

February 22, 2022

Dear Friends,

The Landmarks Ordinance Review Committee (LORC) and the City of Madison have relied on the National Park Service (NPS) Preservation Brief 37 to support a policy that prevents owners from replacing windows in historic homes. According to NPS, this Brief has been under review since 2006 and NPS asks that readers consult with state staff for additional guidance while the review continues. Brief 37 clearly has not integrated the results of national US Department of Housing and Urban Development (HUD) sponsored studies showing that window replacement offers children better protection from lead hazards compared to stabilizing old lead paint.

In addition, the HUD Guidelines Chapter 18 are cited as a basis for the current policy. The HUD Guidelines Chapter 18 requires lead risk assessments to identify lead hazards and to determine the appropriate treatment of lead based paint hazards while preserving as much as possible of the historic features. A key feature of any lead risk assessment is to determine the use and occupancy of the residence. In particular, risk assessments must take into account if young children live in or are frequent visitors to a dwelling before determining what lead hazard control method is appropriate. Current city policy does not require lead risk assessments of historic dwellings.

I was the principal author of a series of HUD funded grants to Wisconsin during 1994 to 1999 to research ways to evaluate and control lead hazards in housing. This national evaluation study funded by US HUD involving 2,800 homes in 11 states to evaluate lead hazard control methods. When the results were analyzed and published, it was clear that methods such as window replacement were significantly more effective than repainting at protecting children from dust lead hazards.<sup>1</sup>

Replacing windows makes sense because replacement permanently prevents lead exposure. These effects continue over time, so that successive generations of child occupants will benefit from this reduced lead risk in the home. For example, when a sample of homes from the same HUD funded national multi-site study compared the effectiveness of different methods of lead hazard control 12 years after the work was done, homes where all windows were replaced had 50% lower lead dust lead

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<sup>1</sup> Dixon SL, et al. Effectiveness of lead-hazard control interventions on dust lead loadings: findings from the evaluation of the HUD Lead-Based Paint Hazard Control Grant Program. Environmental Research 2005 Jul;98(3):303-14.

levels on windows and 40% lower lead dust on floors compared to homes where other methods such as repainting were used.<sup>2</sup>

It is difficult to scrape old paint without generating lead dust hazards. Even when following NPS guidelines, and EPA lead safe practices and taking all precautions to control lead dust exposure caused by paint scraping, some lead remains on the window surface and in the wood fibers. While intact lead paint is not hazardous, based on historical data, lead paint on windows will inevitably deteriorate and fail due to effects of normal usage and weather factors such as sun, temperature changes and moisture cycles. In these ways intact lead paint is broken and made into hazardous lead contaminated dust. This is especially true in Wisconsin where our challenges include many older dwellings with lead paint, and a climate that causes paint to fail on a regular basis.

It is lead dust from deteriorated paint that creates the major source of lead exposure for children, so the key to protecting children is to prevent lead dust exposure.

Little children frequently put their hands in their mouths. This is part of normal child development. As they are crawling and walking, any surface they touch that is contaminated by lead dust becomes a source of lead exposure.

It is difficult for the average person to visualize the contrast between how sensitive the young human brain is to microgram quantities of lead and the far larger lead loadings in a typical older house.

Consider the following: There are three million tons of lead distributed on approximately 70 million pre-1980 US homes<sup>3</sup>; a typical lead painted house may have 100 pounds of lead spread over exterior and interior surfaces. Windows are both interior and exterior components and typically have more lead paint than any other building component. One pound contains more than 453 million micrograms.

Current EPA standards require lead on floors to be less than 10 micrograms per square foot to protect children from lead. CDC considers a child to have an elevated blood lead when lead in blood equals or exceeds 5 micrograms per deciliter of blood. While there is no safe level of lead in blood, on a population level, blood lead levels of 5 micrograms per deciliter are shown to increase the probability of learning problems. Thus a very small paint chip when ground to dust can easily contaminate an entire room.

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<sup>2</sup> Dixon SL, et al. Window replacement and residential lead paint hazard control 12 years later. *Environmental Research* 2012; 113:14-20.

<sup>3</sup> Title X Residential Lead-Based Paint Hazard Reduction Act of 1992--US PUBLIC LAW 102-550, Section 1002.

The National Park Service has developed guidance for historic buildings, intended to protect our architectural heritage. The guidance requires windows to be “too deteriorated to repair” before they can be replaced. Such guidance, if strictly applied, will result in lead exposure to children in child occupied dwellings. It is inconsistent with federal housing law and with best evidence-based practice for lead hazard control in privately owned child occupied dwellings. This deterioration of window components will cause unnecessary exposure to lead dust hazards.

Please allow owners who seek to replace old lead painted windows with historically accurate replacement windows to protect children from lead exposure. Please do not allow a single minded zealous focus on strict historical integrity to force unnecessary lead exposure and thereby sacrifice future generations’ intellectual potential.

If Madison continues to require owners of historic buildings to keep old lead painted windows until the windows are too deteriorated to repair, I recommend the City adopt the National Park Service’s own advice in Brief 47. Brief 47 advises owners to do annual evaluations of the condition of painted windows and porches or more frequently if conditions of weather or usage so indicate. In this case the annual evaluation should focus on lead through a lead risk assessment of painted surfaces in historic dwellings.<sup>4</sup> This is the policy set forth in the HUD guidelines Chapter 18 that describes lead hazard evaluation and control in the context of historic preservation. I suggest that Madison provide financial support for owners to obtain an annual lead risk assessment of these historic painted building components when permission to replace windows is denied. This way the City can take responsibility for this policy decision to require owners to keep lead in their homes and reduce the City’s legal liability for causing lead exposures to occupant children.

Federal law since 1992 sets the goal of federal policy “**to eliminate lead-based paint hazards in all housing as expeditiously as possible;**”<sup>5</sup> HUD has established the office of lead hazard control and healthy homes to implement federal housing policy on lead. The HUD Guidelines are published under the authority of this law. If Madison requires owners of historic child occupied properties to keep old lead painted windows until they fall apart before they can be replaced, **this conflicts with both federal housing law and best practice, regardless of NPS guidelines.** Madison’s current policy endangers children and creates a legal liability for Madison by stopping owners from replacing windows to protect children from lead paint hazards.

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<sup>4</sup> Park, SC, National Park Service Preservation Brief 47 Maintaining the Exterior of Small and Medium Size Historic Buildings.

<sup>5</sup> Title X Residential Lead-Based Paint Hazard Reduction Act of 1992--US PUBLIC LAW 102-550, Section 1003.

The costs for children's lead exposure are not borne by their families alone. We all pay for these exposures. Multiple studies show that children with lead exposures experience learning difficulties and are thus more likely to require additional support including special education services and increased costs for our educational systems.<sup>6 7 8 9 10</sup>

I encourage the City of Madison staff and LORC to review federal housing law Title X and the science on the efficacy of window replacement to protect children from lead paint hazards and not rely exclusively on out date guidance from the National Park Service. **HUD has responsibility under federal law for setting standards for evaluating and controlling lead-based paint hazards in housing, not NPS.** HUD funded research clearly demonstrates that window replacement can be a safe and effective method to control lead paint hazards while stabilizing lead paint leaves the lead in place to continue to deteriorate and to continue to cause lead dust exposure.

Please don't be shortsighted. Children's lives and their futures are at stake. Allow options for homeowners to replace windows.

Thank you for the opportunity to review the current policy. Please contact me if you want to discuss these issues and to let me know your decision on this matter.

Sincerely,

Joseph Schirmer  
607 Clemons Ave

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<sup>6</sup> Magzamen S, Amato MS, Imm P, Havlena JA, Coons MJ, Anderson HA, et al. Quantile Regression in Environmental Health: Early Life Lead Exposure and End-of-Grade Exams. *Environmental Research* 2015;137(108), 108–119.

<sup>7</sup> Zhang N. et al Early childhood lead exposure and academic achievement: evidence from Detroit public schools, 2008-2010. *Am J Public Health* 2013 Mar;103(3):e72-7.

<sup>8</sup> Miranda ML, Maxson P, Kim D. Early childhood lead exposure and exceptionality designations for students. *Intl J Child Health Hum Dev.* 2010;3(1):77–84.

<sup>9</sup> Lanphear BP, et al. Low-level environmental lead exposure and children's intellectual function: an international pooled analysis. *Environmental Health Perspectives*, 2005;113(7):894–899.

<sup>10</sup> Gould E. Childhood Lead Poisoning: Conservative Estimates of the Social and Economic Benefits of Lead Hazard Control. *Environmental Health Perspectives*, 2009; 117(7):1162-7.

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## **Experience**

### **Wisconsin Department of Health      1985-2015**

- Develop and implement programs to prevent childhood lead poisoning.
- Provide public education and communicate with interested parties, including parents, health care providers, property owners, legislators and policy makers.
- Develop policies, write rules, coordinate local public health agencies in all 72 Wisconsin counties for lead poisoning prevention programs, conduct risk assessments to identify lead hazards, teach local public health agency staff methods to evaluate and control lead hazards including both technical measures and legal strategies to secure safe dwelling environments for children.
- Seek and write grants to secure funds from various sources including CDC, HUD and EPA for programs and research to identify, evaluate and control lead hazards and distribute funds to health and housing agencies.
- Seek funds and provide programming support for HUD grants to UW Madison for Healthy Homes to control and prevent childhood asthma, injuries and lead poisoning.
- Secure and manage multimillion dollar, multiyear US HUD funded grant programs to evaluate and control lead hazards in housing.
- Develop programs for surveillance of occupational/environmental diseases including pneumoconiosis, asthma and lead poisoning.

### **National Center for Lead Safe Housing,**

### **US Department Of Housing and Urban Development**

Review: "Guidelines for the Evaluation and Control of Lead Based Paint Hazards in Housing" and 'Lead Paint Safety Field Guide" and Consult to establish Healthy Homes Program criteria and standards.

### **New Jersey Health Department, Occupational Health Program, 1981-1985**

Conduct industrial hygiene evaluations of various occupations such as firefighting, printing, manufacturing of electronics, automotive brakes, pharmaceuticals, oil refineries, garages, offices and motor vehicle inspection facilities both for the State of New Jersey and for the National Institute for Occupational Safety and Health.

Author: Fire Fighting in New Jersey: Hazards and Methods of Control, This publication recommended policies that were then adopted by the NJ Legislature including establishing a Public Employee Occupational Safety and Health Program and ensuring that the Public and Firefighters were informed about the locations, identities (CAS number) and toxicity of chemicals stored in workplaces, or "Right to Know" legislation.

Develop policies and regulations to Control Asbestos Exposure and to Establish Public Employee Health and Safety Programs.

Supervisor, Asbestos Training Project: write and implement rules governing training of asbestos workers, including developing curriculum and testing criteria. Develop specifications for abatement projects. Edit EPA asbestos training materials.

#### **Occupational Health Consultant and Trainer**

**1979-1980**

International Brotherhood of Boilermakers and Ship Builders Local 802, Chester PA; International Chemical Workers Union, Akron OH; Philadelphia Area Project on Safety and Health,

**Certifications:** Certified in Comprehensive Practice of Industrial Hygiene, by the American Board of Industrial Hygiene, 1987, Certification number 3822. Current Lead Safe Worker and Owner of Lead Safe Company certified by Wisconsin DHS

#### **Education:**

1984: Master of Science in Environmental Health, University of Cincinnati, Cincinnati, OH

1977: Bachelor of Science, Magna Cum Laude, Urban Affairs, Boston University, Boston MA

#### **Publications**

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[Lead exposures from varnished floor refinishing.](#) **Schirmer J**, Havlena J, Jacobs DE, Dixon S, Ikens R. J Occup Environ Hyg. 2012;9(4):280-7.

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[Use of the modified Delphi technique to identify and rate home injury hazard risks and prevention methods for young children.](#) Katcher ML, Meister AN, Sorkness CA, Staresinic AG, Pierce SE, Goodman BM, Peterson NM, Hatfield PM, **Schirmer J**. Inj Prev. 2006 Jun;12(3):189-94.

[Validating self reported home safety practices in a culturally diverse non-inner city population.](#) Hatfield PM, Staresinic AG, Sorkness CA, Peterson NM, **Schirmer J**, Katcher ML. Inj Prev. 2006 Feb;12(1):52-7.

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**Joseph Schirmer** and William Charney, Editors, [Essentials of Modern Hospital Safety, Volume I](#). 1990, Chelsea, Michigan, Lewis Publishers, Inc.



February 1, 2022

City of Madison  
Mayor, Alders and Staff

Dear Friends:

As a concerned resident and Madison property owner, I am very disturbed by the language in the proposed city historic ordinance:

#### 41.33 STANDARDS FOR ALTERATIONS

##### **5. Windows and Doors**

##### **(c) Windows**

1. Original decorative windows shall be repaired and retained.
2. Only when original windows are too deteriorated to repair may they be replaced with new windows that replicate all design details.

If the City adopts as an ordinance “Only when the original windows are too deteriorated to repair may they be replaced with new windows that replicate all design details” this will result in increased exposure to the lead paint debris and lead dust commonly created by windows in homes built before 1978.

A national survey of US housing found lead hazards in 25% of all homes, while 81% of homes built before 1940 had lead hazards such as deteriorated lead paint or elevated lead in dust. Also window trough surfaces show the highest lead dust levels of all building components in housing.<sup>1</sup>

In addition to causing unnecessary lead exposure risks, adopting this language would create an enormous legal liability for the City because such a policy could be shown to result in increased probability for lead exposures to any child who occupies or is a frequent visitor to a dwelling where windows were required to deteriorate before replacements were permitted.

These assertions are supported by several sources of evidence.

1. The source of lead that contributes most to childhood lead exposure is lead in dust.<sup>2</sup> This lead in dust comes primarily from deteriorated lead coated surfaces and secondarily from lead that is tracked in from contaminated soil.
2. Windows, because they are often painted with lead paint and because they are subject to friction from use and to frequent extreme fluctuations of temperature and moisture, are the building component with the largest available reservoir of lead dust in US homes (as measured by dust loading on window troughs, the horizontal surface that lies between the interior sash and the exterior storm window). For example, a national survey of lead in

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<sup>1</sup> Jacobs DE, et al. The prevalence of lead-based paint hazards in US housing. Environmental Health Perspectives, Volume 110, number 10. October 2002.

<sup>2</sup> [https://www.atsdr.cdc.gov/csem/leadtoxicity/who\\_at\\_risk.html](https://www.atsdr.cdc.gov/csem/leadtoxicity/who_at_risk.html) (ATSDR, Who is at risk of lead exposure, 2017)

housing found average dust lead loadings in window troughs were 146 times greater than lead dust on floors while geometric mean dust lead loadings in window troughs were 90 times greater than geometric mean dust lead loadings on floors.<sup>3</sup>

3. As lead based paint deteriorates, it creates lead dust hazards. So for example, the same national survey found that homes with deteriorated lead based paint were twice as likely to have lead dust hazards as homes with lead paint in good condition.<sup>4</sup> So, should the City adopt an ordinance that requires windows in older homes to become so deteriorated as to be beyond repair before they can be replaced, this would deliberately put children in harm's way from a lead poisoning prevention perspective.
4. Replacing rather than repairing windows significantly reduces lead paint hazards and lead dust in dwellings. This has been demonstrated by multiple repeated testing measures comparing dwellings where windows were replaced with those that were repaired.<sup>5</sup> This trend holds true over decades, so even after 12 years, homes where all windows were replaced had significantly lower dust lead levels than homes where windows were repaired.<sup>6</sup> Thus, window replacement reduces lead dust exposure risks to children.
5. Personally as a public health professional for Wisconsin Division of Public Health from 1985 to 2015, I am proud that we in Wisconsin contributed to the above research. In relation to the proposed ordinance, I managed a research grant program funded by US HUD to deliberately and painstakingly research and evaluate various methods of lead hazard control. Through this research grant program, grantees across the US compared various methods of controlling lead paint hazards. In Wisconsin, we deliberately replaced windows rather than repaired them while other grant recipients in the program selected window repair more often to address the lead hazards found in windows. As stated above, this research demonstrated that window replacement was more effective than window repair at reducing lead paint and dust hazards.

Window replacement was also more effective at protecting children from lead as measured by children's blood lead levels before and after the work was done. A 1998 report showed that only Wisconsin's lead hazard control program protected children from the substantial increases in blood lead levels found elsewhere six months after the lead hazard control work was completed.<sup>7</sup> This result may have been caused by many factors, including careful work by Wisconsin risk assessors and contractors, but Wisconsin's aggressive determination to replace windows in all instances where lead was found was no doubt also at least partly responsible for this finding.

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<sup>3</sup> Jacobs DE, et al. The prevalence of lead-based paint hazards in US housing. *Environmental Health Perspectives*, Volume 110, number 10. October 2002.

<sup>4</sup> Ibid, page A603

<sup>5</sup> Dixon S., et al. Effectiveness of lead-hazard control interventions on dust lead loadings: findings from the evaluation of the HUD Lead-Based Paint Hazard Control Grant Program. *Environ Res* 2005 Jul;98(3):303-14.

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<sup>7</sup> National Center for Lead-Safe Housing and the University of Cincinnati Department of Environmental Health. Evaluation of the HUD Lead-Based Paint Hazard Control Grant Program, Fifth Interim Report, p 92. March 1998.

6. Finally, window replacement, when combined with paint stabilization of other lead painted surfaces, provides other long term benefits including reducing the suffering and social expenses associated with childhood lead exposure such as increased costs for special education, juvenile delinquency, and crime as well as helping owners to save energy and raise property values.<sup>8 9</sup>

Please do not adopt the proposed ordinance as written. The proposed language would endanger children, frustrate responsible property owners, and burden the City of Madison with serious legal liabilities.

Thank you for the opportunity to review the proposed ordinance and to share my concerns. I would welcome the opportunity to continue to discuss these issues.

Sincerely,

Joseph Schirmer  
607 Clemons Ave.  
Madison, WI 53704  
[jschirmer48@gmail.com](mailto:jschirmer48@gmail.com)

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<sup>8</sup> Nevin R. et al. Monetary benefits of preventing childhood lead poisoning with lead-safe window replacement. Environmental Research 2008 March;106(3) 410-9.

<sup>9</sup> Gould E. Childhood lead poisoning: conservative estimates of the social and economic benefits of lead hazard control. Environmental Health Perspectives, 2009 July;117(7):1162-7.

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