

# Termiticide Applications

## Termite Treatment During Construction

Chemical treatment of the soil around or under the foundation of buildings serves as one of the most important means of isolating a building from termites; it provides protection from termite attack for many years. Treatment is most effective when done before and during construction of the foundation and should be used in conjunction with good construction, **not** as a substitute for it. It is particularly important when using concrete slab-on-ground construction. To meet FHA termite-proofing requirements, follow the latest edition of the Housing and Urban Development (HUD) Minimum Property Standards.

## Factors Affecting Termiticide Application

The soil type and its moisture content affect the penetration of pesticides. A soil fill accepts treatment best when it is damp, but not excessively wet or dry. If the soil is excessively wet, there is a chance of runoff, and the chemical will not penetrate the soil. In frozen or excessively dry soil, pesticide emulsions are repelled and puddling occurs, resulting in poor penetration and distribution of the termiticide. Check the label, most termiticide labels prohibit applications to be made into saturated or frozen soil.

Mechanical disturbance of treated soil breaks the continuity of the insecticide barrier and increases the possibility of termite penetration. The treatment of fill under slabs extends probably less than 2 inches deep, with the majority of the insecticide being in the top 3/4 of an inch. Therefore, very little disturbance to the treated soil can be tolerated. A freshly treated slab-foundation site should be protected with a polyethylene sheet or other waterproof material, unless the concrete is to be poured the day of the treatment. This protects the treatment from rain and evaporation. The final treatment on the outside of foundation walls should be done after all grading and other soil disturbances have been completed.

A termiticide is stable once it dries in the soil. Because the most commonly used termiticides are quite insoluble in water, leaching is not a problem.

However, there is a slight risk of contaminating a well or other water supply if insecticides are applied to nearby soil that either contains layers of gravel or tends to crack severely during periods of drought. In these situations, the soil should not be treated with chemicals.

## Methods of Application

The objective of applying a termiticide to soil is to provide an unbroken chemical barrier between the wood in the structure and termite colonies in the soil. Thus, the insecticide must be applied thoroughly and uniformly to block all routes of termite entry. Treatment is required around all pipes, utility conduits, foundations and footings that contact the soil. Application procedures will depend on the soil type, grading, water table and presence of drainage tile and well location. The design of the structure, location of the colony, severity of infestations in the area and the termite species and its behavior must also be considered. The overall principle in termite control is to make it impossible for termites to move between their nests in the ground and the wood in the structure. If a portion of a structure remains unprotected, termites may still gain entrance to the building.

The rate at which the insecticide will be applied will depend greatly on the results of your site inspection. The site inspection will give you facts about the structure needed to make an application plan. The plan will consist of where applications will be made and how the treatment will be applied.

Three common methods of applying termiticides to soils are broadcast spraying, trenching and rodding.

## Broadcast Spraying

A low-pressure broadcast spray may be used to apply termiticides as a preconstruction treatment only before slabs are poured. There are several other points to remember about broadcast spraying:

- a) Use low nozzle pressure of 25 psi or less,
- b) Do not treat the entire crawl space unless covered with untreated soil or barrier (see termiticide label), and
- c) Do not treat areas intended for use as plenums.

## Trenching

Trenching involves digging a narrow trench and then flooding it with a measured amount of insecticide. The trench must be right next to the face of the foundation wall or the masonry-work footing of any supporting posts or piers. The trench may not extend below the top of the footing of the foundation wall. The termiticide may be rodded into the soil at the bottom of the trench in addition to being mixed with the excavated soil as the soil is replaced in the trench.

Trenching varies with soil type and moisture. Some people suggest digging a shallow trench and then rodding the soil below to reach the depth of the footings. The trench should be slightly deeper next to the foundation so that the chemical flows against the foundation instead of away from it. On an incline, the trench is constructed in a stair-step fashion to prevent the termiticide from flowing down the incline. In wet or tightly packed soils it is difficult to obtain the needed penetration with the trenching method. Sandy or loose soils can be treated satisfactorily under normal circumstances.

Apply the prescribed label rate of the termiticide emulsion for each 10 linear feet of trench for each foot of depth from grade to footing along the entire length of the trench. Be sure to treat the soil thoroughly as it is returned to the trench. Break up lumps and clods of soil and treat every few inches of depth as the soil is being replaced.

In general, soil and termiticide are mixed in the following manner: After the soil is removed from the trench, some of the termiticide, but not all, is poured into the trench. Some, but not all, of the soil is then backfilled into the trench and mixed thoroughly with the termiticide. Continue alternately adding termiticide and soil, and mixing thoroughly, until the trench is filled. The objective is to obtain even treatment of all the soil in the trench, so take care to combine termiticide and soil in the proper proportions as you fill the trench. Trenching should be done by two people, one to apply the termiticide and the other to add the soil to the trench and mix it with the termiticide. Both people must be certified applicators.

If you think that a foundation may leak if termiticide is poured into the trench, you may spread the excavated soil onto a tarp and add termiticide

directly to the soil on the tarp. Again, only treat some of the soil at any one time. Mix it thoroughly with the termiticide and backfill it into the trench. Proceed until all the soil has been treated and placed back in the trench.

When the trenching operation is completed, cover the treated soil with approximately 1 inch of untreated soil; this will reduce risk of exposure of residents and pets to the treated soil.

## Rodding

Rodding the soil is believed by many to be the simplest method of application. The pesticide is applied through hollow steel tubes inserted vertically or horizontally into the soil. A rod is usually made of a pipe, 1/2 of an inch in diameter and about 4 feet long, with a handle and shutoff valve at one end. The other end is fitted with a perforated tip to disperse the liquid laterally as well as downwards.

Penetration of the ground surface may be aided by wetting down the soil before inserting the rod. After rod penetration has begun, chemical flow can start and will aid in the passage of the rod to 3 or more feet necessary to soak the soil at the footings. Always move the rod slowly, allowing the chemical to spread. Never push down and then bring up the treatment rod. Apply the suggested label rate for each 10 linear feet per foot of depth to the top of the footings.

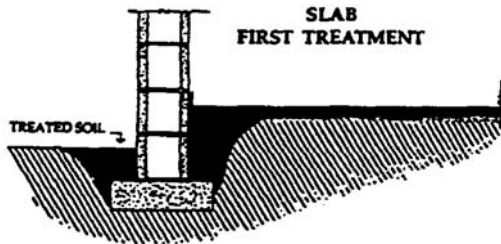
Spacing of rodding varies with soil conditions. Usually, penetration is made every 12 inches, but can sometimes be as close as every 6 inches in clay and as much as 18 inches in sand. The objective is to place the insertion points close enough together to provide overlapping of the application; this ensures there will be no untreated gaps. Angling the rod slightly toward the foundation directs the flow against it. The rod insertion points should be parallel to the foundation.

## Slab-on-Ground Buildings

This type of construction is best treated as a pretreatment. Soon after the gravel or dirt fill has been made and tamped, spray the soil with termiticide before the concrete slab is poured. Use a low-pressure (25 psi), coarse spray to avoid misting and drift.

## Horizontal Barriers

Apply the label rate of diluted chemical for each 10 square feet over the entire under-slab area, and also under any attached porches, terraces, carports and garages where the fill consists of soil or unwashed gravel (Figure 19).

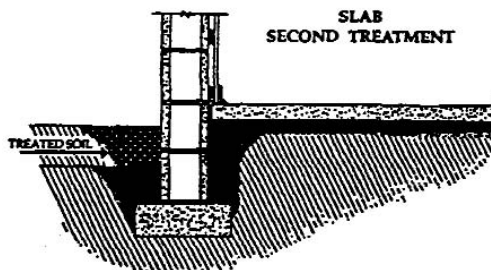


**Figure 19. Chemical treatment of the fill material prior to pouring a concrete slab protects wood in the building from termite attack.**

Apply the recommended amount of diluted chemical for each 10 square feet to those areas where the fill is washed gravel or other coarse absorbent material, such as cinders.

## Vertical Barriers

Dig a trench 6 to 8 inches wide along the outside of the foundation, including porches and patio. Where the top of the footing is more than 12 inches deep, large volumes of chemical are required. For proper application, make holes about 12 inches apart in the bottom of the trench to the top of the footing, using a crowbar, metal rod or grouting rod. These holes permit better distribution of the chemical by providing access to the soil at depths below the trench. The holes may need to be closer together in hard-packed day soils than in sandy soils. Apply the label indicated rate of diluted chemical for each 10 linear feet of trench for each foot of depth from grade to footing. Refill the trench with the excavated soil, mixing it with the pesticide as described earlier (Figure 20).



**Figure 20. Application of a chemical to soil around the foundation.**

## Hollow Block Foundation/ Voids in Masonry

The general procedure is to, drill holes in the blocks at least 1 to 2 feet above the footing or as close to outside grade level as possible but not above the top of an interior slab. Chemical should be injected to form a continuous barrier and every void should be treated. Apply the label rate of diluted chemical for each 10 linear feet of wall or foundation so that it reaches the footing.

## Crawl Space Houses

Crawl spaces are low, less than 3 feet high, and usually have exposed soil. This type of construction is common in many parts of the country, particularly where basements are common. The exposed soil, short distance to floor joists and sills, and unkempt nature make crawl spaces an ideal portal for termites to find and infest the wood in a structure and for swarmers to escape the nest. The termiticide selected should produce little or no odor; exposed treated soil in a crawl space can become a smelly nuisance.

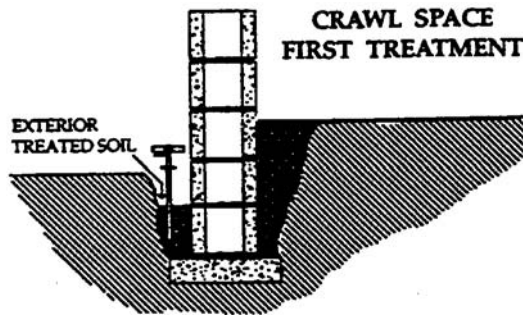
## Mechanical Alterations

Remove any pieces of wood left on top of the soil; contractors will often leave construction debris in crawl spaces. Capping the soil with a layer of concrete will prevent swarmers from emerging. Treat the soil before the cap is poured to form an effective barrier. The crawl space should be vented to help minimize moisture and odor build-ups. It is recommended that the total area of vents be equal to 1/150 of the total area of the crawl space. A crawl space with vents placed on at least two of the outside walls and close to the corners will have few dead-air pockets.

## Soil Treatments

Treat the soil adjacent to the foundation walls by digging a trench 6 to 8 inches wide along the inside of the foundation (Figure 21). Apply the correct amount of diluted termiticide for each 10 linear feet of trench for each foot of depth from grade to the footing. Where the top of the footing is more than 12 inches deep and thus large volumes of termiticide must be applied, make holes about 12 inches apart in the bottom of the trench to the top of the footing, using a

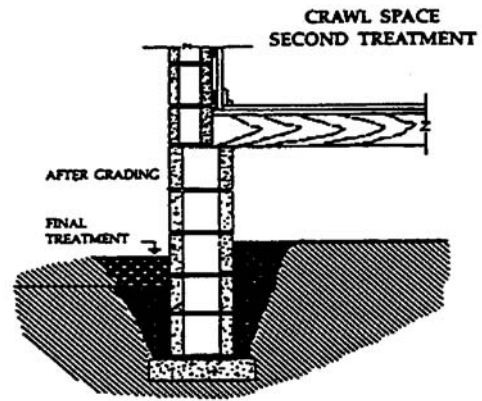
crowbar, metal rod or grouting rod. These holes permit better distribution of the termiticide by providing access to the soil at depths below the trench. The holes may need to be closer together in hard-packed clay soils than in light sandy soils. Refill the trench with the excavated soil, mixing it with the pesticide.



**Figure 21. Preconstruction treatment of inside and outside foundation perimeter.**

Create a horizontal barrier across the surface of the crawl space by applying the label rate of diluted termiticides for each 10 square feet over the entire surface area. Apply the suggested quantity of diluted termiticide for each 10 square feet to those areas where the fill is washed gravel or other coarse absorbent material, such as cinders. If buried wood cannot be removed, inject the termiticide under the soil surface near the wood. Cover the treated soil with a layer of untreated soil or polyethylene sheeting. Be sure the sheeting is sealed to the foundation wall by weighing it down with untreated soil or gravel. Overlap the edges of the sheeting and seal them by covering with clean soil or gravel.

Dig a trench 6 to 8 inches wide along the outside of the foundation including areas such as porches and patios. When the top of the footing is more than 12 inches below the surface, rod to the top of the footing (Figure 21). The holes should be spaced about 12 inches apart to provide a continuous chemical barrier. They may need to be closer together in hard-packed clay soils than in light, sandy soils. Apply the correct amount of diluted chemical for each 10 linear feet of trench per foot of depth from grade to footing. After rodding the soil from the bottom of the trench to the top of the footing, refill the trench with the soil, thoroughly mixing the soil and termiticide (Figure 22).



**Figure 22. Second treatment after the final grading.**

## Full-Basement Houses

The application of a termiticide to a typical house with a basement is done in the same manner as that recommended for slab-on-ground construction.

Soil around the foundation, piers, utility lines and load-bearing walls must be treated with termiticide by rodding or trenching. For normal soil and moisture conditions, when footings are 4 to 6 feet deep, dig the trench at least 2 to 3 feet deep. Apply the indicated quantity of termiticide for each 10 linear feet of trench for each foot of depth from grade to the footing along the entire length of the trench.

Where there are hollow block foundations or voids in masonry foundations, these should be treated with the appropriate amount of termiticide for each 10 linear feet of wall, at or near the footing. Overlap these patterns of application to make a continuous chemical barrier in the voids. The termiticide must be applied so it will reach the top of the footing.

Prior to laying the slabs, apply the termiticide with a low-pressure, coarse spray to the fill to create a horizontal barrier just as with the slab-on-ground house.

**SPECIAL NOTE:** If the concrete slab cannot be poured the same day, cover the treated soil with a waterproof cover, such as polyethylene sheeting. This will protect the treatment from adverse weather.