

Household and Structural

Department of Entomology

TERMITE CONTROL

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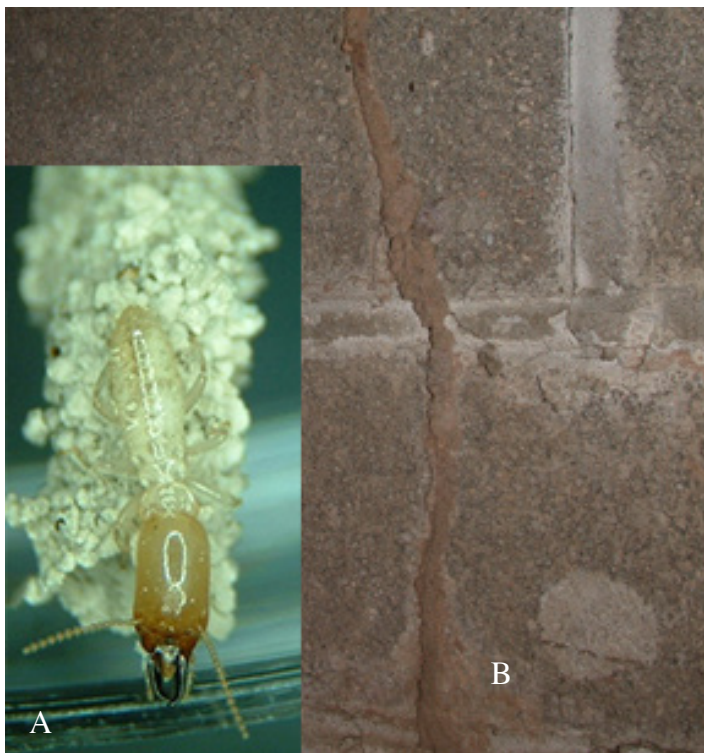
Termites are social insects with several types of individuals in a colony, each type serving the colony in a different way. Winged reproductive forms swarm from mature colonies to disperse and establish new colonies. Worker termites, the ones that damage wood by eating the springwood layers, are white and soft-bodied; they feed the other forms in the colony and expand the nest size. Soldier termites with enlarged mandibles (teeth) are responsible for protecting the colony from intruders.

Termites need wood for food and soil for moisture. Wood in contact with soil, then, is ideal for termite development. But if this does not occur, the insects may build “shelter tubes” from mud to bridge or span foundation walls and

other masonry that separate wood from soil. They construct these tubes on the walls or inside them in voids and cracks. Occasionally, when a leaky roof or pipe provides moisture, termite infestations are established without soil contact.



Worker termite in a mud tube (*Photo Credit: Jody Green, Purdue University*)



A. Soldier termite on a mud tube. B. Mud tube in crawl-space (*Photo Credit: Jody Green, Purdue University*)

Infestations generally develop from colonies in soil, and the termites enter the building through structural wood or foundation walls adjacent to the soil. In cases of houses built partly or completely on slabs, infestation is through expansion joints, cracks, and utility and sewer pipe openings.

Whether pretreating at the time of construction or treating an existing structure, the basic principle of termite control is to break the connection between wood and soil. This is done by laying down a chemical barrier to eliminate all possible points of entry. In view of the rather elaborate equipment required and the complicated nature of the process, it

is strongly suggested that the homeowner consult a professional pest control service. Publication *E-2-W Selecting a Termite Control Service*, provides guidelines on selecting a termite control service.

Property owners need to be aware of termites and the destruction they can cause. Consumers also need to be generally knowledgeable of when and where termite control or prevention is needed, and how prevention or control may be accomplished. When buying property, building a home or adding on to an existing structure, or making a decision on treating an existing infestation in a building, the information that follows should be useful.



Top: Worker termite and bottom: reproductive termite
(Photo Credit: Jody Green, Purdue University)

PRETREATMENT

Homes and other buildings can be pretreated at the time of construction to protect them against termite attack. Very few people would consider building a new house and then not insure it against damage caused by fire or other calamities. But many more houses are damaged each year by termites than by fire.

For effective pretreatment termite proofing, much of the chemical barrier may need to be under concrete slabs. Obviously, it is much easier to put down a chemical barrier before the concrete is poured than it is afterwards.

Areas Needing Pretreatment

For effective termite prevention, pretreatment is needed in four areas during construction:

1. Treatment of the entire soil surface to be covered with concrete, including garage floors, entrance platforms, and filled porches.
2. Additional chemical to the soil beneath those areas which lie adjacent to foundation walls, beneath interior walls, around sewer and utility openings, and at other possible points of entry.
3. Treatment of footings and backfill outside foundation walls and inside walled areas where there is a crawl space. Accessible areas like these could be treated later, but it is easier to do so at construction time.
4. Treatment of hollow areas or voids inside foundation walls.

Approved Pretreatment Chemicals

Chemical pretreatment is accepted by the FHA as a method of termite proofing. Most pest control professionals are equipped to pretreat according to specifications, and they can guarantee effectiveness. Contractors and others do not provide this guarantee.

Table 1 lists some insecticides that can be used in pretreating. These are all restricted to use by professional applicators only. They should be used according to label direc-



Swarmer termites (winged reproductive form known as kings and queens)
(Photo Credit: Jody Green, Purdue University)



Alate (winged reproductive subterranean termite)
(Photo Credit: Jody Green, Purdue University)

tions. These insecticides should provide at least 5 years of protection in all but the harshest environments, and some will last considerably longer in protected environments such as beneath slabs.

Other Pretreatment Measures

Another helpful measure is to make sure that no wood comes in contact with soil and that all wooden foundation forms, stakes, stumps, and scraps of wood are removed from any area before it is covered with dirt or concrete. Also, the soil surface in unexcavated areas should be cleared of wood scraps.

Insecticide*		Chemical Class	Concentration To Use
Trade Name	Chemical Name		
Demon TC	Cypermethrin	Pyrethroid	0.25 - 0.5%
Premise	Imidacloprid	Chloronicotinyl	0.05%
Phantom	Chlorfenapyr	Cyanopyrrole	0.25, 0.125%
Termidor	Fipronil	Phenylpyrazole	0.06, 0.09, 0.125%
Transport	Bifenthrin & Acetamiprid	Pyrethroid & Chloronicotinyl	0.11%
*All of these insecticides are restricted to use by professionals. Label directions vary from product to product on pretreating, treating, and retreat- ing; ask to see a copy of the label if there are questions on how the job is to be done.			

Capping concrete block foundations with a 4-inch solid block gives added protection, provided the cap blocks are joined tightly and there are no openings in the mortar.

TREATMENT OF EXISTING BUILDINGS

It is not difficult to identify termites and termite damage in existing facilities. The only real problem is distinguishing swarmer termites, which are the first sign that a termite infestation exists, from winged ants, which are relatively harmless. A swarmer termite is generally black, and its four equally-sized cloudy white wings are twice as long as its rather straight body. The winged ant, although similar in color, has a wasp-like waist and four clear wings unequal in length and all much shorter than its body (see drawing on next page).

Although they are seldom seen, the white, soft-bodied worker termites are the ones that can seriously damage a structure. They eat the soft grain of wood, leaving a thin shell outside and only splinters inside.

When and How to Check for Damage

A termite's natural habitat includes stumps, posts, and other wood that comes in contact with the ground. However, that termites may be found in these materials near the home does not necessarily mean the home is or will be infested.

To check for termites, any wood near the foundation or soil should be probed with an ice pick or screw driver, es-

pecially the plates, header joists, ends of floor joists, and any hardwood flooring. Presence of earthen "shelter tubes" on foundation walls and wood is also evidence of infestation. Termites build these tubes from bits of soil to close up breaks in infested wood. The tubes resemble long streams of mud running up basement walls or along foundations. The tubes are generally less than 1/4 inch in diameter. Wider tubes indicate an even more serious infestation problem.

If damage is found, there is no great hurry to apply control measures. Termites work slowly, and a few weeks or even months delay is of little consequence. Thus, there is plenty of time to select the pest control company and the termite control program with which you feel most comfortable. Cost estimates for the work may vary, so obtain and evaluate the bids, descriptions of work to be done, and details of any guarantees from at least two companies. Study this information and then make your decision.

Where And How to Treat

The following paragraphs outline some of the general procedures necessary for adequate control. As noted earlier, label directions for treating termite infested buildings vary from one insecticide to another. Thus, insecticide labels should be referred to for more specific treatment directions. See Table 1 for some insecticides that can be used to control termites.

Soil on both sides of exposed foundation walls and soil surrounding supports should be soaked down to the foundation footing at the labelled rate. One technique involves digging a V-shaped trench against the wall. It should be at least 1 foot deep or deeper if necessary to insure penetration to the footing. Soil at the bottom of the trench can be loosened with a spade or iron bar to allow further penetration.

For outside basement walls (where the footing is deep), most pest control professionals apply the chemical by injecting it along the foundation through a hollow rod attached at the end of the hose in place of a spray nozzle. This is "rodding." The result is a continuous chemical barrier from footing to surface.

Treating Slab-Constructed Buildings. Treatment involves saturating much of the soil beneath the slab. The chemical is injected either (1) through holes drilled in the slab at prescribed intervals next to all foundation walls, interior partitions, and utility openings, or (2) by rodding from outside the building. Where heat ducts, radiant heat pipes or other special situations exist beneath slabs, modifications or these general treatment procedures may be necessary.

Treating Concrete Slabs Against Foundations. If concrete for garage floors, patios, walks, etc., was poured against the foundation of the house, soil under the slabs which lies next to the foundation must also be treated. This is done by drilling the slab at prescribed intervals next to the foundation wall and injecting the chemical under pressure at the labelled rate.

Treating Dirt-Filled Porches. Filled porches are treated one of two ways. (1) The slab can be drilled as described above or the porch foundation drilled at each end next to the building and the chemical injected by rodding; or (2) the porch can be excavated from each end next to the building

foundation. The area then should be treated with a chemical at the labelled rate.

TERMITE BAITS

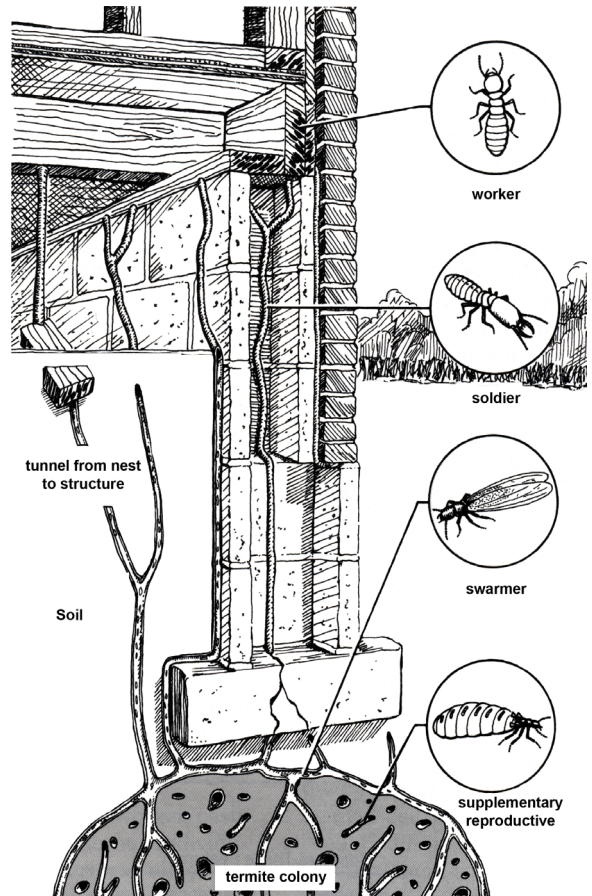
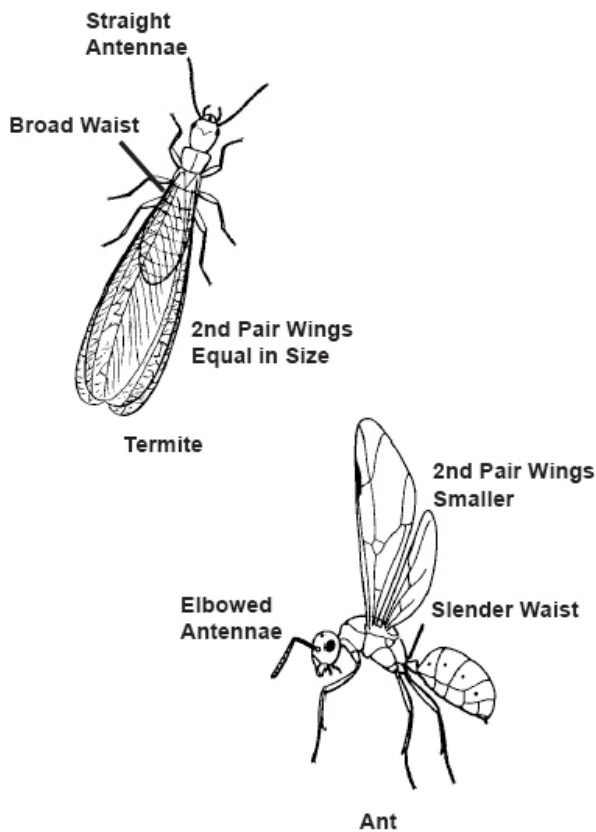
An alternative control methodology to soil-applied termiticides is the use of termite baits. Some of the termite baits available are Firstline, Exterra, Subterfuge and Sentricon, all available through pest control companies. Other baits are available to homeowners "over the counter" through retail stores, but their effectiveness is not known.

The principle of termite baiting is simple. Termite bait stations are installed underground around the perimeter of the house every 10 to 20 feet and 2 feet out from the house. Collectively, a station is (1) a piece of wood impregnated with a slow-acting toxicant contained in (2) a child-proof plastic housing. Stations are installed and then rechecked at prescribed intervals thereafter by the pest control professional for termite activity. Baits take advantage of the social nature of termites. Foraging termites consume the bait, then share it with their nestmates, resulting in a slow colony decline and eventual elimination of the termite colony.

From the homeowner’s perspective, there are advantages and disadvantages to the use of termite baits compared to the use of liquid termiticides.

Advantages: One advantage lies in the fact that the professional rarely has to enter the structure to install bait stations. Another advantage is that the toxicant is distributed from a point source, compared to soil-drenching with liquid termiticides; baiting is thus a more environmentally-friendly method of termite control. Also, the use of baits does not require drilling of structural concrete, as is required for the application of soil termiticides.

Disadvantages: The major disadvantage in the use of termite baits is the length of time it takes to eliminate a colony. With liquid termiticides, control is immediate; with baits, control may take from several months to a year, depending on several to many environmental factors that limit termite foraging.



READ AND FOLLOW ALL LABEL INSTRUCTIONS. THIS INCLUDES DIRECTIONS FOR USE, PRECAUTIONARY STATEMENTS (HAZARDS TO HUMANS, DOMESTIC ANIMALS, AND ENDANGERED SPECIES), ENVIRONMENTAL HAZARDS, RATES OF APPLICATION, NUMBER OF APPLICATIONS, REENTRY INTERVALS, HARVEST RESTRICTIONS, STORAGE AND DISPOSAL, AND ANY SPECIFIC WARNINGS AND/OR PRECAUTIONS FOR SAFE HANDLING OF THE PESTICIDE.

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