use masking tape to cover seams in the backing material. If the depth of the groove does not require backing material, you must cover the entire vertical face of the groove with masking tape to act as a bond breaker and prevent blistering (*see Two Point Adhesion #3 above*).

Take care not to cover the top and bottom horizontal surfaces of the groove where the chinking must adhere to the wood (*see photo 4*).



Photo 4

Chinking Application (Square Logs)

1. If you are new to chinking or want to keep the logs as clean as possible, run a strip of masking tape along the outside edges of the chink gap before you start your chinking application. Be sure to remove the tape before the chinking has skinned over! If you wait too long you will remove some of the chinking along with the tape.

2. Run an appropriate number of beads of chinking along the chink joint (*see photo 5*). If multiple beads are applied, keep them in contact with one another to avoid entrapped air (*see photo 6*). Apply approximately six feet of chinking at a time. If the chinking begins to skin over before you get to it, it will be difficult to tool.



Photo 5



Photo 6

3. Wet the surface of the chinking with a light mist of water and begin tooling at the center of the chink joint and working your way towards the edges (*see photo 7*). Maintain a uniform chinking thickness of 3/8" across the entire joint. It is better to fill a joint too deeply than too thinly. However, Perma-Chink never needs to be thicker than 3/8", regardless of the joint width!



Photo 7

Chinking Round Logs

Backer Systems

Always use an appropriate backing material. Grip Strip is specifically designed as the perfect backing material for chinking round logs. If custom-cut backing material is used, the edges of the backer must be beveled in order to assure tight contact with logs. It is best to cut large diameter Backer Rod in half and install the flat side out. If you use full round rod, it is difficult to tool chinking flat and maintain adequate chinking thickness over the center of curved Backer Rod.

Press the appropriate size backing material firmly into place (*see photos 8 & 9*). Be sure that the edges fit flush with the logs. Protruding edges cause thin or weak spots in the finished chinking. There should be no give to properly installed backing material. If necessary, fasten the backing material into place using rust resistant fasteners. Take care not to sink the fasteners below the surface of the backing material because this can create a dimple in the surface after the chinking has cured.

Cover seams and gaps in the backing material with water-proof masking tape so they do not show through after the chinking has cured.



Photos 8 & 9

Old Mortar

As with square logs, Perma-Chink can be applied over old mortar on round logs as well. See previous page for guidelines.

Chinking Application (Round Logs)

1. Run the required number of beads of chinking along the chink joint. If multiple beads are applied, blend them together to avoid trapped air. The bead length of chinking applied prior to trowling can vary tremendously depending on temperature, humidity, wind, exposure to the sun, width of chink joint and the experience level of the chinker. This could be anywhere from 6 feet to substantially more before the product starts to skin over. Waiting too long could alter the adhesion to the log as well as making it much more difficult to tool. With interior chinking applications, it will generally take much longer for the chinking to skin over. If you find it starting to dry prior to tooling, lightly misting the chinking with water will help.

2. A smooth or textured finish may be obtained depending on the preference of the homeowner. (*Note:* If you have used round Backer Rod remember that tooling can force material away from the center of the joint resulting in the area directly above the center of the rod becoming too thin - *see diagram D*. Be careful to maintain adequate thickness.)

Wet the surface of the chinking with a light mist of water and begin tooling at the center of the chink joint, working your way towards the edges (*see photos 1 & 2*). Maintain a uniform chinking thickness of 3/8" across the entire joint. It is better to fill a joint too deeply than too thinly, because you need an adequate mass of material to absorb any movement that may occur. However, Perma-Chink never needs to be thicker than 3/8", regardless of the joint width!

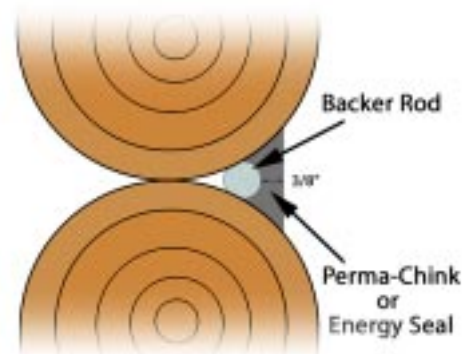


Diagram D

Sealing Narrow Joinery, Window and Door Frames, Butt Joints, Etc. with Energy Seal

When the finished joinery width is one inch or less, Energy Seal should be used. Energy Seal's excellent adhesion and elongation make it the sealant of choice. Here are some steps to follow to assure maximum performance from Energy Seal:

1. It is important to use backing material in the joint whenever possible (*see diagrams A & B*). A common mistake made when sealing a home is completely filling large gaps or voids with sealant. Energy Seal is made to stretch to accommodate the movement of the home. However, when Energy Seal is too thick it loses its ability to stretch (think of it as a thick rubber band) and may tear away from the wood. Energy Seal never needs to be applied more than 3/8" thick (*see photo 10*).



Photo 10

2. Whenever a gap or joint is filled, an adequate sealant reservoir must exist to absorb movement while maintaining a seal with the logs. For example, if you expect 1/8" movement in a joint, the minimum sealant width should be 1/2" (four times the expected movement). This is especially important when sealing joints between round log-on-log type construction and log siding.

3. Avoid applying Energy Seal over old, existing butyl type caulks. In order for Energy Seal to maintain a good seal it must bond directly to the wood. If you apply Energy Seal over existing caulk, the seal will only be as good as the remaining adhesion of the old caulking, which in most cases is very poor. In addition, you run the risk of blisters appearing in the Energy Seal due to incompatibility with the old caulk. For maximum performance remove the old caulking with a scraper before applying Energy Seal.

Applying Energy Seal

1. Make sure the wood surface is clean and free of oil, wax, old caulk or other contaminants.

2. Insert backing material into the gap or joint. It must fit firmly in place with the surface of the backing material about 3/8" from the surface of the filled joint. If you have used round Backer Rod, measure from the center surface of the rod, not the edges. If it needs to be held in place, use galvanized or stainless steel fasteners. For a smooth finish, tape over seams and gaps in the backing material.

3. If you want to keep the surrounding wood clean and free of sealant, use masking tape to cover the edges of the joint. Be sure to remove the tape before the Energy Seal has skinned over! If you wait too long you will remove some of the sealant along with the tape.

4. Run a bead of Energy Seal along the joinery. Only apply about six feet of Energy Seal at a time. If the Energy Seal begins to cure before you are able to tool it, it will be difficult to tool.

5. Spray the surface of the Energy Seal with a light mist of water and begin tooling at the center of the joint and work your way towards the edges (*see photos 1 & 2*). Maintain a uniform thickness of 3/8" across the entire joint. Remember that if you used round Backer Rod, that tooling can force material away from the center of the seam forming a very thin layer directly above the center of the rod (*see diagram D*).

6. After Energy Seal has been allowed to cure for three to four hours (in cool, damp weather this may take longer) and a skin has formed over the surface, stain may be then applied on top of it. One advantage that Energy Seal has over other sealants is that it accepts the color of stain, to blend in with the surrounding wood. Energy Seal will nearly disappear into your wall.

Perma-Chink, Energy Seal and Stack-n-Seal are available in 11-ounce tubes, 30-ounce tubes and 5-gallon pails.

One pail is equivalent to approximately fifty-five 11-ounce tubes or twenty 30-ounce tubes.

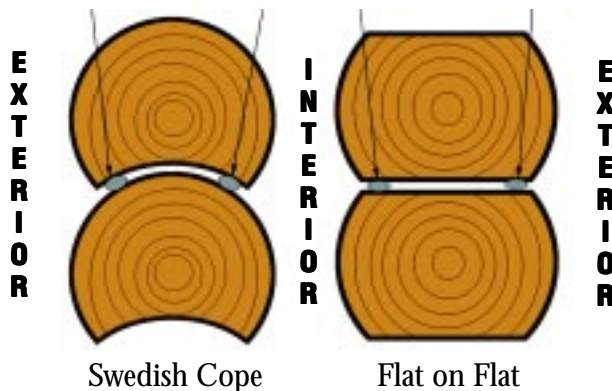
Stack-n-Seal

Stack-n-Seal is an internal sealant used between log courses during the construction process. The log surfaces should be clean and free of dirt, sawdust, oil, grease, wax or other contaminants prior to application.

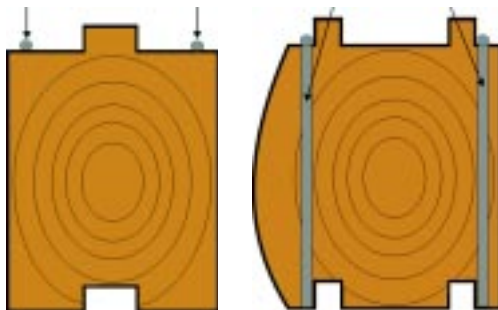
If gasket material or foam tape was supplied with the package, install it according to manufacturer's instructions and then apply a bead of Stack-n-Seal according to manufacturer's instructions. **If only one bead of Stack-n-Seal is applied, make sure it is on the exterior side of the log (always follow manufacturer's instructions.)**

STACK-N-SEAL COVERAGE RATES			
Diameter of Bead	Feet per 11-oz. tube	Feet per 30-oz. tube	Feet per container
1/4"	32'	92'	1800'
3/8"	14'	41'	875'
1/2"	8'	23'	450'

Beads of Stack-n-Seal



Beads of Stack-n-Seal



Estimating the Amount of Perma-Chink, Energy Seal or Stack-n-Seal Required

If you need assistance, call any Perma-Chink Systems branch. For Perma-Chink and Energy Seal you will need the total linear feet (interior and exterior) to be sealed and estimate in inches the average width of the finished joint. Find the joint width on the following tables and the next columns will tell you the number of feet that a container of product will cover. Divide that number into the total linear feet for the job to get the number of containers that you need.

EXAMPLE: if you have a 2" wide chink joint, one pail of Perma-Chink covers 192 linear feet. If there are a total of 2,000 linear feet of joint, divide 2,000 by 192 and you will see that you will need about ten and a half pails of Perma-Chink to complete the job.

For Stack-n-Seal you need the linear feet of logs and the diameter of the bead you will be applying. If you are applying two beads on each log, remember to double the linear feet required.

PERMA-CHINK COVERAGE RATES

1/2"	Use Energy Seal
3/4"	Use Energy Seal
1"	385'
1-1/2"	256'
2"	192'
2-1/2"	154'
3"	127'
3-1/2"	110'
4"	96'
4-1/2"	85'
5"	76'
6"	63.5'

ENERGY SEAL COVERAGE RATES

To be applied 5/16" - 3/8" thickness			
Width of gap	Feet per 11-oz. tube	Feet per 30-oz. tube	Feet per Pail
1/2"	16'	48'	975'
3/4"	11'	32'	650'
1"	8'	24'	490'

Sealants from Perma-Chink Systems are the industry leader!

Environmentally Friendly...

Safe for you and the environment.

Aesthetic Appeal...

Look authentic and provide a feeling of structural integrity.

Flexibility...

Provide adequate resiliency to absorb the expected amount of log movement while helping keep your log home weather tight.

Bonding Ability...

Bond to wet and dry logs with sufficient strength to assure a long-term seal.

Breakdown...

Resist exposure to natural elements such as rain, ultraviolet and freeze thaw cycles.

Maximum Strength...

Strong enough to permanently bond to wood creating a weather tight seal.

Application Ease...

Easy to apply for both the novice chinker sealing their own home or for commercial contractors on larger jobs.



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