

Lead Paint and Window Replacement: Challenges and Opportunities

In older homes, windows are a likely source of lead contamination in homes. Dust from lead paint can create serious health problems, especially in young children. While window replacement can increase lead dust during renovation, it can also permanently eliminate lead hazards by removing lead-painted windows.

Lead Poisoning

Lead paint and lead dust are the most common cause of early childhood lead poisoning today. Lead is particularly dangerous for young children, for whom it interferes with brain development and causes irreversible IQ loss, reading and learning disabilities, and behavior problems. Some facts on lead paint:

- 140,000 U.S. children suffer from lead poisoning.
- Forty percent of homes in the United States have lead paint.
- Lead dust is the most common exposure pathway for children.
- The most common sources of lead dust are deteriorated paint and windows with lead paint.

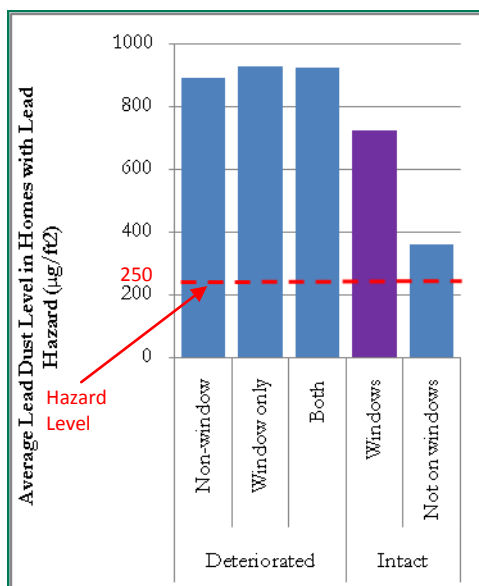
Relationship of Lead Paint to Energy Efficiency

There is a high correlation of lead paint use to single-pane windows, which are typically the least efficient window option. Lead paint was banned in 1977, around the time when double-pane windows became standard. Nearly all pre-1940 homes with single-pane windows and about



Chipped lead paint on a window

Without eliminating lead paint, potential for a hazard continues to exist. Window replacement is often the best option for permanently eliminating lead hazards.



Lead paint on windows are a major driver of lead hazard – sill dust levels in homes with intact lead paint on windows are nearly as high as those with deteriorated paint (see purple bar above)

Data from Jacobs and Nevin 2006

40% of 1940-1959 homes with single-pane windows are likely to have lead paint.

Energy-efficient replacement windows save energy and can rid old homes of their biggest sources of lead hazard. However, new EPA rules on renovation work in homes with lead paint can be seen as a barrier to window replacement. In their cost assessment of the rule when it was proposed in 2006, EPA estimated an additional cost of \$528 for a whole house window replacement project. Although this increases the cost of window replacement, it ensures that window replacement can be considered an effective solution for lead mitigation.

Window Replacement Benefits

Without eliminating lead paint, potential for a hazard continues to exist. While homes with deteriorated lead paint have the highest level of sill dust hazard, even windows with intact lead paint or with new paint over lead paint have the potential to create a hazard due to friction and dust when the window is operated (see graph).

Complete removal of lead paint is expensive, and applying new paint may be an insufficient containment mechanism for windows with their many friction surfaces for opening windows. Given the energy-efficiency benefits, window replacement is often the most cost-effective option for lead hazard reduction.