

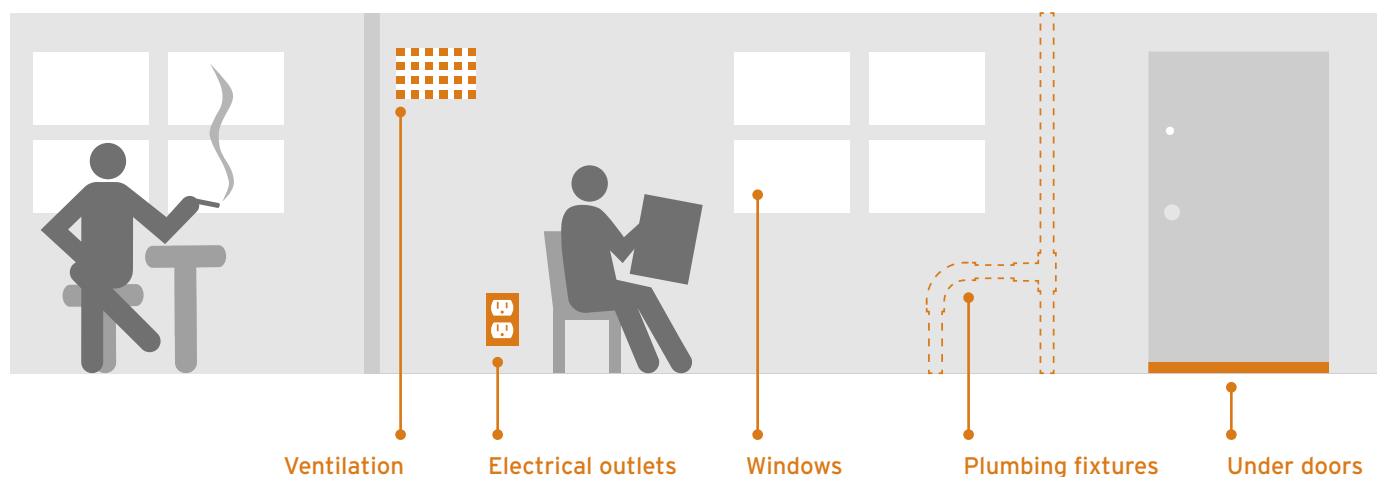
Health hazards of secondhand smoke

Secondhand smoke in multi-unit housing is a serious public health problem. To protect residents from secondhand smoke drifting into their living spaces, housing providers have the right to prohibit smoking on their property. One of the first steps towards addressing the problem is to better understand how and why secondhand smoke poses a risk to the health of multi-unit housing residents. This fact sheet is designed to give an overview of that risk.

Secondhand smoke poses serious health risks.

- Secondhand smoke can cause a variety of serious illnesses, including heart disease, cancer, chronic obstructive pulmonary disease, and asthma!¹
 - The U.S. Centers for Disease Control and Prevention estimate that approximately 50,000 nonsmokers die every year from diseases caused by exposure to secondhand smoke.²
 - The U.S. Surgeon General has declared that there is no risk-free level of exposure to secondhand smoke, meaning that even small amounts smoke have the potential to cause disease and death.³
- Secondhand smoke exposure among children, the elderly and disabled, and low income and minority tenants is a particular concern.**
- Children are especially susceptible to asthma and lower respiratory tract infections like pneumonia or bronchitis.⁴ Children have higher rates of exposure to secondhand smoke in multi-unit housing than in single family homes.⁵
 - Secondhand smoke can worsen existing health conditions among elderly and disabled tenants: tenants with compromised cardiac or pulmonary function are especially vulnerable to secondhand smoke.⁶
 - Low income and minority residents experience significantly higher than average rates of secondhand smoke exposure.⁷ A study of Boston public housing before it became smoke-free demonstrated that secondhand smoke exposure among residents was substantially higher than national averages.⁸ Low income tenants also face additional challenges in avoiding secondhand smoke exposure since they are more likely to have difficulty finding housing alternatives.

How secondhand smoke spreads



Secondhand smoke leaks into other units.

- Studies conducted in multi-unit housing show that secondhand smoke seeps into both common areas and neighboring units.⁹ Up to 60 percent of air can come from adjoining units!¹⁰
- Secondhand smoke particles can linger in air for over an hour after smoking!¹¹
- Sealing up leaks only reduces average airflow between units between 3 percent¹² and 29 percent.¹³ Air filtration and ventilation systems don't effectively reduce the amounts of fine particles and toxic gases created by secondhand smoke.¹⁴

Secondhand smoke leaves behind thirdhand smoke.

- Particulate matter from smoke forms a residue called "thirdhand smoke," which is absorbed by porous surfaces such as carpets, drapes, and upholstery, and leaves a sticky film on hard surfaces such as walls, countertops, and fixtures.¹⁵
- Thirdhand smoke contains carcinogenic materials and causes health hazards long after secondhand smoke has cleared. Carcinogenic material is slowly released into the air where it can be inhaled. It can also be absorbed through direct skin contact.¹⁶

Smoking is a fire hazard.

- 63 percent of smoking-related fires reported between 2006 and 2010 occurred in homes!¹⁷

-
- 1 US Department of Health and Human Services, Centers For Disease Control and Prevention. *Health Effects of Secondhand Smoke*. 2012. Available at: www.cdc.gov/tobacco/data_statistics/fact_sheets/secondhand_smoke/health_effects/index.htm
 - 2 US Department of Health and Human Services, Centers for Disease Control and Prevention. *Tobacco Use: Targeting the Nation's Leading Killer*. 2011, p. 2. Available at: www.cdc.gov/chronicdisease/resources/publications/aag/pdf/2011/Tobacco_AAG_2011_508.pdf
 - 3 US Department of Health and Human Services, Office of the Surgeon General. *How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease: A Report of the Surgeon General*. 2010, p. 9. Available at: www.surgeongeneral.gov/library/tobaccosmoke/report/full_report.pdf
 - 4 Wilson, Karen M.M.D., M.P.H., Klein, Jonathan D.M.D., M.P.H., Blumkin, A. K., M.S., Gottlieb, M., & Winickoff, Jonathan P.M.D., M.P.H. (2011). Tobacco-smoke exposure in children who live in multiunit housing. *Pediatrics*, 127(1), 85. Retrieved from <http://search.proquest.com/docview/847317356?accountid=148808>
 - 5 *Id.*
 - 6 Winickoff, J. P., Gottlieb, M., & Mello, M. M. (2010). Regulation of smoking in public housing. *The New England Journal of Medicine*, 362(24), 2319-25. doi:http://dx.doi.org/10.1056/NEJMhle1000941. <http://search.proquest.com/health/docview/503239408/13E0B96B6C777DD1E68/5?accountid=148808>
 - 7 Max W, Sung HY and Shi Y. "Deaths From Secondhand Smoke Exposure in the United States: Economic Implications." *American Journal of Public Health*, 102(11): 2173-2180, 2012.
 - 8 Douglas E. Levy, Nancy A. Rigotti, Jonathan P. Winickoff, Tobacco Smoke Exposure in a Sample of Boston Public Housing Residents, *American Journal of Preventive Medicine*, Volume 44, Issue 1, January 2013, Pages 63-66, ISSN 0749-3797, 10.1016/j.amepre.2012.09.048. www.sciencedirect.com/science/article/pii/S0749379712007155
 - 9 Kraev TA, Adamkiewicz S, Hammond SK, Spengler JD. Indoor concentrations of nicotine in low-income, multi-unit housing: associations with smoking behaviors and housing characteristics. *Tob Control* 2009;18:438-44. <http://tobaccocontrol.bmj.com/content/18/6/438.full>
 - 10 Center for Energy and Environment. *Reduction of Environmental Tobacco Smoke Transfer in Minnesota Multifamily Buildings Using Air Sealing and Ventilation Treatments*. (2004). Available at: www.mncee.org/pdf/research/summary.pdf
 - 11 Klepeis NE, Ott WR, and Switzer P. *Real-Time Monitoring of Outdoor Environmental Tobacco Smoke Concentrations: A Pilot Study*. San Francisco: University of California, San Francisco and Stanford University, 2004, p. 80, 87. Available at: http://exposurescience.org/pub/reports/Outdoor_ETS_Final.pdf; see also Klepeis NE, Ott WR and Switzer P. "Real-Time Measurement of Outdoor Tobacco Smoke Particles." *Journal of the Air & Waste Management Association*, 57: 522-534, 2007. Available at: www.ashaust.org.au/pdfs/OutdoorSHS0705.pdf
 - 12 *Id.*
 - 13 Bohac, D. L., Hewett, M. J., Hammond, S. K., & Grimsrud, D. T. (2011). Secondhand smoke transfer and reductions by air sealing and ventilation in multiunit buildings: PFT and nicotine verification.
 - 14 US Department of Health and Human Services, Office of the Surgeon General. *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*. 2006, p. 31-32. Available at: www.surgeongeneral.gov/library/secondhandsmoke/report/chapter2.pdf
 - 15 Sleiman M, Gundel LA, Pankow JF, et al. "Formation of Carcinogens Indoors by Surface-mediated Reactions of Nicotine with Nitrous Acid, Leading to Potential Thirdhand Smoke Hazards." *Proceedings of the National Academy of Sciences*, 107(15): 6576-6581, 2010. Available at: www.pnas.org/content/early/2010/02/04/0912820107
 - 16 Matt, G, et al. When smokers move out and non-smokers move in: residential thirdhand smoke pollution and exposure. *Tobacco Control*, 2011; 20:e1. Available at <http://tobaccocontrol.bmj.com/content/early/2010/10/29/tc.2010.037382.abstract>
 - 17 Hall JR. U.S. *Smoking-Material Fire Problem*. Quincy, MA: National Fire Protection Association, 2012, p. 1. Available at: www.nfpa.org/assets/files/PDF/OS.Smoking.pdf