

Home Grounds Fact Sheet

Homeowner's Guide to Eastern Subterranean Termites

Termites are the subject of more inquiries than any other insect in Nassau County. The eastern subterranean termite, *Reticulitermes flavipes* (Kollar) is a native species that lived in woodlands long before frame buildings were constructed in this country. Although termites cause considerable damage each year, it usually takes termites a number of years to cause extensive damage to a building. Since they live in the ground and the workers never come out in the open, they are seldom noticed by the average homeowner until some damage has been done.

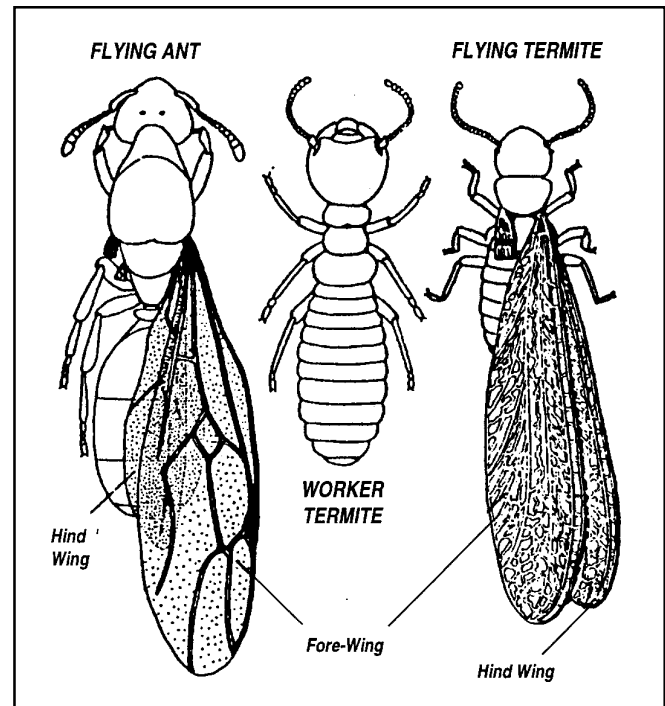
Termites feed upon wood, including structural timber, wood debris, tree and shrub roots, and other cellulose materials (such as furniture and books). In the natural habitat, termites play a valuable role of decomposing wood into soil to be used again by other living organisms. It is important to be able to recognize them and understand the factors leading to termite attack and how it may be prevented or managed.

Recognizing Termites

To identify the presence of termites, look for swarming termites or discarded wings of about ¼" long. Termites build sheltering mud tubes from particles of soil. These serve as pathways between the soil and the wood in a structure. The tubes will vary in diameter from the size of a wheat straw to wider than a person's thumb. They may also serve as exits for swarming alates, the winged forms. Tubes will be found along the foundation or basement walls, wooden posts, studs, window or door frames. Any wood close to or in contact with the soil is susceptible to infestation. Termites favor heat from furnaces, chimneys, and hot water pipes, especially in winter.

Termites are social insects that live in large cooperative colonies in the soil. They depend on a reliable source of moisture for survival. There are four castes (forms) of termites in a colony, each with a different job. The primary reproductives, called kings and queens, have dark brown to black bodies. Kings and queens have four long gray wings of equal length, and are called alates. During a swarm (occurring March through June), thousands of alates may be seen. The workers and soldiers are white, wingless, blind and sterile. Soldier termites, despite their large jaws, cannot feed on wood and must be fed by workers, the destructive wood-eating members of the colony. Termite workers digest wood by means of a symbiotic relationship with protozoa in their guts. The

protozoa produce enzymes that break down the cellulose in wood. In return, termites house the protozoa and pass them along to other colony members as they feed each other.



Termites are commonly mistaken for ants due to their similar appearance and type of damage. However, ants can be distinguished from termites by their very narrow waistline. Termites have a broad waist and fat body. The wings of termites are of equal length and are far longer than the tip of the abdomen. An ant's hind wings are shorter than the front and the wings do not extend much past the end of the body. Termites have antennae that resemble a string of beads, while the antennae of ants are clearly elbowed.

During early spring, swarms of winged, sexually mature male and female termites are often seen in and around buildings. The winged forms are attracted to light and when they emerge within buildings will swarm around doors or windows. Outdoors, termites fly a short distance, then pair off and shed their wings. Each pair attempts to find a new place (wood in contact with soil) to establish a colony. Over 99% of these swarmers will fail or die. The migration of the winged forms does not mean that termite damage of the old colony will cease. In fact, swarms indicate the presence of a well-established colony.

What Can You Do About Termites?

Proper construction, monitoring and prevention are realistic solutions to the termite problem. Many homes on Long Island are currently affected by termite colonies. The immediate concern is finding safe and effective management of termites once they are already established on a homeowner's property. The key to prevention and management involves good decision-making on the part of the homeowner, thus requiring some knowledge of the latest technology in termite control. Most of the innovative methods used to control termites are safer and environmentally less disruptive than in the past. This fact sheet is intended to educate the homeowner about the choices available for termite management.

Step 1. Identification

The first step in any pest management plan is being certain about the pest. Although Long Island has only one species of termites, there have been unofficial reports of other types. If you find a termite colony near or in your home collect and identify the insects or bring a sample to your local Cooperative Extension office. If you do not see live insects, but notice mud tubes in the basement or along the foundation or find damaged wood, you should seek the advice of a professional who will identify the problem and locate all construction factors that make the building susceptible to attack.

Step 2. Cultural Methods - Things You Can Do

Limiting pest access to your home is the next crucial step in pest management. Cracks, wet wood, and soil/wood contacts are likely routes of entry. Once any structural problems have been identified, each factor should be considered to determine whether it can be modified to reduce termite invasion (seal cracks, replace wet wood, modify soil/wood contacts). Infested or

previously infested timbers will need to be replaced as well.. Remove wooden debris from the property, including buried stumps or structures. Replace wooden structures, in contact with soil, with pressure treated or non-cellulose materials. Fill all cracks and crevices in the foundation with a durable sealant. Increase drainage away from the foundation by directing downspouts farther from the house. Correct leaks in basement plumbing, replace damaged wood in the structure, and keep the basement and crawlspaces well ventilated. Reduction of access, moisture and food sources are preventative approaches to termite control.

Step 3. Making Decisions - Termite Control Options

If termites have invaded a structure despite efforts to discourage them, a termiticide will be necessary to prevent structural damage. There are more options today than ever before, but expertise is the key to successful termite control with every method. For over 50 years, termites have been controlled using barrier insecticide treatments that prevent the passage of termites into a structure. The soil surrounding a building is saturated with a fast acting poison that kills foraging termites. Chemicals used in the past have been replaced over time by more effective and safe soil treatments. Many are toxic but also act as termite repellants. While barrier treatments are effective, they are disruptive to the homeowner, requiring drilling, lifting carpets and other structural modifications. Other drawbacks to this method include the difficulty in application and the high levels of pesticide released into soil, which may be unacceptable to some.

Recent innovations in termite control include baiting systems that have shown to be very effective. Termite baits are containerized treated wood lures that are usually placed in the soil around a building. One company provides an above ground bait stations that can be placed in the path of foraging termites. Baits are effective because termite workers feed each other and other members of the colony. When foraging workers find a bait food source, they leave a chemical trail to mark the site and recruit other foragers. Toxins in the bait must be slow-acting so termites have the chance to return to the colony and feed the others. Toxins used in these baits are very specific to insects and are considered to be of low human toxicity. In addition, only very small amounts of toxin are incorporated into baits and this has minimal environmental impact. Hexaflumuron and diflubenzuron are insect growth regulators that disrupt growth and development. Sulfluramid and hexaflumuron are insect metabolic inhibitors that interrupt normal biological functions.

Other innovations in termite control include borate treated wood baits and mulches that can be used around the building perimeter. Borate salts incorporated in the wood kill the protozoa in a termite's gut, leading to starvation. It is also passed to other colony members by feeding. In Australia, where termites are man's worst enemy, stainless steel mesh is used during construction to create a permanent barrier under and around the structure. While this product may be

expensive or hard to come by, it offers a novel solution that could be incorporated into building extensions, decks, or patios on existing homes.

The best results are usually obtained by combining techniques, such as structural alterations with an insecticide/bait. There is no "silver bullet" solution!!

Careful inspection is necessary for detecting and determining the extent of a termite infestation. You may choose to inspect on your own, however it is recommended that you hire a certified professional with

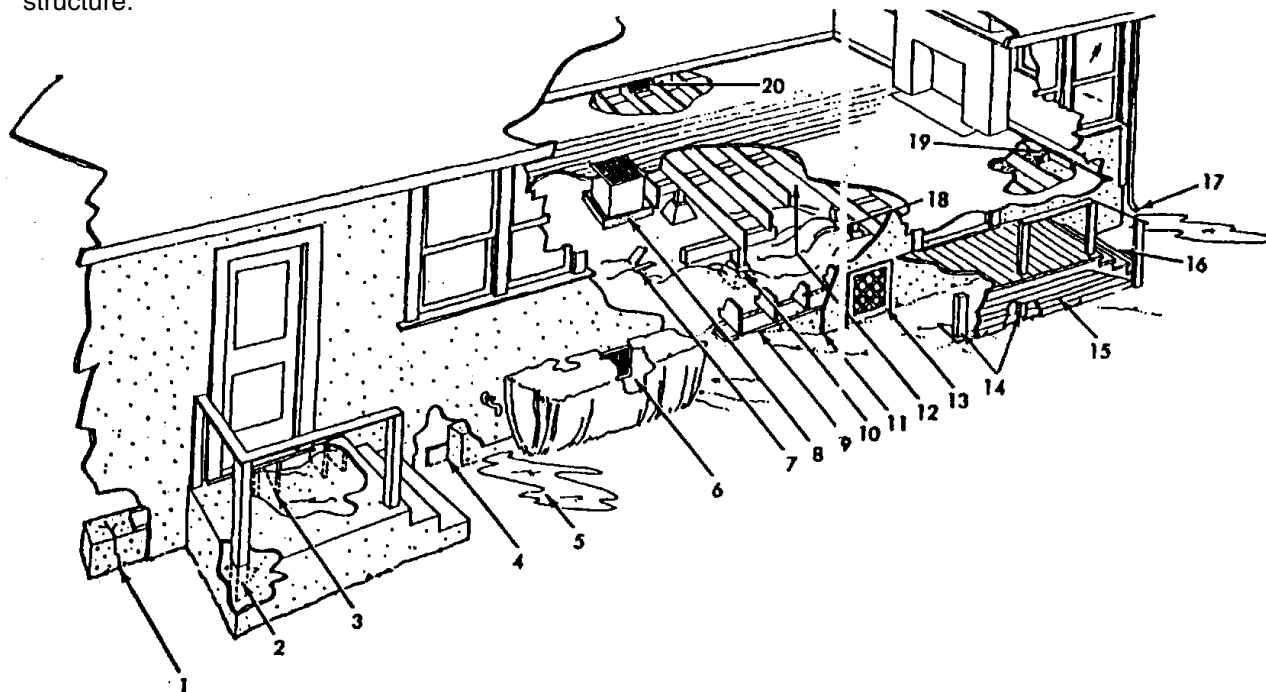
termite experience. Many control techniques can only be used by certified pesticide applicators licensed by the New York State Department of Environmental Conservation (DEC).

How To Collect a Sample for Identification:

Place 10 to 15 intact insects (not crushed) in a clean medicine bottle. They may be stored in the freezer. Do not put tape on insects.

FACTORS CONTRIBUTING TO TERMITE INFESTATIONS:

1. Foundation cracks provide hidden points of entry for many insect pests, including ants and termites.
2. Posts through concrete in contact with sub structural soil are vulnerable.
3. Wood framing members in contact with earth fill under concrete slabs are suspect.
4. Form boards left in place contribute to termite food supply.
5. Leaking pipes and dripping faucets sustain soil moisture; excess irrigation has the same effect.
6. Shrubby in contact with the structure or blocking airflow through vents increases foundation moisture, encouraging termites.
7. Wood debris in the yard supports a termite colony until a large population attacks superstructure.
8. Heating unit accelerates termite development by maintaining warmth on a year-round basis.
9. A foundation wall that is too low permits wood to contact soil. Adding topsoil often builds exterior grade up to sill level.
10. Footing too low or soil thrown against it causes wood soil contact. There should be 8 inches of clean concrete between skirting and soil.
11. Stucco carried down over concrete foundation permits hidden entrance between stucco and foundation if bond fails.
12. Insufficient clearance for inspection permits easy construction of termite shelter tubes from soil to wood.
13. Wood framing of crawl hole forming wood-soil contact is a route of entry.
14. Mudsill and/or posts in contact with soil are potential entry points.
15. There should be a minimum of 3 inches clearance between wood siding/skirting and soil.
16. Porch steps or other external structures in contact with soil are likely to become infested.
17. Downspouts should carry water away from building.
18. Wood girder entering recess and foundation wall can be a problem. There should be 1 inch free air space on both sides and end; it can be protected with a moisture impervious seal.
19. Vents placed in the foundation wall give optimal air circulation.
20. Separation of chimney or patio from structure forms a likely route of entry of both moisture and insects.



"This publication contains pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are still possible. Some materials mentioned may no longer be available, and some uses may no longer be legal. All pesticides distributed, sold or applied in New York State must be registered with the New York State Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension specialist or your regional DEC office (631) 444-0340. Read the label before applying any pesticide. Cornell Cooperative Extension and its employees assume no liability for the effectiveness or results of any chemicals for pesticide usage. No endorsement of products is made or implied."

Restrictions on Soil Treatments with Termiticides

- THEY CANNOT** treat a finished basement without removing walls and floor coverings.
- THEY CANNOT** treat a foundation with cracks or voids.
- THEY CANNOT** treat any areas unless all cracks and crevices are sealed with an impervious material prior to treatment
- THEY CANNOT** reapply any pesticide unless there are live termites.
- THEY CANNOT** treat any wood over concrete floor.
- THEY CANNOT** apply any termiticide to any building within 10 feet of a well or cistern.
- THEY CANNOT** allow any person who is not certified to touch any termiticides.
- WATER TABLE:** On every job, the pest control operator must first dig a hole to the footing and wait 2 hours. If water appears in the bottom, indicating a high water table, they cannot treat the soil.

CURRENT STATE REGULATIONS DO NOT ALLOW ALL HOMES TO BE EFFECTIVELY TREATED.

For more information, consult:

- **Applicators' Guide to Termite Control Regulations in NYS.**
Cornell Cooperative Extension publication
- **Common Sense Pest Control**
by W. Olkowski, S. Daar, and H. Olkowski. Taunton Press, 1991. ISBN 0-942391-63-2.
- **Termite Baits: A Guide for Homeowners**
by Dr. Michael F. Potter, University of Kentucky, Entomology Website <http://www.uky.edu/Agriculture/Entomology/entfacts/struct/ef639.htm>