

Practice oriented investigations to eradicate true dry rot fungus (*Serpula lacrymans*) according to DIN 68800-4 and alternative thermal methods

The aim of this research project was to develop minimum requirements necessary for the successful application of heat treatment as well as other thermal methods to eradicate true dry rot fungus (*Serpula lacrymans*). Within the scope of this research project ten objects were supervised and evaluated by reviewers. Nine of these objects were heat-treated and the masonry of one of them was treated with microwaves.

An important result of this research project is, that in principle heat treatment does not represent an alternative to the established conventional method of eradicating true dry rot fungus according to the wood protection standard DIN 68800-4. Moreover, it has to be classified as a special method depending on the individual case with substantial restrictions regarding the application.

The timber component which needs to be treated has to be accessible from two sides. It is very difficult to sufficiently heat up larger construction woods with cross sections from about 140 mm x 140 mm or, if so, then only with very long warm-up times, which means that the energy input can hardly be justified. A sufficient heat treatment of masonry of cellar walls as well as cellar floors and in general on ground floors up to a height of 1.0 m from the ground line or top edge of the floor is not feasible. Wet or very damp masonry cannot fully or sufficiently be heated up. Thick outer walls as well as multi-wall masonry constructions require an energy input which is very hard to justify from an economic as well as ecological point of view. Furthermore, it needs to be considered, that timber components which cannot be load-bearing anymore have to be replaced or retrofit like conventional standard renovations according to DIN 68800-4.

As the spores tolerate much higher temperatures than the actual mycelium, the cause of increased moisture in wood and masonry has to be determined and eliminated according to DIN standard renovations.

According to DIN 68800-3, remaining or newly built-in wooden components must also be chemically protected depending on the existing hazard class due to structural circumstances.

Depending on the individual case heat treatment requires a more or less high input of supporting conventional measures according to DIN 68800-4. An application as a matter of routine like the one for wood destroying insects regulated in DIN 68800-4 is not possible for true dry rot fungus.

As part of an integrated renovation concept, heat treatment requires a competent concept as well as extraordinary control measures. In addition to the self-control of the company performing heat treatment external control and quality assurance through an expert for heat treatment is indispensable.

Microwave technique

Treatment of large areas is not possible with the technique available at present. Furthermore, masonry cannot be heated evenly and reliably enough to eradicate the existing mycelium of true dry rot fungus.