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North Carolina Department of Agriculture and Consumer Services
Structural Pest Control and Pesticides Division

Joe Reardon,
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Consumer Protection

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MEMORANDUM

To: Licensees, Certified Applicators, Registered Technicians, Property Owners, Builders, and Code Enforcement Officers

From: Jim Burnette, Director Structural Pest Control and Pesticides Division, NCDA&CS

Subject: Liquid Termiticide Treatment of Residential Property with Gravel Footings and Foundation Drainage Concerns

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Questions have arisen regarding the Division's policy concerning pre-construction liquid termiticide treatment of residential property where foundation drainage concerns exist. The Division's policy is that PEST MANAGEMENT PROFESSIONALS (PMPs) should carefully evaluate the site conditions to determine the appropriateness of using liquid termiticide treatment in the case of all residential property that may include foundation drains. Foundation drains may be found in a wide variety of scenarios, but will always be present in homes with basements, whether constructed with cast-in-place walls ("CIP"), concrete masonry units ("CMU") or precast foundation wall ("PFW") systems.

For guidance, the Division provides reference to the following guidelines and regulations, and notes that particular care should be taken by PMPs to avoid run-off from the intended treatment site during the application of liquid termiticide. This guidance is intended to help prevent run-off of liquid termiticides from the intended treatment site and to avoid possible liability for PMP's.

1. Section R-323.2 of The North Carolina Building Code states that the concentration, rate of application and treatment method of the termiticide shall be consistent with and never less than the termiticide label and applied according to the standards of the North Carolina Structural Pest Control Committee of the North Carolina Department of Agriculture.
2. Liquid termiticide labels are clear that a vertical and a horizontal barrier should be established during treatment. Most labels contain language similar to the following:

FOR PRE-CONSTRUCTION TREATMENTS, UP TO AND INCLUDING TREATMENT OF FINAL GRADE, DO NOT APPLY AT A LOWER DOSAGE AND/OR CONCENTRATION THAN SPECIFIED ON THIS LABEL.

Establish a continuous vertical treatment zone around all foundation elements including but not limited to foundation walls, pillars, pilasters and chimney bases. In addition, establish a vertical treatment zone around pipes, utility penetrations, all similar penetrations in floor slabs.
Create a horizontal barrier wherever treated soil will be covered by a slab, such as footing trenches, slab floors, carports, and the soil beneath stairs and crawl spaces. Apply 1 gallon of dilution per 10 square feet, to provide thorough and continuous coverage of the area being treated. If the fill is washed gravel or other coarse material, it is important that a sufficient amount of dilution be used to reach the soil substrate beneath the coarse fill.

3. The Structural Pest Control Committee Rules and Regulations state the following:

02 NCAC 34 .0505
SUBTERRANEAN TERMITE PREVENTION/RES BLDGS UNDER CONST

(a) All treatments performed pursuant to this Rule shall be performed at the label-recommended rate and concentration only.

(b) The following standards and requirements shall apply to the treatment of a building for subterranean termite control during construction if the building has a basement or crawl space:

(1) Establish a vertical barrier in the soil by trenching or trenching and rodding along inside of the main foundation wall; the entire perimeter of all multiple masonry chimney bases, pillars, pilasters, and piers; and both sides of partition or inner walls with a termiticide from the top of the grade to the top of the footing or to a minimum depth of 30 inches, whichever is less. Where footings are exposed, treatment shall be performed adjacent to the footing but not below the bottom of the footing. Trench shall be no less than six inches in depth or to the bottom of the footing, whichever is less. Where drain tile, French drains, or other foundation drainage systems present a hazard of contamination outside the treatment zone, treatment shall be performed in a manner that will not introduce termiticide into the drainage system.

(2) After a building or structure has been completed and the excavation filled and leveled, so that the final grade has been reached along the outside of the main foundation wall, establish a vertical barrier in the soil by trenching or trenching and rodding adjacent to the outside of the main foundation wall with a termiticide from the top of the grade to the top of the footing or to a minimum depth of 30 inches, whichever is less. Where footings are exposed, treatment shall be performed adjacent to the footing and not below the bottom of the footing. Trench shall be no less than six inches in depth or to the bottom of the footing, whichever is less. Where drain tile, French drains, or other foundation drainage systems present a hazard of contamination outside the treatment zone, treatment shall be performed in a manner that will not introduce termiticide into the drainage system.

(4) Establish a horizontal termiticide barrier in the soil under the entire

surface of floor slabs, such as basements, porches, entrance platforms, garages, carports, breezeways, sunrooms, etc. The treatment shall be performed before slab is poured but after fill material or fill dirt has been spread.

(5) Establish a vertical termiticide barrier in the soil around all critical areas, such as expansion and construction joints and plumbing and utility conduits, at their point of penetration of the slab or floor or, for crawl space construction, at the point of contact with the soil.

4. It should also be noted that application of a pesticide when conditions are favorable for runoff from the target site is also a prohibited act:

02 NCAC 34.0904
PROHIBITED ACTS

(m) No pesticide shall be applied for the purpose of performing structural pest control when the conditions at the site of application favor drift or runoff from the target site.

A. Before final grade (pre-treatment)

Before final grade is reached, the above regulations require that the PMP establish a vertical barrier by applying termiticide on the interior of the foundation wall or, where the footers are exposed, adjacent to the footer. However, where foundation drains are already in place under gravel fill at the time of pretreatment, there is an increased risk that the applied termiticide will flow through the gravel fill and into the foundation drains and ultimately migrate away from the intended area of application. Whenever foundation drains are in place at the time of pretreatment, PMPs must take precautionary measures to ensure that offsite migration does not occur.

Termiticides are designed to bond to soil. Because of this, whenever possible, PMPs should coordinate with property owners and builders to arrange for application of liquid termiticide to the soil before foundation drains are installed to minimize risk of unintended migration offsite. In the case of PFW systems with crushed stone footings, PMPs may be able to coordinate treatment application with property owners, builders, and installers of the precast walls to apply initial liquid termiticide treatment of the soil prior to the installation of foundation drains and gravel.

B. After final grade (pre-treatment)

These regulations require that PMPs establish a vertical barrier around the exterior of the structure adjacent to the foundation walls to the top of the footer or to a depth of 30 inches, whichever is less. Where it is less than 30 inches from grade to the top of the footer and a foundation drain system is present, there may be an increased risk of liquid termiticide entering the drain. This may be true regardless of which foundation wall system is used. In that case, the preferred method of treatment is to use a stand-alone termite baiting system, approved for use by the Structural Pest Control Committee, or in the case of crawl space and slab construction, a Borate (wood) treatment is possible. There is also a physical barrier that has been approved for use by the Structural Pest Control Committee.

Conclusion

Ultimately, regardless of whether a residential building foundation is constructed via CIP, CMU or PFW, where foundation drainage concerns exist the Division recommends that PMPs evaluate and consider the use of effective treatment methods other than liquid termiticide due to the potential for runoff.

If you have any questions concerning this or other Structural Pest Control Regulatory issues, please contact the Structural Pest Control & Pesticides Division.