

# Drywood Termite Control: Weighing All the Options

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Many residents of Florida, especially those living near the coast or in southern counties, will experience a drywood termite infestation in their home. Unlike subterranean termites which require excess moisture, drywood termites spend almost their entire life cycle inside the sound, dry wood members upon which they feed. Only during brief swarming flights do young adults leave the confines of their galleries to begin new colonies elsewhere. Winged adults or "[swarmers](#)", shed [wings](#), ejected [pellets](#), and [galleries](#) inside wood are typical signs of a drywood termite infestation. Swarming [ants](#) are sometimes confused with termites, but their differences are easy to recognize.

If a drywood termite infestation is suspected in your house, a thorough examination of the entire structure should be conducted by a pest control operator or building inspector. To provide a valid report, the inspector must hold a State-issued wood-destroying organism inspection card and be personally licensed in the termite category or be supervised by such a licensee. A careful inspection is critical in order to determine the extent of an infestation and location(s) of other possible drywood termite colonies. The results of the inspection will dictate the best treatment option(s) as no single control method is best for all situations. Most companies offer only one or a few of the methods discussed herein, therefore, it is prudent to contact several companies for inspections and treatment recommendations before choosing the company and specific treatment which best fit your needs.

Drywood termite treatments are divided into three general categories which reflect their areas of coverage: [whole-structure](#), [compartmental](#), and [local or "spot"](#) applications. Preventative treatments are also available and are usually offered after an existing infestation has been treated. **All treatments listed below will kill drywood termites, but their effectiveness is limited when used beyond their intended scope.**

COVERAGE AND TYPICAL TIME RANGE FOR DRYWOOD TERMITE TREATMENTS		
Treatment	Unit of Coverage	Time per Unit
<b>Fumigation</b>	entire structure	1-2 days
<b>Heat</b>	several rooms, attic, an apartment	4-12 hours
<b>Cold</b>	wall voids between studs	30 min
<b>Electrocution</b>	3-4 ft of board	2-30 min
<b>Microwaves</b>	1-4 ft of board	10-30 min
<b>Drill-and-Inject</b>	3-12 ft. of termite gallery	5-20 min
<b>Borate Surface Spray</b>	raw wood surfaces	10 min - 2 hours
<b>Wood Replacement</b>	removed wood member	highly variable

<b>IMPORTANT ADVANTAGES AND DISADVANTAGES OF DRYWOOD TERMITE TREATMENTS</b>		
<b>Treatment</b>	<b>Advantages</b>	<b>Disadvantages</b>
<b>Fumigation</b>	complete eradication of termites in entire structure	overnight evacuation and food protection required
<b>Heat</b>	eradication where heat is confined	all heat sensitive materials must be removed from area
<b>Cold</b>	eradication where cold can be confined, usually a wall void	holes drilled in wall for injection of liquid nitrogen
<b>Electrocution</b>	maneuverable device	no ability to measure lethal application
<b>Microwaves</b>	control without drilling	poor maneuverability for confined areas
<b>Drill-and-Inject</b>	long tract record, residual chemical delivered directly into termite gallery	drilling of infested wood required
<b>Borate Surface Spray</b>	large coverage possible, residual protection	only unfinished wood treatable, drilling of infested wood recommended
<b>Wood Replacement</b>	absolute removal of infestation	infestation may run into adjacent, more difficult to remove, wood members

## **WHOLE-STRUCTURE**

**Fumigation.** Fumigation ("tenting") has been the only method used for over forty years which insures complete eradication of all drywood termites from a structure. The phase-out of methyl bromide in the U.S. has positioned sulfuryl fluoride (Vikane®) as the leading gas fumigant. Fumigation is a highly technical procedure which involves surrounding the structure with a gas-tight tarpaulin, releasing the gas inside the seal, and aerating the fumigant after a set exposure time. Before fumigation, the homeowner must remove all plants and animals from the house, remove or place food items inside special protective bags, and insure that there is sufficient tarp clearance between sensitive landscaping and exterior walls. The fumigation company may monitor gas concentration during the fumigation to insure that a sufficient dose is maintained. Only after the house has been aerated and tested for absence of fumigant can it be reoccupied. Because the fumigant is a true gas and works as a component of air, no cleanup of clothing, dishes, floors or other surfaces is needed.

**Heat.** Because of technical challenges, heat treatments in Florida are usually not applied to entire buildings, but are limited to known areas of infestation (see below).

## **COMPARTMENTAL**

**Heat.** Heat treatments are used to eradicate drywood termites from portions of a house such as an attic, porch, or bedroom, or from an individual apartment or condominium unit inside a multi-family dwelling. Heat sensitive articles are removed and the infested area is cordoned off with polyethylene or vinyl sheets. Temperature probes are placed in the hardest-to-heat locations and heat is applied with a high-output propane heater. After a lethal target temperature is achieved, the area can be cooled quickly for immediate

reoccupation. If a heat liable material cannot be removed, it must be thoroughly protected with insulating blankets.

Cold. Excessive cold is primarily used for treating wall voids or similar small enclosures in a structure. Liquid nitrogen is pumped into these voids until the temperature drops to a level lethal to drywood termites. Temperature probes should be used to insure that lethal temperatures are attained. During treatment the area must be monitored for safe oxygen levels.

## **LOCAL**

Wood Injection. Wood injection or "drill-and-treat" applications have been used since the 1920s to treat drywood termite infestations which are accessible and detectable. An insecticide is injected into small holes drilled through any wood surface into termite galleries delivering the treatment directly to the pest population. This is the simplest and most direct method of treatment. The amount of drilling required and the effectiveness of this treatment depends on the chemical used and the nature of the infestation. Most chemicals will remain active in the wood after treatment to thwart resurgent colonies.

Borates. Spray and foam applications of products containing boron salts are applied to raw, uncoated wood surfaces. Because penetration depths of borate solutions and depth of drywood termite galleries vary, injection into existing infestations should also be performed (see also wood injection above and preventative treatments below).

Microwave. Microwave energy, applied to relatively small sections of infested wood, kills termites by heating them. Thermocouples should be inserted into treated members to insure that adequate microwave energy is delivered. Microwave equipment is not designed to treat areas where access is limited.

Electrocution. The probe of a hand-held "gun" is passed slowly over the infested wood surface and inserted directly into pellet "kick-out" holes. The high voltage and low current energy emitted by the probe electrocutes termites in the immediate application area. There is no way to measure a lethal dose at a given location in wood with this device. In some cases, holes must be drilled into wood and wires inserted to improve penetration.

Wood replacement. This method allows for absolute removal of a drywood termite infestation if it is isolated to a wood member which can be detached relatively easily, as for example, a fascia board or a door. Make certain that there are no galleries leading to adjacent wood members, otherwise, they will also require treatment or removal.

## **PREVENTATIVE TREATMENTS**

Pre-construction. The most effective prevention for drywood termites can be "built-in" to a home during its construction phase. Pressure-treated lumber should be installed wherever building codes allow. In the framing stage, all untreated wood can be sprayed with borate solutions.

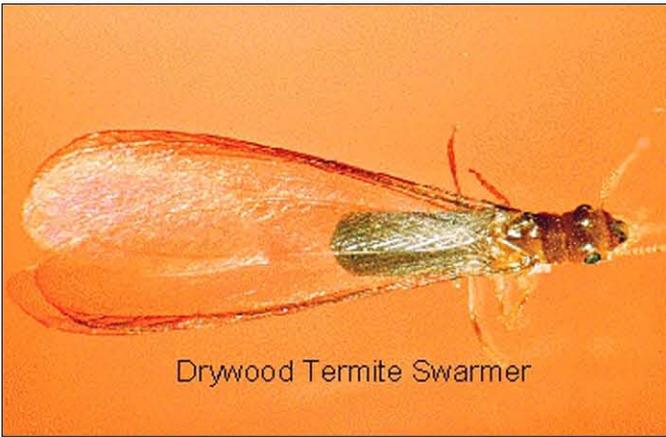
Post-construction. It is impossible to treat all wood in a completed house with residual chemicals. Exposed, unfinished wood can be sprayed with borates which repel swarming termites, but keep in mind that untreated wood may still be susceptible to infestation as the borate spray residue will not kill wandering adults on contact. Wall voids and attics can also be sprayed or dusted with various residual insecticides which kill swarming adults in search of a nest site.

## **TREATMENT VERIFICATION**

Because drywood termites are hidden inside the wood they infest, it may be difficult to immediately verify the success of a given treatment. A swarm within a few years of treatment suggests either that the treatment

was unsuccessful, infested wood was brought in, or a hidden, untreated, infestation was present and must now be treated. Accumulation of pellets, especially in a cone-shaped pattern, is also a sign of active drywood termites. All pellets should be removed after a treatment to insure that colony activity has ceased. A retreatment is warranted if new pellets are observed. Pellets may continue to trickle from wood after successful control if the wood member is periodically subjected to vibrations or jarring such as a door or door frame.

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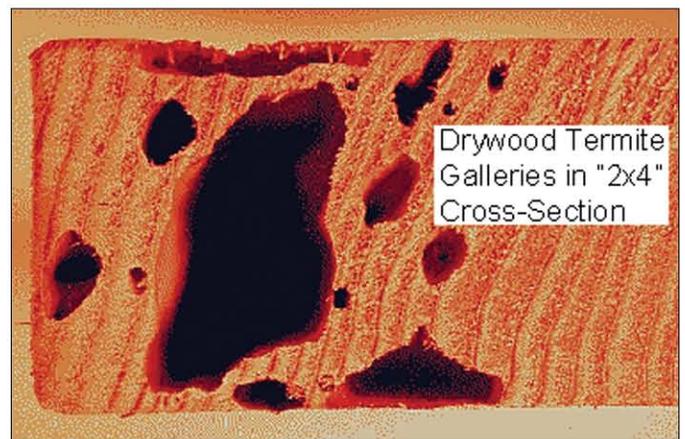
Drywood Termite Swarmer



Drywood Termite Wing



Drywood Termite Pellets



Drywood Termite Galleries in "2x4" Cross-Section



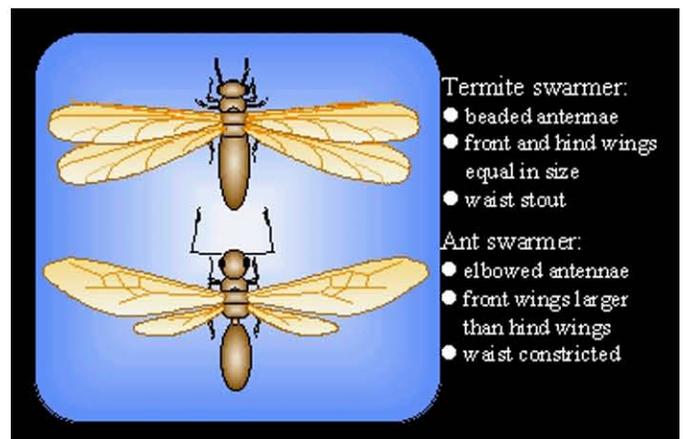
Whole-Structure Treatment: Fumigation



Compartmental Treatments: Heat & Cold



Local Treatments: Wood Injection, Electrocutation, Microwaves, Borate Sprays



- Termite swarmer:
- beaded antennae
  - front and hind wings equal in size
  - waist stout
- Ant swarmer:
- elbowed antennae
  - front wings larger than hind wings
  - waist constricted