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The Effects of Termites on Wood



Termites are a notable cause for wood deterioration that result in billions of dollars in damage every year. They find their wood source, burrow in it, and use it as a home to multiply and feed. With wooden buildings, the results of termites can be even more unfortunate as the

main structural elements are affected as well. Many structures are made from wood and it will continue to be that way. We need to focus on the various methods to protect these wooden structures and exterminate these pests. In this paper, I will go over these methods and explain how they will work as ways of protection.

Before delving into these methods, I first want to describe and explain the three types of termites that infest wood: Subterranean, Drywood, and Dampwood. Subterranean are the most prevalent out of the three as they cause 95% of termite related damage, according to Shripat T. Kamble (Reference 1, page 2). They are found across the United States compared to Drywood, which only infest in a narrow geographic band from Florida to California and Dampwood, which only reside in the Pacific Northwest according to UMass's BCT article on Termites and Carpenter Ants (Reference 2). Below is an example of each:



As you can see from the image above, these termites have notable differences in size, wing size, and color. Although they are all responsible for wood damage, it is still helpful to be able to identify between these three species, but because of the abundance of Subterranean termites in termite-infested homes, I will be referring to them throughout this paper.

In addition to being able to identify the types of termites, I would also like to address how to determine if your structure is infested or not. An obvious indicator is finding termites in the actual interior of your home, coming from a similar area. You can easily track them down as it is

mostly narrowed down to one place in the structure. Mud tubes, which are small tunnels located around termite nests, are a good indicator. According to Mike Potter, an Entomologist (Reference 3), you will find mud tubes extending over foundation walls, support piers, sill plates, and floor joists. So, looking in the basement will be your best bet at finding these mud tubes. Another indicator of termite infestation is hollowed-out wood along the grain with mud/soil left behind in the hollowed-out spaces. Below is an image of mud tubes on a foundation wall (left) and this type of hollowed-out wood (right):



Now, it is time to discuss the multiple ways to protect your structure from these pests. There are two categories from what I gathered: chemical and non-chemical. Beginning with chemical treatments, there are termite baits, building materials impregnated with termiticides, and liquid soil-applied termiticides. Termite baits are becoming the most reliable popular and reliable way to prevent termites (Reference 2). You install “stations” that the termites enter and begin to feed off. These “stations” are riddled with poison that the termites exchange, causing a mass extermination. This works because termites exchange food between one another at the colony. This process is called trophallaxis (Reference 4, page 16) and is the main reason why this method works so efficiently. Building materials that make up a wooden structure can be sprayed and treated with termiticides. They keep termites away, but in the case of one that decides to consume the wood, they ingest the termiticide and die imminently. So, with this method, you can design and build your structure with these wooden materials on the exterior or near the foundation (where most termites start their infestation). Liquid soil-applied termiticides serve as

a barrier system for repelling termites in the ground. It is injected into the perimeter of the structure's foundation as a long-lasting solution to preventing termites. But, even if you have termites already in your building, then this method will still be beneficial to you. This is because when the termites try to return to the soil they realize they cannot because of the termiticide, so they stay in the structure instead and eventually die.

Along with these simple, but effective chemical methods there are also the non-chemical, physical methods. These consist of altering the design and materials that make up or surround the structure. Having a continuous barrier is key here, as termites will find their way if an any sort of opening exists. Some people also prefer these methods because they do not have to be surrounded by poison. As stated in the BCT article (Reference 2), "About 200 gallons of termiticide solution are injected into soil for an average home". That's a lot of chemicals and I can understand why some people would not want their house treated with them. Instead, you can install a physical barrier into the wall assembly like a metal membrane. This involves placing it on the exterior of your entire foundation and it keeps the termites out as they cannot eat or get through metal. You could also surround your foundation with a steel mesh or sand. These can also act as a physical barrier, but you must make sure to match the size depending on the type of termite. The density of these materials will slow down or even deter termites from infesting you structure. Therefore, integrating both the membrane and exterior barrier is your best bet and will also not have to be replaced for extended periods of time.

Overall, these methods I described above should be sufficient to preventing and deterring these pests. By knowing which type of termite you are dealing with and determining whether or not you want to use chemicals, you can prevent any damage that could arise because of termites. They can and will continue to cause billions of dollars in damage unless these methods are implemented. If you happen to be constructing any sort of wooden structure, be aware of these implications as it is what they hunt for. You do not want to lose your structure due to something you could have prevented in the past. As of now, these prevention methods will work and have been for many years. Hopefully in the years to come we will see more efficient and cheaper methods, but for now these will do.

Reference List:

1. <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2159&context=extensionhist>
2. <https://bct.eco.umass.edu/publications/articles/controlling-termites-and-carpenter-ants/>
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6. Types of Termites Photo: <http://blog.corkyspest.com/site/wp-content/uploads/2016/12/Termite-swarmlers.png>
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