APPENDIX 9: TERMITES

MANAGEMENT AND CONTROL OF TERMITES

1. GENERAL INFORMATION

Termites are small white, tan or black insects that can cause severe destruction to wooden structures. They belong to the insect order Isoptera, dating back more than 100 million years. Although many people think termites have only negative impacts, in nature they make positive contributions to the world's ecosystems. Their greatest contribution is the role they play in recycling wood and plant material. Their tunneling efforts also help to ensure that soils are porous, contain nutrients and are healthy enough to support plant growth.

Termites are social and can form large nests or colonies consisting of very different looking individuals (castes). Physically, the largest individual is the queen. Her function is to lay eggs, sometimes thousands in a single day. A king is always at her side. Other individuals have large heads with powerful jaws, or a bulblike head that squirts liquid. These individuals are called soldiers. The largest groups of termites in a colony are the workers. They work long hours tending to the queen, building the nest or gathering food. While other species of social insects have workers, termites are unique in that they have both male and female workers. They can be long-lived: queens and kings can live for decades while individual workers can survive several years.

2. MANAGEMENT AND CONTROL OF TERMITES

Termites have become a problem where they consume structural timber and damage utility poles, food, books and household furniture. Successful termite management requires special skills including a working knowledge of building construction and an understanding of termite biology. An integrated program is required to manage termites. Combine methods such as modifying habitats, excluding termites from the building by physical and chemical means, and using mechanical and chemical means to destroy existing colonies.

Inspection: Before beginning a control program, thoroughly inspect the building. Verify that there are termites, identify them, and assess the extent of their infestation and damage. Look for conditions in and around buildings that promote termite attack, such as excessive moisture or wood in contact with the soil.

2.1. MECHANICAL CONTROL

Prevention: Building design may contribute to termite invasion. Keep all sub structural wood at least 30 cm above the soil beneath the building. Alternatively, sink subterranean wood in concrete as a barrier against termites. Identify and correct other structural deficiencies that attract or promote termite infestations. Keep foundation areas well ventilated and dry. Reduce chances of infestation by removing or protecting any wood in contact with the soil. Look for and remove tree stumps, stored wood, untreated fence posts and buried scrap wood near the structure that may attract termites.

Foundation sand barriers can be used for subterranean termite control. Sand with particle size in the range of 10-16 mesh is used to replace soil around the foundation of a building. Subterranean termites are unable to construct their tunnels through the sand and therefore cannot invade wooden structures resting on the foundation.

2.2. CHEMICAL CONTROL

Termicitide / Soil insecticide in accordance with SANS 5859 mixed with water then sprayed to the bottom surface of foundation, sides of foundation walls and including to the compacted backfilled surface before concrete surface bed is cast.

Pre-infection treatment of wood: Wood used in foundations and other wood in contact with the soil may be chemically treated to help protect against termite damage in areas where building designs cannot be altered or concrete or sand cannot be used. Treated wood is toxic to termites and discourages new kings and queens from establishing colonies in it. If susceptible wood is used above the treated wood, subterranean termites can build their shelter tubes over chemically treated

wood and infest untreated wood above. Use only “exterior grade” treated wood for areas that are exposed to weather; otherwise the chemical that is in the wood may leach from the wood. All topical (applied to wood by painting on) treatments that will be exposed to weather must also have a sealer coat to prevent leaching into the soil following rain. **Also, because they contain pesticides, disposal of treated wood requires special handling.**

- **CCA** (chromated copper arsenate) can be used to treat wood prior to construction. It gives the wood a green tint. Although this is a natural poison, it will not leach much into the soil.

- **Creosote** is a natural treatment. Wood can be soaked in a hot bath (almost boiling) of creosote until it has penetrated 1/3 of the way into the wood. Treatment should be done off-site as much as possible to prevent leaching into the soil and water course. If treatment has to be done on site, impervious plastic sheeting must be used to.

Post-infection treatment of wood: Subterranean termites in structures cannot be adequately controlled by fumigation, heat treatment or freezing because the reproductives or nymphs are concentrated below ground level in structures out of reach of these control measures. The primary methods of controlling these termites are the application of insecticides. Treating infested wood in a structure requires drilling and injecting chemicals into the wood to reach the colony. Alternatively, the infested wood can be sprayed liberally with the insecticide **Premise**. Spray wood at least 1 m above ground level, and spray the soil all around the infected wooded structure. Use of insecticides should be supplemented with the destruction of their access points or nests. To facilitate control of subterranean termites, destroy their shelter tubes whenever possible to interrupt access to wooden substructures and to open colonies to attack from natural enemies such as ants.

Treatment of soil: Insecticides are applied to the soil either in drenches or by injection. Special hazards are involved when applying insecticides to the soil around and under buildings. Applications in the wrong place can cause insecticide

contamination of plumbing used for water under the treated building. Soil type, weather and application techniques influence the mobility of insecticides in the soil. Soil applied insecticides must not leach through the soil profile to contaminate groundwater.

PREMISE (made by Bayer) is effective in combating subterranean termites. It is expensive, but very concentrated and long lasting. One application should be effective for up to 6 years. Dilute as specified (350g/*l*) and apply in a trench around the building along foundations (6 x 6 inches wide). For existing buildings, apply 3-6 *l* per linear meter (trench treatment). Where possible, treat similarly treat inside along outer foundation walls (suspended floors), of, if impossible, (solid floors), drill through floor adjacent to our foundation walls, flood soil below by injecting emulsion through holes and seal. Ensure that soil along the whole length of the foundation walls, is thoroughly treated. For new buildings, prior to construction, apply as an overall drench to soil under floor area at 5*l* per square meter. Use higher rate on heavy (clay e.g. basalt) soils. Apply to bottom of foundation and service trenches, and to soil on both sides of outer foundation walls at 6*l* per linear meter (trench treatment).

For infested wooden structures, apply Premise in a spray (mix as above) and spray liberally to the infested wood, and surrounding soil.