

THERMAL REMEDIATION TREATMENT

Why Heat?

Heat is indisputably, the only effective way to control bed bug infestations and stored product pests. All insects have sub-optimum, optimum and lethal temperature thresholds for growth, survival, multiplication, and mortality. Insects have lethal temperature limits, generally greater than 120°F at which all stages of the life cycle are killed. Targeted temperatures are in the range of lethal temperatures required to completely eradicate the target insect populations.

Heat kills by dehydration or drying out the insects and their eggs. At low relative humidity, less moisture is available to insects and they desiccate at higher rate due to 'dry heat'. The high heat /low humidity atmosphere causes the insect to desiccate and insects die due to lack of moisture. The lower the humidity of the heated space the quicker the space becomes lethal to the targeted insect.

How long do you have to heat the room?

Treatment time is an important factor for effectiveness of treating insect infestations with heat. Treatment time in turn is dictated by various factors such as clutter, structure, layout of the space, severity of infestation, and airflow management. Adults are generally most susceptible with eggs being most tolerant. Therefore, treatment time should ensure heat penetration to reach all probable places where insects can take refuge. Generally, holding lethal temperatures for a longer time will be more effective compared to shorter treatment times and is a function of the factors mentioned above. Generally, our heat treatments will require 6-8 hours.

For heat treatment to be effective, it is imperative that all parts of the area being treated reach lethal temperature levels. Cold spots or missing some areas may result in populations rebounding after heat treatment. Places that are difficult to heat may include concrete floors, outside walls, corners, areas isolated from the heat and air. We will prepare a heating plan considering the layout of the area and its contents so that equipment (heaters, fans etc.) and temperature sensors can be placed optimally to ensure that critical temperatures are achieved. We will target a temperature of between 130-140 degrees.

How hot will it get and will my belongings be ruined?

The range of lethal temperatures (minimum and maximum temperatures) should be carefully controlled so that heated space or its contents are not damaged. A list of items to be removed prior to heat start-up significantly reduces risk of damage to contents. Achieving the temperatures lethal to insects requires effective air flow management for uniform distribution of lethal temperatures in heat-treated space is vital to effectively eradicate pest populations. It is essential to monitor temperatures by strategic placement of sensors to identify cold and hotspot/pockets. So that corrective action can be initiated. This corrective action may be heater relocation moving/ adding fans or rearranging the clutter within the space for good air flow to achieve lethal temperatures. Cold Spots can harbor insects whereas hot spots may be risky for structure or its contents.

Our Temperature Sensors are good indicators of areas that need air movement to achieve lethal temperatures. There might also be some dead air pockets in and around the clutter where air does not flow properly. In such cases, the contents may have to be moved around or accessories like racks/hangers etc. might come handy so that hot lethal air circulates around difficult-to-reach areas. Highest temperatures recorded by temperature sensors should not exceed 140 degrees Fahrenheit. At this temperature, it is basically airflow management to ensure an overall lethal temperature profile throughout the heated space. Temperatures exceeding 165°F may damage items within the heated space. As temperatures reach around 135°F, the digital modulation control on the heater should be used to lower/maintain temperature range and prevent overheating and damage.

Inspections

One of the advantages of using temperature to control insect activity is the ability to inspect inside the areas being treated. This allows applicators to pinpoint exactly where areas of insect activity are prevalent and in turn use this information to further target heat, air, chemical application, exclusion, sealing etc. Heat Remediation Specialists should always be inspected during the heating process primarily during (100F-120F). In turn, everyone must adhere to safety protocols.

For more information on awareness, prevention, detection and treatment, please contact our office at...

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