

Summary of the Study's Findings

States have tried to control the harmful effects of outdoor wood furnaces by legislating set-back regulations. Some states have set-back regulations of 100 feet from the nearest neighbor, while other states have set-back regulations of 200 feet. This study shows that none of the regulations that have been put in place protect the neighboring properties or the health of the families living in the homes on those properties.

- EHHI measured the two particle sizes —PM_{2.5} and PM_{0.5}— designated by EPA to be the most dangerous to human health. Both of these particulates were continuously recorded in each of the impacted homes for a period of three days. Both hourly averages and minute-by-minute data were collected.
- Two of the most hazardous components of wood smoke, particulate matter (PM) measuring 2.5 and 0.5μ (u) microns in size, were significantly elevated inside homes neighboring outdoor wood furnaces. High levels were present in every 24-hour period tested, in every home.
- A look at the hours of peak exposures to PM_{2.5} particles in both the background houses and the impacted houses shows that House A had peak levels that were six times higher than the control houses; House B had peak levels 14 times higher than the control houses; House C had peak levels 12 times higher than the control houses; and House D had peak levels more than eight times higher than the control houses (see charts showing Houses A, B, C and D on pages 23–26, where the blue line represents background levels in control houses).
- Comparing the derived equivalent PM_{2.5} particle count to the estimated EPA 24-hour air standard of 35 micrograms per cubic meter (ug/m³) shows that House A had four times the EPA air standard; House B had nine times the EPA air standard; House C had eight times the EPA air standard; and House D had six times the EPA air standard.
- Every impacted home had many hours when PM_{2.5} particles were significantly above both the levels found in the background houses and the EPA air standards.
- All impacted houses had particulate exposures well above the EPA air ambient air quality standard. Levels of PM_{2.5} that exceed the EPA standard are associated with asthma or COPD attacks and hospitalizations, and are also associated with increased risk of cardiovascular problems.
- An impacted house 100 ft. from an OWF had 14 times the levels of PM_{2.5} compared to the background houses, and nine times the levels of PM_{2.5} in the EPA's air standards.

OUTDOOR WOOD FURNACES

- An impacted house 120 feet from an OWF had more than eight times the levels of $PM_{2.5}$ compared to the background houses, and six times the levels of $PM_{2.5}$ in the EPA's air standards.
- An impacted house 240 feet from an OWF had 12 times the levels of $PM_{2.5}$ compared to the background houses, and eight times the levels of $PM_{2.5}$ in the EPA's air standards.
- An impacted house 850 feet from an OWF had six times the levels of $PM_{2.5}$ compared to the background houses, and four times the levels of $PM_{2.5}$ in the EPA's air standards.
- The study shows that regulating a 200-foot setback is not protective, and does not keep wood smoke from entering neighbors' homes.
- Even the impacted house as far away as 850 feet from the OWF had levels six times that of the background houses, and four times higher than the EPA air standards, showing that a 200-foot set-back regulation in no way protects property values or human health.
- EHFI's study shows that emissions from the OWFs enter neighboring homes at all hours of the day — and it takes several hours for the particulates to clear out of the homes.
- This study shows that $PM_{0.5}$ particle exposures are also high throughout the 24-hour period, yet state and federal standards are only based on $PM_{2.5}$ particulates.
- The state and federal governments regulate particulate exposures by averaging them over a 24-hour period. Yet this study shows that the exposure peaks can be very high, and these peaks can cause health effects. The peak exposures should be examined and regulated, as well as the average exposure.
- The study confirms that windows and doors, even tight ones, cannot keep wood smoke out if it is close enough and dense enough.



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