

The background of the entire page is a photograph of the interior of a building under construction. The image shows a dense network of light-colored wooden studs and rafters. In the center, there is a window opening that looks out onto a bright, green outdoor scene. To the right, a doorway is visible, leading to a darker area. The floor is made of concrete and appears unfinished. The overall lighting is warm, highlighting the natural textures of the wood.

TERMITE CONTROL SERVICES:

*Information for the
Georgia Property Owner*

Daniel R. Suiter and Brian T. Forschler, Authors



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Photography by Daniel Suiter
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Subterranean termites cost the American public over one billion dollars each year to repair the damage they cause and to hire termite control companies to treat infested structures. Subterranean termites are a natural component of the soil's surface ecosystem, and occur in nearly every region of the United States. They are most abundant in the South and Southeast (Figure 1). In the Southeast, any yard in a suburban neighborhood will likely have a resident population of subterranean termites feeding on wood fence posts, garden stakes, railroad or landscape ties, tree stumps, fallen limbs, firewood, etc. (Figure 2).

Though subterranean termites are a normal component of soil around buildings, structural infestations are not necessarily inevitable. As discussed later, a home's susceptibility to termite infestation is dependent upon a number of things, including construction type, home maintenance, landscaping, and perhaps conditions in and around the structure that favor the activity, growth and survival of local termite populations.

Subterranean termites are soft-bodied insects that dehydrate easily, so they must have access to a moisture source. This is usually accomplished by maintaining contact with the soil. Moisture can also be obtained from a variety of above ground sources that may be found in a structure—e.g., leaky roofs, water trapped or wicked into exterior walls, rain gutters, and condensation (Figure 3). Subterranean termites will eat nearly anything that contains cellulose (e.g., wood and wood

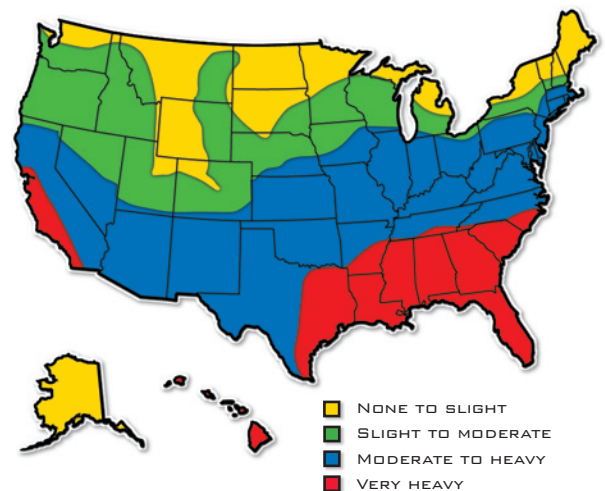


Figure 1. Subterranean termites are most common in the Southeastern United States.



Figure 2. Subterranean termites can be found in nearly every yard in the Southeastern U.S. feeding on tree stumps, firewood, etc.



S. GRUBE

Figure 3. Subterranean termite workers are soft-bodied, delicate insects that are very susceptible to desiccation.



B. FORSCHLER

Figure 4. When swarming hundreds, if not thousands, of winged termites emerge within a very short time period.



Figure 5. Soon after swarming, termites lose their wings and pair up. The female termite (left) attracts the male termite (right) by releasing a chemical pheromone.

products, books, paper, boxes, wicker, paneling, the paper on drywall, wood cabinets, furniture, mulch, wood flooring, window and door frames, moldings, sub-floors, etc.). They prefer to eat softwoods, such as pine or fir, over hardwoods. Unfortunately, softwoods are commonly used as structural wall studs, sill plates, joists, headers, etc.

For a more complete discussion on the biology of structure-infesting subterranean termites, see University of Georgia Extension bulletin #1209, *Biology of Subterranean Termites in the Eastern United States*. A copy of this and many other Georgia Cooperative Extension Service publications are available free and can be obtained by contacting a local County Extension office or by going on-line at <http://www.ces.uga.edu>.

Signs of Termite Infestation

The most common signs of termite infestation that property owners are likely to encounter are:

- The sudden appearance of winged termites emerging from a structure, and/or
- Termite-infested wood or wood products, and/or
- The presence of termite shelter tubes on or within buildings or other structural elements, especially wood.

Winged Termites. Frequently, the first sign of termite infestation is the sudden presence of winged termites inside the home, a phenomenon commonly referred to as swarming. Winged termites are male and female adults produced by mature termite colonies in an attempt to establish a new breeding population. During a swarming event hundreds, if not thousands, of winged termites emerge within a very short period of time—usually just minutes (Figure 4).

Fortunately, winged termites that emerge indoors are not themselves a threat to the structure because they are unlikely to find a suitable location to establish a new population due to the inhospitable indoor environment (generally too dry). Furthermore, winged termites do not bite or sting, and can be easily removed by vacuuming and properly disposing of the vacuum bag (the act of traveling through the vacuum usually kills the termites).

A termite swarm inside the home, or from a part of a structure, represents the immediate proximity of a mature termite population either within elements of construction or beneath or next to the building's foundation. A swarm observed outside the home from firewood, stumps, mulch, railroad crossties, etc. is not necessarily indicative of a structural infestation. Swarms that occur outdoors simply mean that termites are living near the site of the flight, not necessarily that the structure is infested or even likely to be infested in the future. However, property owners should consider having their building inspected for termites if an outdoor swarm occurs.

When swarming, winged termites disperse by flying. Because they are poor fliers, they travel only a short distance. Termites begin their mating ritual after losing their wings, which occurs soon after they land on the ground. To begin the mating process, the now wingless female termite emits a pheromone (chemical attractant) that attracts male termites (Figure 5). After pairing, the termites search for a location where they will mate and lay eggs. The most

suitable location is one that contains adequate cellulose (a food source) and moisture (for survival), and is protected from natural enemies such as ants, birds, lizards, and frogs. The majority of winged termites die within a day or so of swarming. Many settle in areas with insufficient moisture and die of dehydration or are consumed by predators. However, if a suitable site is found, the pair will excavate a small depression and create a closed cell, where they mate. All available evidence suggests that the early stages of termite population growth are slow, and that 5 to 10 years may be required to achieve a population in excess of 10,000 termites.

Conditions that trigger swarming are a combination of successive days of warm (60° to 70° F) temperatures punctuated by rain. In general, swarms occur most often in the spring and during the daytime. In Georgia, for instance, swarming begins in February and peaks from March through May, yet swarming can and does occur throughout the year. One termite species common in Georgia, the light southeastern subterranean termite (*Reticulitermes hageni*), swarms from late July through early October, while the less-common Formosan subterranean termite (*Coptotermes formosanus*) swarms just after dusk (at night) in May or June and is attracted to lights (Figure 6).

A mature termite population may swarm multiple times (during a period of days or months), but second and later swarms often do not match the intensity of the first swarm. It is common for termite colonies in the same area to swarm on the same day, making it difficult to pinpoint the source of the winged exodus.

It is not uncommon for swarms to occur within infested structures following treatment with a liquid termiticide. Although no scientific study has addressed this phenomenon, anecdotal evidence suggests that post-treatment swarming may be indicative of a successful treatment, or perhaps the termites' response to the increase in moisture caused by the large quantity of water required during liquid treatments. Whenever swarming occurs, an inspection should be conducted.

Unlike the immature worker termite, which is white in color (Figure 3), the winged, adult termite can be, depending on the species, black, brown or caramel in color. Winged termites can be distinguished from winged ants by:

- the presence of straight, bead-like antennae (winged ants have elbowed antennae),
- the lack of a “waist” (winged ants have a distinct constriction between body regions), and
- the presence of two pairs of wings, where all wings are the same size (winged ants have two pairs of wings but the front pair is larger than the hind pair) (Figure 7).



Figure 6. In Georgia, Formosan termites swarm at night (just after dusk) during late May and early June, and are attracted to lights.

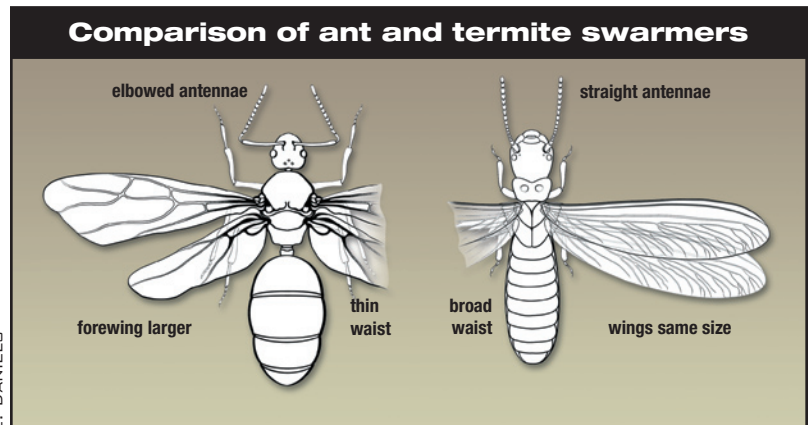


Figure 7. Three characteristics are useful to distinguish winged termites (right) from winged ants (left).

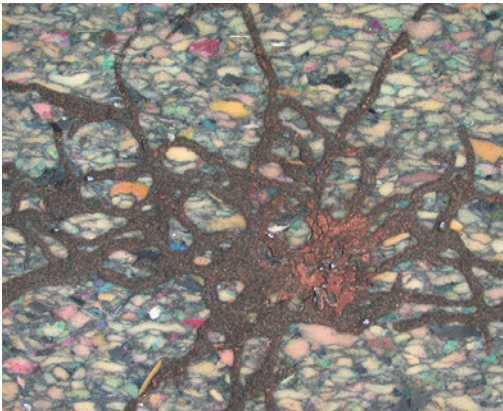


Figure 8. Subterranean termites will consume or damage structural wood (top) as well as door frames, paneling, carpet, and baseboards.

Termite-Infested Wood or Wood Products. Structural wood, especially wall studs, door and window frames, and headers, joists, and sills may be infested with live termites or show damage from prior feeding. It is common to find damaged, but now abandoned (i.e., no live termites), wood where termites had once fed but are no longer feeding.

Unlike other wood-destroying insects, subterranean termites damage wood by feeding along the grain while consuming the soft, spring growth. Subterranean termites will also consume or damage non-structural, cosmetic building materials such as molding, paneling, drywall paper, some carpets, wood flooring, linoleum, wood baseboards, etc. (Figure 8).

Soil within damaged wood typically indicates the presence or past presence of subterranean termites because other common wood-destroying insects, such as carpenter ants, wood-infesting beetles, and drywood termites, do not transport soil into excavated wood. Subterranean termites transport soil into wood to keep it moist. Soil is also used in the construction of shelter tubes (see below) that may connect additional feeding sites within and between wooden structural members.

Shelter Tubes. Shelter tubes are composed of soil particles and other debris bound together by termite saliva and fecal secretions. Shelter tubes protect termites from predators and help prevent moisture loss from these soft-bodied insects. They are built by termites to connect feeding sites, and are often constructed over the surface of concrete and other substrates. Since subterranean termites follow physical guidelines when searching for food, it is common to find shelter tubes following the interface between wood beams and along other structural guidelines such as sill plates, window and door frames, and cracks in concrete slabs and walls (Figure 9).

The presence of termite shelter tubes is always evidence of termite activity, but is not always indicative of a current or previous infestation. Sometimes termites build shelter tubes that are exploratory only. In these situations, the presence of tubes indicates that termites are (were) active and in search of food. Shelter tubes on wood or soil inside wood should be considered evidence of a past or present infestation.

When shelter tubes are broken live termites can often be seen following the path delineated by the damaged tube (Figure 10). Sometimes, however, shelter tubes appear dry, and apparently inactive—that is, live termites are not found inside the dry shelter tube. Dry, brittle shelter tubes generally signify that termites have vacated that particular route to a feeding site, yet they may have found another “highway” to other feeding sites—within or outside of the structure. Therefore, dry shelter tubes that are devoid of termites does not necessarily indicate wood that is free of termite activity.

Hiring a Professional Termite Control Company

Before hiring a professional termite control company it should be verified that the insects found infesting the structure are termites (see section Signs of Termite Infestation). Contact a local County Extension Service Agent for help in properly identifying specimens. An Extension Agent can confirm the identity of a termite by visual observation of specimens or by looking at a photograph. If the property owner has access to a digital camera, a photograph

can be emailed to the Extension Service office for immediate confirmation. Specimens can also be collected, placed in a non-breakable vial filled with rubbing alcohol, and brought to the nearest County Extension Service office.

It is important that insects suspected of being termites be properly identified. Consider the consequences of an incorrect identification. Any insect misidentified as a termite might result in an unnecessary treatment, needless financial costs, and property owner worry. A termite misidentified as any other insect might result in a prolonged infestation, resulting in otherwise avoidable structural damage.

Diagnosis of a termite infestation can be frustrating and worrisome to property owners. Property owners should remember that termites usually damage wood slowly, and in the few weeks it might take to question and then hire a termite control professional the additional damage caused by termites is not likely to be significant. It is more important that time be taken to select a professional termite control company that will put forth their best effort toward ridding the structure of termites. It is also important to select a company that is committed to customer service, especially if the property owner is considering entering into a long-term service contract. Termite control should be viewed as a process during which a company may need to conduct several treatments before a complex, well-established infestation can be brought completely under control. Some tips on hiring a termite control company include:

- Avoid going to the yellow pages and selecting a company based solely on an advertisement.
- Do not hire a termite control company based on treatment price alone. A variety of factors (described herein) should be considered when making a decision on which company to hire.
- Contact the appropriate state regulatory agency to ensure that prospective companies are licensed. In Georgia, the Department of Agriculture (www.agr.state.ga.us) is the agency responsible for overseeing termite control companies.
- Ask friends, neighbors, and co-workers about their experiences and interactions with various termite control companies. Selecting a professional termite control company is not unlike selecting other service providers, such as electricians and plumbers. Consistently good recommendations are probably the most reliable means of selecting a quality service provider.
- Contact a Better Business Bureau or other consumer-oriented reporting agency for information regarding those companies under consideration.
- Ask prospective companies to describe their commitment to the continuing education of their termite control

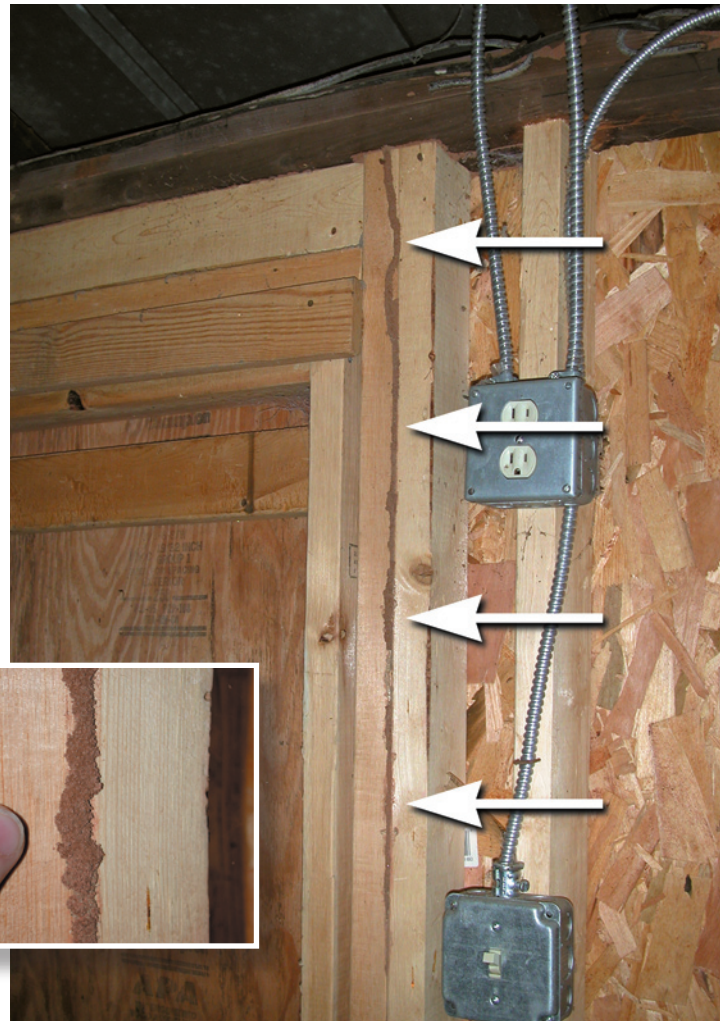


Figure 9. Since termites follow guidelines when foraging, shelter tubes (arrows) are commonly built in the crevices between wood members.



Figure 10. Termites move inside the path delineated by the shelter tube.

technicians. Although all technicians in Georgia are required to attend State-approved continuing education seminars, some companies provide in-house training or send their employees to university- or industry-sponsored training programs and workshops that are above and beyond that required by the State.

- Ask prospective companies whether they are a member of their state and/or national professional pest control organization(s). Membership in these organizations suggests that the firm is well-established, and that the owners are active in their profession. Membership also suggests that owners and managers attend national and state conferences where insight into key issues facing the termite control industry are highlighted and discussed, and the most recent findings on termite control research and application methods and technology are presented.
- Ask prospective companies about those individuals who will perform the inspection and/or treatment. Are they registered or certified to do termite control? How long have they worked in the termite control industry? Request that the most experienced technician(s) in the company conduct the inspection and/or treatment.
- Inspections are the cornerstone of protecting structures from subterranean termites. As such, ask prospective companies about the tools and tactics they can provide for detecting the presence of termites during inspection, including procedural details and equipment used. Protecting structures from termite attack is not an exact science, and success often depends on the experience and expertise of the termite control professional and the tools he/she uses to inspect the home.

Although tempting, it is not recommended that property owners attempt to treat their own home for an existing termite infestation. The knowledge, treatment techniques, products, and equipment needed to effectively rid a building of termites depend on the skilled practice and understanding provided by an experienced professional. One of the most important challenges confronting anyone attempting to control termites is in locating and effectively treating the hidden area(s) where termites are entering or are established within the structure. This is a difficult task even for the most experienced professional.



The Annual Inspection

Most termite control contracts (see section Termite Control Service Contracts below) provide for periodic inspections, whether automatic or when requested by the property owner. If an automatic, annual inspection is not included in the contract's terms and conditions the property owner should request one, in writing, each year at the time the annual renewal fee is paid. Annual inspections usually occur on or around the date of the initial treatment, and are typically performed after the annual renewal fee is paid. The minimum expectation(s) of termite inspectors differs from state to state. For example, in Georgia the Department of Agriculture's expectation is that inspectors "probe and sound all visible and accessible wood in a structure".

Figure 11. During inspection, most wood members are hidden from view.

Inspections are the cornerstone of continuing protection against termite infestation, and thus the first line of defense against damage. However, determining a structure's infestation status is often difficult because most wood components are hidden from view and thus not accessible during inspection (Figure 11). Generally though, a cessation or lack of termite activity (see section Signs of Termite Infestation) following treatment is widely regarded as evidence of termite control, and thus structural protection. A lack of swarms is not, by itself, indicative of successful termite control, but together with the absence of other signs of termites (i.e., new shelter tubes and infested wood) is recognized as evidence of a successful treatment, and thus structural protection.

During inspection, termite inspectors should be equipped with a notepad and pencil, heavy-duty flashlight, inspection mirror, awl, ice pick or screwdriver to probe and sound wood, and for their own protection a bump cap, coveralls, mask, knee pads, gloves, and safety glasses if there is a need to inspect a crawlspace. Ideally, they should also be equipped with a hand-held moisture detector to check for excessive moisture in those areas that cannot be inspected visually (Figure 12). Wood moisture readings should be less than 15%. Wood moisture readings may be dependent on factors such as equipment used, time of year, and relative humidity.

Prior to inspection, the property owner should insist upon receipt of a detailed report or diagram that lists the inspector's findings, including conditions in and around the structure that may be conducive to termite survival and/or infestation. It is important to discuss the inspector's findings and recommendations with him/her, especially those that might aid in reducing the risk of infestation. To assist in the process, property owners are advised to inquire as to particular areas of the structure that should be watched for infesting termites. Because inspectors will need to enter the structure, property owners should arrange to be present during the inspection. The inspection time of an average size home varies depending on construction type, and could take up to one hour or more.

Since much of the wood in a structure is hidden from view, visual inspections for subterranean termites are cursory at best. Many construction types provide only a limited view of the multitude of areas termites might use to gain entry into a structure. Inspecting as many wooden construction elements as possible (both visible and hidden) should therefore be the goal of any inspection. Inspection of visible wood is, of course, conducted with the naked eye. There are tools available for inspecting visually hidden areas. These tools include infrared cameras, microwave motion detectors, acoustic emission detectors, moisture detectors, and trained termite-detecting dogs. These devices depend a great deal upon the "human factor" to successfully diagnose the presence of termites in visually hidden areas, such as behind walls. Many of these modern termite detection technologies are susceptible to "false positives" and "false negatives" (i.e., determination of an active or inactive infestation, respectively, when the opposite is true).

The area(s) that should be inspected for evidence of subterranean termites vary by construction type. Following is a list of common construction types and some critical areas of each that should be considered during inspection.

Crawlspace or Raised Foundations. If the home is on a raised foundation, the inspector should crawl into and visually inspect every accessible sub-floor area (or crawlspace) for evidence of termites, especially the presence of shelter



Figure 12. Moisture detectors can help pinpoint areas of excessive moisture hidden inside walls.



Figure 13. When inspecting raised foundations, look for evidence of termites on and in wood where it first interfaces with concrete construction elements—such as foundation walls (top) and piers (bottom).

tubes on or inside perimeter foundation walls, support piers and pillars, and all structural lumber in contact with these foundation elements. Wood sills, headers, and joists should be inspected especially carefully, as these structural members are usually the first wood components encountered by termites as they move from the soil into the structure (Figure 13). If the crawlspace ceiling is insulated, the inspector should pull the insulation away from the sill plate during the inspection process. At floor level all accessible areas, including door and window frames, should be inspected.

To facilitate inspections, property owners are urged to keep their crawlspace accessible and free of debris. Excessive sub-floor obstructions (e.g., debris, trash, stored items) will need to be removed or remedied by

the property owner before the inspector can provide an inspection report.

Slab Foundations. Detecting the presence of termites in slab construction (including basement) is especially difficult because a majority of structural wood components, such as sills and studs, are hidden inside finished walls. Indoors, inspections should include probing and sounding windowsills and framing, doorframes, and wood baseboards. Particular attention should be paid to exterior walls, as a majority of infestations in slab construction occur here. The inspector should also search for and note findings of excessive moisture in walls as well as peeled or raised wall coverings.

Utility access points, such as bath traps and plumbing penetrations, should be inspected carefully. Termites commonly infest structures by building shelter tubes in the space that develops between the concrete and utility pipes that penetrate the slab (Figure 14). To facilitate inspection, property owners should consider having access ports installed to allow visual observation of bath traps and plumbing/utility penetrations (Figure 15).

Outdoors, the inspector should walk the perimeter of the building while looking for termites entering the structure by building shelter tubes across the exposed foundation and other construction elements. To reduce the risk of trapping moisture and to facilitate termite detection on the outside, property owners are urged to keep a six inch gap (minimum) between the soil and the bottom of any type of outdoor siding. Furthermore, the property owner should take steps to ensure mulch and all forms of vegetation are kept away from outside foundation walls to facilitate moisture management and enhance the inspection process.

Expansion Joints. Subterranean termites often explore crevices, small openings, and other guidelines when searching for food. As such, inspectors should pay particular attention to those elements of construction that provide these features. For example, termites often enter structures via expansion joints where two slabs are joined together or where a slab meets a vertical wall that rests on a concrete foundation. In these construction types a small gap (i.e., expansion joint) is purposefully created at this junction to allow for expansion and contraction of concrete. Unfortunately, this opening is large enough that it allows termites to enter the structure from the soil. Expansion joints are common in

basements, garages, raised porches, and patios (Figure 16). To aid inspections, property owners should consider installing removable baseboards along walls over expansion joints—such as in finished basements and garages.

Raised Porches. Termite infestations sometimes occur in wood closely associated with raised porches. As such, inspections should be especially detailed in these areas. Many raised porches are filled with dirt and construction debris (including excess wood), resulting in soil inside the porch that is both conducive to termite presence and very near wooden structural members (Figure 17). In particular, raised porches place at risk nearby door and window framing as well as sills and headers, particularly in crawlspace and basement construction.

Often times, the soil underneath porches is poorly, if at all, compacted. Through time the soil may settle, creating a void between the ceiling of the porch slab and the soil surface. The blind application of soil termiticides may not reach all termite points of entry, resulting in recurrence of the infestation. In some cases, the use of foam (discussed later) can be an effective application method for treating raised porches.

Access. Some termite control contracts (see section Termite Control Service Contracts below) contain an access clause in regard to inspection and treatment. Access clauses generally state that it is the property owner's responsibility to make the entire structure accessible to inspection and treatment. This may mean that removal of wood flooring, paneling, drywall, tile, artificial ceilings, deck/porch floorings, staircases, etc. may be required, at the property owner's expense, in order to gain access for inspection and/or treatment. Failure to comply with the requirements of an access clause may result in termination of the contract. Alternatively, the company may ask the property owner to sign a treatment exception form (see section below Exception Forms). Briefly, in Georgia a treatment exception form may be executed when it is not possible, for any reason, to treat a structure in accordance with rules established by the State.

Termite Control Service Contracts

In Georgia, there are two basic types of contracts offered to consumers by licensed termite control companies. Contracts generally state that companies will either (a) treat a new or recurring termite infestation (the retreatment contract) or (b) treat a new or recurring termite infestation and repair new structural damage caused by termites (the repair contract). Because the specific terms and conditions of termite control contracts vary considerably from company to company, it is advisable to study and understand each contract type before one is selected.

Contracts offered by termite control companies are typically renewable annually for a set number of years—i.e., the contract's term. Many companies offer a 5-year annually renewable contract term, but shorter and longer terms are also available from some companies. The term for some termite bait contracts has no maturity date, and may remain open-ended for as long as the customer continues to pay the annual renewal fee.

The cost of the initial treatment typically covers the contract for the first year. At the beginning of the second year, and each year thereafter until the contract term expires, an annual renewal fee must be paid. Each year, the contract is



Figure 14. In slab construction, termites often enter the structure via gaps (arrow) that develop between utility pipe penetrations and concrete.

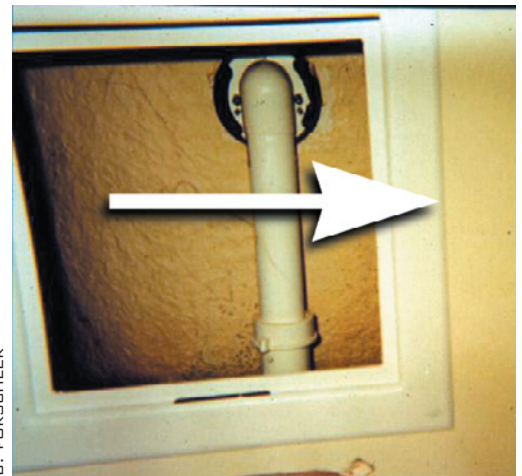


Figure 15. To facilitate termite inspections, property owners should consider the installation of inspection ports (arrow) at all utility access points.

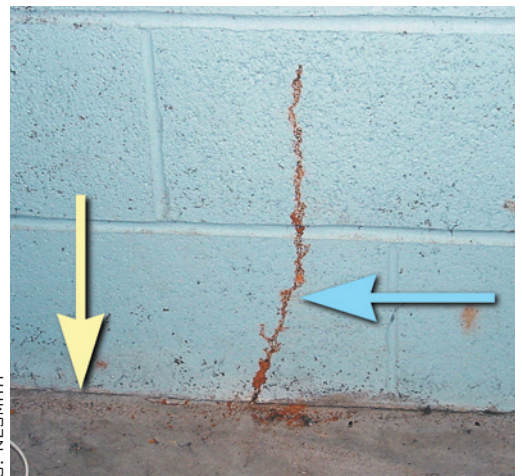


Figure 16. Expansion joints (yellow arrow) are common in basements. Termites are small enough to enter structures through this man-made gap (blue arrow).

considered renewed and thus its active status continued only upon receipt of the annual renewal fee. Most companies may cancel the contract if the annual renewal fee is not paid by its due date.

Property owners should never let a salesperson pressure them into making a decision or signing a contract at the initial interview or inspection unless they are confident that this is the company and the contract type they favor. As mentioned previously, termites usually damage wood slowly, so it is best to take time to think through the array of contract and treatment options offered by several companies and to make an educated, informed decision. In Georgia, every contract offered by a termite control company must include:



Figure 17. Often times, raised porches are used as dump sites by construction crews. Wood material dumped into these voids places at risk future wood elements in close proximity.

- The specific type of treatment to be performed,
- The effective date (i.e., date of treatment or bait station installation) of the contract period, or term,
- A diagram or graph of the structure(s) showing the area(s) of active and/or previous termite infestation,
- Price of the treatment,
- The terms of any guarantee or warrantee,
- The conditions for renewal of the contract,
- What happens to the contract if the structure is altered in any way,
- Notification of a three-day right to cancel the contract, and
- A statement regarding insurance.

“Booster” Treatments

Soil-applied termiticides degrade as they age. As a result, most termite control companies require replacement of the chemical barrier at the end of a contract’s term in order to extend the contract for an additional term. This requirement is commonly referred to as a “booster” treatment. The intent of a booster treatment is to re-establish the protective chemical barrier that has presumably broken down during the contract’s term. If a contract has reached the end of its term, a new contract must be executed before a booster treatment can be conducted. In Georgia, companies cannot charge for a booster treatment without first issuing a new contract.

Types of Contracts

The Retreatment Contract. Retreatment contracts generally require that the termite control company return and treat part or all of the structure in an attempt to rid the home of a new or recurring infestation—hence the importance of the annual inspection discussed previously. Routine or annual retreatment(s) without cause is (are) not permitted. Retreatments are conducted at no extra expense (other than the aforementioned annual renewal fee) to the property owner provided that certain terms and conditions of the contract are met.

Evidence that termites have returned following an initial treatment include (1) continued swarming from the structure, (2) discovery of newly built shelter tubes in or on the structure (read also section on Shelter Tubes), and (3) live termites found infesting any wood or wood product in or on the structure. It

should be noted that under a retreatment contract the termite control company holds no responsibility for structural damage, old or new, that occurs from termite infestation. Under this contract type, the repair of damage caused by termites is the sole responsibility of the property owner.

If a liquid termiticide is used, a recurring infestation usually indicates that treatment has failed to reach those areas where termites are entering the structure. Therefore, if the first or subsequent attempt(s) to control termites was (were) unsuccessful the property owner should request that the structure be treated in a different manner. For example, the property owner might request new drill hole placement when retreating under concrete slabs and/or that voids or expansion joints be foamed. Foaming is an application technique used to deliver termiticides to areas where voids exist within elements of construction. The advantage of foam is that it expands to fill wall and sub-slab voids and cavities, resulting in treatment of most surfaces (Figure 18).

The Repair Contract. The second type of contract is the repair contract. This contract type provides for the repair of *new* structural damage caused by subterranean termites, provided that certain terms and conditions of the contract are met. New means that the damage can be documented to have occurred since the initial treatment was performed---i.e., the contract's effective date. Because the age of termite damage cannot be accurately determined, when claims are made on a repair contract the property owner must usually demonstrate that live termites were found at the site of the infestation and damage. Subterranean termites commonly infest, feed on, and then abandon food resources, providing only evidence (e.g., damaged wood, soil in wood) that they were present at some point in the past. If live termites are found, documentation in the form of a photograph or video are often helpful in providing proof of activity. Termite control companies may also require their own verification of the presence of live termites.

Repair contracts typically do not cover existing damage, whether it is visible (shown on the initial inspection diagram) or hidden (not shown on the initial inspection diagram because that part of the structure is permanently invisible). Moreover, hidden damage is considered either old or new. Hidden damage is considered old (not covered by a repair contract) if live termites were not present in the damaged area upon its discovery. Hidden damage is considered new, and by definition covered by a repair contract, if live termites were present in the damaged area upon its discovery. For instance, if walls are opened during renovation and termite damage (heretofore hidden), but not live termites, is found the repair of that damage is usually excluded from coverage because it is not possible to determine whether the damage was created before or after the contract's effective date. By similar reasoning, if the same damaged wall contains live termites then that damage is considered new, and should be covered by the repair contract. Finally, most repair contracts do not cover the repair of visible, existing damage even if termites return to that same damaged area during the contract's term.



Figure 18. Foaming can be an effective treatment technique when treating areas containing voids, such as those under some porches (shown here) and inside walls, because the foam expands to treat all surfaces.

The initial inspection, including the inspector's detailed notes and a diagram of the structure showing areas of current termite infestation as well as evidence of previous infestation (if any) are used as the benchmark for determining what might be covered under a repair contract, and to which subsequent inspections and claims are compared. Therefore, it is important that a detailed diagram showing signs of previous and current termite activity be obtained at the time the contract is signed. In Georgia, termite control companies must provide an inspection diagram as part of the contract.

Some repair contracts do not provide for the replacement of the structure's contents, whether damaged by termites (i.e., wood and wood products) or not (i.e., non-wood products, such as tile, that may be damaged as a result of treatment and/or inspection). Contents may include, but are not limited to, wood and wood products, books, boxes, wicker, paneling, drywall, wood flooring, wood baseboards, wood cabinets, furniture, linoleum, tile, stone, carpet, wallpaper, ceiling tile, etc. Contracts that exclude contents will usually cover the repair and replacement of structural wood, such as wall studs, sills, joists, headers, etc. that have been damaged by termites. This is a notable distinction because termite damage to homes often does not impact the structural integrity of the building.

Bait Contracts. Termite baiting programs are a recent introduction to the toolbox of termite control techniques. As with any termite control contract, it is advisable to read and understand the document's terms and conditions. Because of the slow-acting nature of termite baits, coverage of repairs may not become effective until certain conditions are met. For example, some bait contracts state that the repair effective date will not start until the termite control company has determined that the termite infestation has been controlled, while other contracts state that the effective date begins anywhere from 6 to 12 months after bait station installation, regardless of whether the company believes the termites have been controlled or not. Property owners are urged to favor those contracts that have a stated effective date for repairs.

Some bait contracts allow for immediate treatment with a liquid termiticide, commonly called a spot treatment, to localized areas where active infestations of termites exist or to areas deemed conducive to infestation. Spot treatments are designed to immediately address an existing infestation and should shorten the time frame to the repair effective date. Companies often charge for spot treatments.

Some Factors That May Affect Contracts

Type of Termite. Many termite control companies in Georgia exclude Formosan subterranean termites and all species of drywood termites from their subterranean termite control contracts. In Georgia, Formosan termites are rare, and structural infestations of drywood termites are generally concentrated along Georgia's coastline and in South Georgia. If a company claims that a structure is infested with either Formosan or drywood termites it is advisable to seek independent confirmation of the termites' identification.

Type of Construction. A structure's susceptibility to termite attack is in large part a function of its construction type(s). Some construction types (and practices) lend themselves to infestation by allowing termites easy or undetectable access into the structure. Any type of siding that extends into the soil, including Exterior Insulation and Finish Systems (EIFS; commonly referred to as synthetic stucco), foam insulations, or pre-formed Styrofoam foundation systems, as examples, are construction types that make buildings more susceptible to termite infestation (Figure 19). Termites often tunnel through below-grade insulation systems or behind outdoor siding to gain access to wood in the structure. These building practices are problematic because they provide termites a protected, stable environment while making their detection nearly impossible. As mentioned previously, property owners should keep a six inch gap between the soil and the bottom of any type of outdoor siding, and under no circumstance should siding be allowed to extend below grade.

Some companies refuse to treat structures containing one or more of the above-mentioned elements because of their propensity for termite control failure. Even if a company treats, it may not offer the consumer any form of guarantee or warranty because the risk is too high that the treatment will fail despite a company's best treatment effort.

Other problematic construction types include, but are not limited to, those with an inaccessible crawlspace (makes inspection and treatment nearly impossible); exterior soil above level of the sill plate (a raised porch, mentioned previously); wood floor or carpet on top of a slab; indoor pools; decks with hot tubs; and finished or partially finished basements (also mentioned previously). These construction types are problematic because they provide termites a plethora of entry points and/or create areas that cannot be easily inspected or treated.

Type of Alteration. Property owners are expected to contact their termite control company before any alteration or modification is undertaken that might disrupt a chemical barrier or perhaps provide termites a new access route into the structure. Alterations to the structure may include new construction (e.g., adding a room, finishing a basement or carport, or installing a hot tub, wood lattice, wood flooring, deck, patio, etc.) or landscaping next to the structure.



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Figure 19. Some construction types, especially EIFS (top), make structures more vulnerable to infestation because they allow termites an undetectable access route into the structure by tunneling through the insulation itself (bottom).

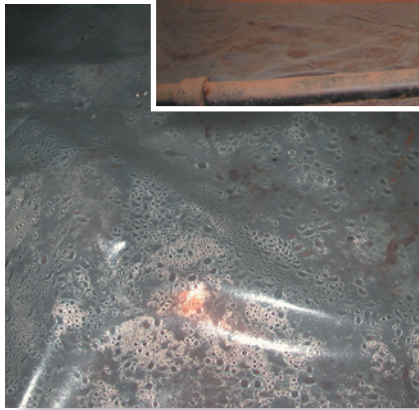


Figure 20. Property owners should keep the area surrounding the structure dry. Gutters should vent so that water is directed away from outside walls (top). In crawlspaces vents should operate properly (middle), a vapor barrier should be installed (bottom), and pipes should not leak.

These activities may disrupt the existing treatment and/or provide termites a new route of entry into the structure.

When alterations are made, most contracts require additional treatment of the disrupted area to assure continued protection and contract coverage. Such additional treatments are typically charged to the property owner, and the cost is usually in addition to the annual renewal fee. Some companies may void an existing contract if it can be shown that the structure had been altered without receiving additional treatment.

Moisture. A structure's chance of infestation may also be affected by factors in and around the building which provide environmental conditions favorable to termite survival and growth (e.g., plentiful food and water) or that may be detrimental to termite control treatments. Because of this, many termite control contracts include language that addresses property owner responsibilities for correcting or eliminating these conditions. Repair and/or remedy of conducive conditions are typically the responsibility of the property owner. Many contracts allow for termination if the property owner fails to fix problems deemed conducive to termite presence. Furthermore, following the repair of conducive conditions the termite control company may require, at additional expense, follow-up treatment to re-establish an effective termite management scenario. Finally, some repair contracts do not cover termite damage when a condition(s) considered conducive to termite survival, or treatment interference, exists in or on the structure at the time the damage is discovered.

Although there are no published, scientific studies that have correlated termite infestation rate with specific conducive conditions in and around the home, there are some conditions that are generally accepted as being related to termite survival and, perhaps, infestation. The most important of these conditions is persistent moisture in and around the structure. The presence of persistent moisture may make the structure more vulnerable to infestation because it enhances termite survival and growth, thereby bringing and holding termites in close association with the structure. Termites, as mentioned previously, are soft-bodied insects that are very susceptible to desiccation. Therefore, they are often found in and around areas where moisture is persistent but not excessive.

Common sources of moisture in and around homes include, but are not limited to, improper grade/drainage; standing water in the crawlspace; broken drainpipes; roof leaks; interior plumbing leaks; improperly installed flashing around fireplaces, windows and doors; improper ventilation of the crawlspace; lack of a vapor barrier in the crawlspace; misdirected sprinklers; clogged gutters and downspouts; downspout exhaust within five feet of the structure; and any type of siding that extends to or below grade. Contracts may state that the property owner is responsible for maintaining the property so that water flows away from structures (i.e., grade is appropriate and gutters

and downspouts are operating properly), that the structure is properly ventilated, that water leaks are fixed in a timely manner, and that a vapor barrier is in place in the crawlspace (Figure 20).

Property owners should keep groundcovers, shrubs, vines, and mulch several feet away from outside foundation walls. Mulch, for example, serves not so much as a food resource for termites (although they will eat some types of mulch) as it creates a condition that is conducive to termite survival. Groundcovers and mulches retain moisture in the soil, thereby creating a zone that provides the conditions termites need to explore an area. Although no scientific studies specifically address the effect that mulch has on the termite infestation rate, it is known that mulch placed against a structure's outside walls allows termites easy access and obscures the line of sight, making detection difficult for inspectors (Figure 21).

Coverage of above ground infestations (i.e., termites with no ground contact) is often excluded by both types of termite control contract. For retreatment contracts, the additional cost of treating an above ground infestation could be charged to the consumer. For repair contracts, not only might the consumer incur additional charges for treatment but often the repair of damages and creation of access to conduct treatment are not covered (see section Access).

Above ground infestations can occur only if a persistent source of moisture is available to the termites. Although they do occur, above ground infestations are not common and are difficult to diagnose because it must be proven that the above ground population does not have access to the ground. Diagnosis can be a challenge given the complexities of modern construction and the abundance of hidden areas that termites might exploit to maintain contact with the soil. When present, above ground infestations are among the most difficult to locate and effectively control.

Wood-to-Ground Contact. As mentioned previously, termite control companies often require that conducive conditions be remedied. Perhaps the most common, yet avoidable condition that can be linked to termite infestation is wood-to-ground contact. Wood-to-ground contact allows termites their easiest access into untreated wood, and from there to the remainder of the structure (Figure 22).

Other forms of wood-to-ground contact that may enhance termite survival and growth (i.e., a conducive condition) include wood debris close to the structure and in contact with the soil---e.g., wood and wood products on the ground in a crawlspace, firewood piled on the ground next to the structure, stumps, wood fences, etc. (Figure 2).



Figure 21. Property owners should keep mulch away from their building's foundation to allow inspectors to detect the presence of termites moving from the soil into the structure. In these pictures, mulch is piled next to the structure (top), and when removed exposes termites entering the structure through shelter tubes (bottom).

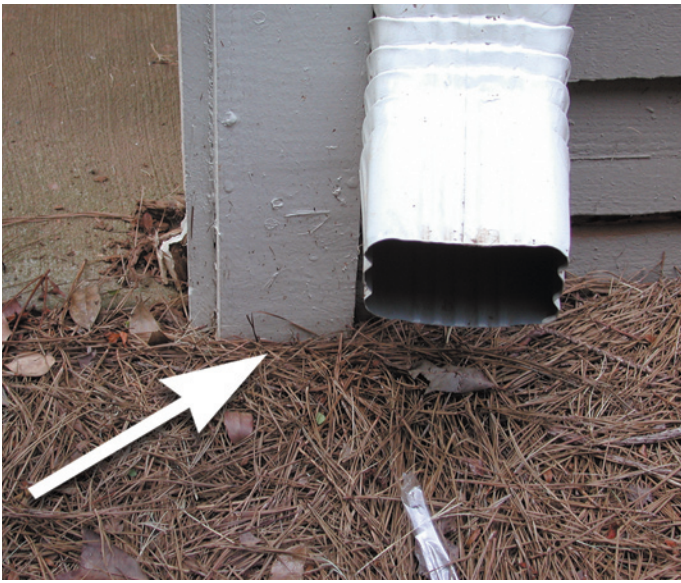


Figure 22. Wood to-ground contact (arrow) is a recipe for termite infestation. In this picture, wood is in contact with the ground in close proximity to where a gutter vents directly into mulch, resulting in persistently moist soil. Note also mulch piled next to the structure's siding

Exception Forms

At times it is not possible or practical for a termite control company to meet treatment requirements established by the State. In these instances, the company will likely ask that the property owner sign a treatment exception form; in Georgia, this form is named the Form II. By signing a Form II, the property owner acknowledges that the property will receive a treatment that does not meet requirements established by the State.

Use of the Form II is not meant to bypass established rules when it is entirely feasible to meet them. Sometimes, however, an aspect(s) of a building's construction may preclude it from being treated properly. In this case, the property owner will likely be asked to sign a Form II with the understanding that part or all of the structure will not receive treatment or will receive treatment that does not meet State requirements. A

Form II may also be executed when a property owner objects to a treatment technique they deem too invasive to their home, such as drilling expensive marble or tile.

If asked to sign an exception form, the termite control professional should make it clear to the property owner why the form is needed. A detailed explanation must be provided. Property owners should also inquire as to the impact signing an exception form will have on the termite control contract. The property owner must also receive a copy of the exception form.

Summary

Subterranean termites are the most common wood-destroying insects in the Southeastern U.S. In Georgia alone they cost property owners tens of millions of dollars each year to repair and treat infested structures. The most common signs of termite infestation include the sudden presence of winged termites, shelter tubes, and infested wood. When hiring a termite control company, it is advisable that property owners take their time and acquire the services of a company committed to customer service. Word-of-mouth and reputation are likely the most reliable means of selecting an exceptional termite control company. Since termites usually do not damage wood very quickly, property owners should never let a salesperson pressure them into signing a contract without understanding the terms and conditions offered. Contracts offered by termite control companies typically provide either retreatment of a recurring problem or retreatment of a recurring problem and some or all of the repair costs associated with new termite damage. Only the latter contract type will pay for repair of damages to the structure caused by subterranean termites. Inspections are the cornerstone of the difficult process of termite management, and as such it is advisable to have an annual termite inspection.



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