

Is Your Sawmill Bugged?

Insects that inhabit trees, logs, and/or lumber cause many defects for the sawmiller and the ultimate user. In this article, we consider some of the more common insects that a sawmill is likely to encounter before and after sawing. More importantly, we discuss steps to prevent or control these noxious pests (unless the ultimate customer considers the holes and tracks the insects leave behind a thing of beauty). Information includes common name and any alternative names, hole size, preferred wood species, preferred MC, and miscellaneous info in this same order.



Understand that insects inhabiting the living tree will not survive as soon as the lumber begins to dry. So, we will not spend much time with bark beetles and other forest insects.

It may be a basic concept, but it is important to understand that as soon as a tree dies and drying begins, the tree or log will be subject to the same

insects that can develop in lumber.

Remember if you see the insects, they are often looking for a mate so they can raise the next generation. Prompt action is prudent.

Common Lumber Insects

This is a listing of common insects and general information for insects that show up in lumber at a sawmill. Information includes common name, hole size, preferred wood species, preferred MC, miscellaneous info.

▪ **Ambrosia Beetle:** also pin holes or pinworm holes—round holes, 1/32 inch to 1/16 inch in diameter—aspens, cottonwood, elm, hackberry, hickory, pecan, maple, oak, sweet gum, tupelo, yellow poplar, pine—over 45% MC. AND: often starts in the woods; holes often have a dark ring around them; holes may be cut on an angle when sawing so they appear oval shaped.

▪ **Anobiid Beetle:** also anobiid powderpost beetle, spotworm holes—round holes, 1/16 inch to 1/8 inch in diameter—ash, maple, oak, yellow poplar, pine, and more—13% to 30% MC at the spot of activity. AND; holes have fine sawdust, as well as elongated pellets in them; active mostly in sapwood.

▪ **Grubs:** the larvae (worm stage of various insects) are called grubs and the holes are called grub holes—often oval-shaped holes, 3/16 inch and larger in diameter—very wet wood mostly. AND: active only in the tree, not in lumber.

▪ **Lyctid Powderpost Beetle:** powderpost beetle or PPB (there are other PPB, so always include “lyctid” for this insect)—round holes, 1/32 inch to 1/16 inch in diameter—hardwoods only, including ash, cherry, hickory-pecan, oak, sycamore—8% to 28% MC. AND: sapwood ONLY; emerges when warming trend, usually 6 to 10 months after eggs were laid; use pine stickers and pine storage buildings.

▪ **Old-House Borer:** oval holes, rippled walls, 1/4 inch in width—pine, spruce, fir—under 30% MC at point of activity but not too active under 10% MC. AND: very slow in a house, so reproduction is rare; in dry wood it may take three years or more to exit the wood and look for a mate (usually unsuccessful in a house); jaws make a snap or click sound when taking a bite of wood.

Less Common Insects

▪ **Carpenter Ant:** network of various-sized cavities—almost any hardwood or softwood—wet, decaying wood over 20% MC. AND: activity usually stops when logs are sawn into lumber.

▪ **Carpenter Bee:** round holes, 7/16 inch in diameter, holes are clean inside and have right angle turns—white pine, yellow pine—under 30% MC. AND: holes used for nesting; unlike other insects, bees do not eat wood for nourishment; return annually to the same holes, plug holes before they return in the spring; use an approved insecticide in the area.

▪ **Termite:** subterranean termites—network of tunnels within the wood—virtually all species—usually under 30% MC but sometimes wetter. AND: need a source of water to make contact with wet soil and build a mud tunnel to connect wet soil with the wood; decay commonly associated with activity; commercial treatment required.

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is to make 100% certain that the logs from the woods are fresh and were from living trees. That is, dead and dying trees need to be avoided. Why? Soon after a tree dies, conditions right under the bark begin to become favorable for many undesirable insects. Further, logs should be brought to the mill promptly—in a few days after the tree is cut—for the same reason. Saw the logs promptly if temperatures are over 50°F.



▪ **Water Spray.** Insects require warmth (usually above 50°F) to be active, food (usually the wood itself), water (only a few can live in wood under 15% MC), and oxygen. For logs, some mills will aggressively water spray the logs in storage to create conditions that are unfavorable for the insects. The entire log needs to be covered, including the ends. Large droplets get blown less by the wind, but small droplets provide better coverage in the nooks and crannies. An ideal spray amount is equivalent to 2 inches of rain per day. Runoff water is typically recycled rather than allowed to run off. State regulations may control what and how this can be done.

▪ **Chemical Dips or Sprays.** As mentioned, insects need moisture to be active. So, if drying is rapid, the elimination of moisture will stop almost all

the insects. For moist wood whenever temperatures exceed 70°F, which seems to be almost every month now in the South with the warmer temperatures, it is prudent to apply an approved insecticide to the freshly sawn wood. To be effective, the chemical used must be applied to green lumber, must cover all surfaces, and must

be at the concentration that the manufacturer recommends. Some manufacturers also specify if the spray or dip has to be applied more than once. In almost all cases, the chemical does not go very deeply into the wood, but instead offers a barrier to the entry of insects. If air drying, the chemical must also be resistant to leaching out of the wood in heavy rain.

After Sawing

Tight piling (unstickered) of lumber should be avoided in warm weather, even if treated, as there is a risk of fungal staining and other staining. Many approved chemicals do not prevent mold.

Note that the chemicals approved and used on green lumber provide short-term protection; that is, they weaken with time so that there will be essentially no significant carryover into the kiln-dried lumber. Further, if air drying, the chemicals that drip or leach into the soil will break down quickly.

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Air-drying Yard

The air-drying yard should hold the lumber up off the ground. It is common to see wet soil or even tiny ponds under a stack of lumber, which is not good for drying but is favorable for insects. The more clearance for air to move under a stack (12-inch minimum of open space), the better for insect control and prevention. Also, in air drying, make sure the stacks are spaced out (24-inch edge-to-edge) so that the air can move easily between stacks. Use a roof with a good overhang on top of the stacks to prevent wetting lumber after a rain; wet lumber is attractive to some insects.

If you ever see insects in a stack, it is a good idea to move that lumber and isolate it from the rest of the lumber (200 feet or more, but wind may still allow them to spread).

A healthy air-drying yard will be free of wood debris. Also, pallets, 4 x 4s, and stickers will be put into a kiln every so often, using heat 150°F or hotter, for 12 hours to kill any insects and eggs.

▪ **Heat.** When wood is heated throughout to 133°F, the heat at that temperature kills insects, larva, and the eggs. This heat treatment is relatively inexpensive to assure the wood is “sterilized.”

▪ **Dry Storage.** It is not common to see insects entering the wood in storage, as there must be a source of the insect initially, there is a lack of moisture, and storage times are short. However, a stack of



lumber (or bamboo) from outside mills, or from foreign sources outside of North America, can introduce insects. Do not mix foreign wood with your own wood. Pick up any wood debris in the storage area promptly. Do not store stickers or 4 x 4s in the storage building.

▪ **Fumigation.** Fumigation is possible, but be aware that the chemical employed is quite dangerous and the process is expensive. If you were taking care of business properly, this would rarely be necessary. ■

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