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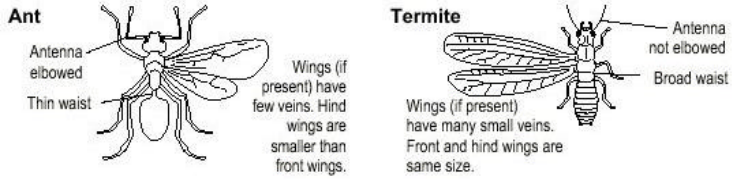
LOG TECH NOTE 03-02

Termite Prevention & Control

Log homes, like any other structures containing wood components, are subject to attack by a variety of wood destroying insects including termites. The threat from insects is no greater for log construction than conventional wood frame construction. While the prevention and control of termites is typically assigned to a professional pest control company, combining appropriate design and construction measures with maintenance inspections can help eliminate conditions conducive to termite attack.

Termites live in colonies that are divided into different castes. At the center of the colony is the queen who is responsible for producing the eggs that ensure the continuous viability of the colony. A king termite is often found accompanying the queen although his presence is not necessary for colony success. Other caste members include soldiers who guard and protect the nest, reproductives who can establish new colonies, and workers who eat the wood and feed the rest of the colony. The size of the colony is one way to distinguish between the types of termites.

Although there are thousands of known termite species, those that are of concern to homeowners are of two main varieties, drywood and subterranean termites.



Drywood termites, found along coastal areas (including Florida, Mississippi, Louisiana, Texas, and California) live in small colonies consisting of a few hundred individuals. Although named drywood termites, these termites can't live in completely dry wood since they rely on the moisture in the wood for their source of water.

In most areas of the country the term termites refers to subterranean termites. As their name implies, subterranean termites spend most of their time in the soil, typically two to four feet below the surface in a colony that typically consists of several hundred thousand termites. When foraging, workers spread out from the nest, usually just beneath the surface of the ground, feeding on cellulose including plant materials, dead tree roots and limbs, and occasionally the wood in a home.

Over the past few years, an imported termite species, the Formosan termite, has invaded a number of southern and southwestern states. They are native to the South Pacific and have become prevalent in the Hawaiian Islands. Formosan termites are a variety of subterranean termites whose colonies may contain over a million individuals. Although similar in appearance to native subterranean termites, their voracious appetite and large colony size set them apart from our native species. Known to cause significant structural damage in a matter of months, they are difficult to control because they tend to establish aerial infestations with nests (called cartons) that have no contact with the ground. However, Formosan termites need the same set of conditions to survive as our native termites and following the guidelines set forth below will help avoid their infestations too.

One sign of a termite infestation is a termite swarm within the home. Many people mistakenly identify swarming termites as flying ants -- Ants have a narrow waist whereas the termite's body is fairly straight back to the abdomen. When termites swarm in the thousands, a common first impulse is to run for the can of pesticide and spray them down, but there is no reason to do this since all of the swarming termites will be dead in an hour or so anyway. Instead, vacuum them up and then call a pest control professional for a termite inspection, as this swarm is a sure indication that a mature termite colony is located within or close to the structure.

Termites need to maintain a moist environment and are attracted to cellulose and water, thus wet wood provides an ideal environment for them. They have soft bodies and rapidly lose water when exposed to dry air. Subterranean termites make mud tubes to give them protection from both predators and dehydration.

The keys to prevention are to minimize moisture around the structure, provide a barrier that will either halt activity or make it visible, and maintain a separation of any wood from grade, the natural habitat of the termite. Chemical soil treatments and termite baits are effective long-term preventive measures.

Once a home is infested, the most common method of treatment is a structural fumigation. Heat treatments and localized electrical elimination methods have been used successfully, but, like fumigation, do not leave residual protection against future infestations. Chemicals also have been used to both eliminate existing infestations and protect the wood from future infestations.

Further information is available at ARS Operation Full Stop (*http://www.ars.usda.gov/is/fullstop/introduction.htm*), Louisiana Pacific's Smart Guard (*http://www.smartguard.lpcorp.com/about.invasion.asp*), Louisiana State University (*http://www.agctr.lsu.edu/termites*), Southern Pine Council (*http://www.southernpine.com/termiteinfo2.htm*), University of California (*http://www.ipm.ucdavis.edu/PMG/PESTNOTES*), *University of Hawaii (http://www2.hawaii.edu/~entomol/index.htm), University of Nebraska Institute of Agricultural and Natural Resources (http://www.ianr.unl.edu/pubs/insects/), and the* University of Toronto (*http://www.utoronto.ca/forest/termite/dist_spc.htm).*

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Effective, integrated termite prevention relies on quality design, construction, and maintenance as would be necessary for long-term protection of the log walls.

Specifications for design…

- *Specify wood products that are naturally durable or chemically treated against termites. Retreat ends of chemically treated wood that is trimmed during installation.*
- *Use solid block or concrete construction of all piers and stem walls or use cap blocks for the top course. A common entry point for termites is through the hollow cells of piers built with blocks.*
- *Install termite shields to make inspection for termite tubes much easier.*
- *Waterproof basement foundations and provide a floor drain. Consider using a 24" band of crushed stone around the entire outer foundation wall.*
- *Ventilate crawlspaces -- at least 1 square foot of free vent area for every 500 square feet of crawl space floor area. One vent should be placed within 36" of each corner to prevent "dead air" spaces and in high humidity environments additional vents should be considered.*
- *Install a concrete slab to cover the ground under the structure, whether used for a pier, crawlspace, or basement foundation. If that is not practical for a crawl space, cover at least 80% of the floor space with 4-mil polyethylene moisture barrier sheeting. Use chemical treatments around any penetration of that slab and provide 24" to 36" between the top of the soil and treated wood framing.*
- *Use preservative treated wood plates and sills.*
- *Keep all wood at least 18" from the surface of any soil by raising the foundation. Do not allow ground contact of any floor or wall materials.*
- *Set wood piers and posts on a concrete pad or footer raised above the level of the surrounding soil. If using pressure treated wood, the cut end should be at the top since the untreated core may leave a pathway for termites to enter.*
- *Avoid slab-on-grade foundations unless it is an elevated slab and stem wall design.*
- *Use roof configuration, overhangs, porches, gutters and downspouts, proper finish grading, and other conventional techniques to move roof and deck water runoff well away from the foundation.*

During construction…

- *Maintain the 18" soil-wood separation during backfill and landscaping, and grade the site to keep the soil around the foundation dry.* **Poor landscaping can negate the benefits imparted by even the best design and construction practice.**
- *Remove or burn tree stumps and scrap wood from the building site rather than bury them.* **One of the leading causes of termite infestations is wood debris left in crawl spaces or dirt filled steps and porches.** *Grade stakes and wood forms should never be left in the ground once construction is completed.*
- *In hot, humid climates, provide means to drain water from air conditioning drain lines. a typical air conditioning unit can generate several gallons of water per day. If this water is dumped next to the foundation it can support a termite infestation for several months of the year.*

After moving in…

- *Never plant or mulch (wood mulch, pine straw, or other organic ground covers) closer than 24" from the base of the foundation. Use inorganic materials (e.g., recycled rubber) as ground cover.*
- *Remove leaves and other debris that accumulates next to the foundation.*
- *Place and direct water sprinklers to minimize hitting the side of a home.*
- *Keep all exterior wall surfaces dry and free of mold and fungi.*
- *At least twice a year clean out gutters and make sure they are draining water away from the foundation.*
- *Do not solely rely on over-the-counter termite control products.*
- *Contract with a good pest control company and read and understand their warranty. If possible, accompany the pest control technician whenever he/she does an inspection.*

Employ a good inspection system.

- *Look for mud tubes going up walls, piers, or other vertical surfaces.*
- *Discolored wood, blistering paint, and other signs of wood damage can be indicators.*
- *If the home is on a crawl space, look for any plumbing leaks and inspect the foundation walls for signs of termite tubing activity.*
- *Check foundation vents to make sure nothing is blocking them and if they are temperature controlled, see that they are free to open and close.*
- *Most drywood termite colonies become established through exposed wood ends accessible from cracks and crevices. Signs of an infestation include finding small hard fecal pellets on the floor or other surfaces and seeing winged termites, especially on windowsills.*

For log homes, inspection and care of the wood is important. For more information about maintenance of log homes, see the Log Homes Council publication, *Preservation & Maintenance of Log Structures.*

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