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WOOD-BORING BEETLES

Although termites are considered the most economically important wood-destroying insect in the United States, there are a number of other structural pests – primarily wood-feeding beetles that directly damage seasoned, intact wood and/or previously water damaged wood. This fact sheet will cover two of the most commonly reported wood-boring beetle families infesting structures; the powderpost beetles and death-watch beetles.



Fig. 1: Powderpost beetle

Both of these families of beetles have four life stages: egg, larva, pupa, and adult. Larvae (sometimes called ‘woodworms’) are C-shaped cream-colored grubs that burrow into and feed on sapwood. Depending on the species of beetle and the starch content of the wood, larvae can take anywhere from a

month up to 12 years to complete development. Pupation occurs close to the wood surface, and when adults emerge, they create tiny emergence holes, generally about the size of a pencil lead (1 – 5mm) in diameter. Infested wood will appear peppered with these small holes. Both hard and softwoods can be attacked.

The most common structural issues encountered with wood-boring beetles in the New England result from installing reclaimed lumber from older structures such as barns, or from new installations of treated lumber that were improperly stored and allowed to weather. Secondary issues include discovering beetle damage in antique furniture or newer items made from reclaimed wood.



Fig. 2: Powderpost beetle damage

Powderpost Beetle (Family Lyctinae)

Adult powderpost beetles are slightly oval, 1/12 - 1/5 inch long, and reddish to brownish black (Fig. 1). They become active between the late winter through the summer. Females lay eggs into wood pores and larvae bore directly into the wood after hatching. The sawdust created from larval feeding has the consistency of flour and is used to back-fill the tunnels (Fig. 2). Powderpost beetles are capable of feeding on seasoned wood, even if it has never sustained water damage.



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Fig. 3: Deathwatch beetle

Death-watch Beetle (Family Anobiinae)

This group of beetles got their morbid name from their method of communication. Female beetles make a clicking or ticking sound by tapping their heads or mouthparts against the walls of their tunnels to attract males. The faint tapping sound was once interpreted by people staying up late on death-watch (the vigil held over a dying relative) as the sound of the Grim Reaper knocking. *Ptilinus ruficornis* is the Anobiid species most commonly encountered as a structural pest in the northeast. Adult deathwatch beetles are oval, 1/10 - 1/5 inch long, and are reddish-brown to black. Male beetles have long, antler-like antennae (Fig. 3). Egg-laying adults are active in the summer months.

These beetles thrive in moist conditions, feeding on hardwoods that have previously sustained water damage. Sawdust from death-watch beetle activity is coarser than that of powderpost beetle; under magnification it looks like tiny ‘donuts.’

Prevention and Control:

It is important to understand these wood-boring beetles’ very long larval development times. These beetles can take years to fully develop before emerging. The infestation could have started many years (>5 years) before any surface damage is seen.

Determine whether the damage is from an active infestation or from a previous inactive one. The presence of fine powdery sawdust piling around or underneath exit holes indicates an active infestation. Inactive/dead colony sites may still have residual sawdust falling out of holes. It would be seen as a thin diffuse layer rather than a focused pile of material. Marking or sealing up existing exit holes and checking the wood the following spring for new exit holes is another effective, though lengthy process to detect active infestations.

Lumber destined for structural use must be kiln-dried or pressure-treated prior to installation in order to kill any insects inside, and then be properly stored prior to installation. Lumber that has been treated but improperly stored, such as being left exposed outdoors for multiple seasons, could begin to weather and become infested. Reclaimed lumber from older buildings should not be installed without treatment, because weathering and subsequent infestations may have occurred.

If damage is localized, it may be possible to quickly remove an infestation simply by replacing the damaged wood.

Beetles will not lay eggs on wood finished with a varnish, wax, or paint, but any larvae that were developing in the wood prior to finishing may emerge as adults later. Beetles will be able to re-infest the wood by laying eggs on the exposed unfinished wood inside exit holes, or areas that have not been waxed, varnished, or painted.

Heating or freezing wood will kill any developing larvae. Freeze to 0°F for two weeks or heat to 150°F for four hours.

In parts of the country with extended cold winter weather, putting infested articles outside during January and February is an effective method of controlling deathwatch beetles. Do not put infested articles outside during the fall prior to winter onset. The insects will adapt to the gradual cooling trends and survive treatment. If articles are kept inside a warm building and put outside during winter, the sudden temperature drop can be lethal.

Reducing overall moisture levels in the structure will slow down beetle activity. Dry wood is much less likely to support active beetle populations. A wood moisture content below 15% is suggested.

A topical treatment of contact insecticide such as a water-soluble borate to unfinished wood surfaces will control emerging adult beetles and any larvae that come close to the surface. Treatments will not penetrate deep enough into wood to reach more protected developing larvae. Read manufacturer's instructions before use.