



## ONLY COMPREHENSIVE SMOKE-FREE LAWS ARE EFFECTIVE

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**The only effective way to protect everyone's right to breathe clean air inside public places and at work is to enact 100% smoke-free laws.**

- Cigarette smoke contains more than 7,000 chemicals and compounds. Hundreds are toxic and at least 69 cause cancer, including arsenic, ammonia, formaldehyde, and polonium 210. Tobacco smoke itself is a known human carcinogen.<sup>1</sup>
- There is no safe level of exposure to tobacco smoke.<sup>2</sup> The only effective way to protect people is to provide 100% smoke-free air. Designated smoking rooms, expensive ventilation systems and similar partial approaches do not protect people from the dangers of secondhand smoke.<sup>3,4,5</sup> The simplest and cheapest way to protect people from secondhand smoke is to create smoke-free environments.
- The World Health Organization recommends 100 percent smoke-free environments to protect workers and the public from secondhand smoke exposure. Their policy recommendations find that "Ventilation and smoking areas, whether separately ventilated from non-smoking areas or not, do not reduce exposure to a safe level of risk and are not recommended."<sup>6</sup>
- The 2014 Surgeon General's Report states that, "Policies and laws making indoor workplaces and public places smokefree (i.e., eliminating smoking in all indoor areas with no exceptions) have been found to be highly effective in reducing exposure to secondhand smoke. . ." The report calls for a number of specific actions, including "Extending comprehensive smokefree indoor protections to 100% of the U.S. population."<sup>7</sup>

**Ventilation technology does not protect people from secondhand smoke.**

- Conventional air cleaning systems can remove large particles, but not the smaller particles or the gases found in secondhand smoke.<sup>8</sup>
- Current heating, ventilating, and air conditioning systems alone do not control secondhand smoke exposure. In fact, these systems may distribute secondhand smoke throughout a building.<sup>9</sup>
- The American Society of Heating, Refrigerating & Air-Conditioning Engineers (ASHRAE), the national and international standard setting body for indoor air quality, found that "At present, the only means of effectively eliminating health risks associated with indoor exposure is to ban smoking activity." They also state that, "Because of ASHRAE's mission to act for the benefit of the public, it encourages elimination of smoking in the indoor environment as the optimal way to minimize ETS [environmental tobacco smoke, also known as secondhand smoke] exposure."<sup>10</sup>
- While ventilation technology might reduce levels of exposure to secondhand smoke somewhat in certain situations, there remains no scientific evidence or consensus to conclude that any such lower levels obtained through ventilation would actually be safe.<sup>11</sup>
- In fact, the 2006 U.S. Surgeon General's Report, *The Health Consequences of Involuntary Exposure to Secondhand Smoke*, concluded that eliminating smoking in indoor places fully protects nonsmokers from exposure to secondhand smoke. But the report noted that "separating smokers from nonsmokers, cleaning the air, and ventilating buildings cannot eliminate exposures of nonsmokers to secondhand smoke." The Surgeon General further concluded that exposures of nonsmokers to secondhand smoke cannot be controlled by air cleaning or mechanical air exchange.<sup>12</sup>
- Even major manufacturers of air purifiers and other ventilation equipment have acknowledged that their products are for "comfort and convenience" and that they have "no data to support health hazard claims."<sup>13</sup> In fact, the fine print on some advertisements for home air filtration systems contained disclaimers stating that "No air purifier can protect against the health hazards associated with secondhand tobacco smoke"<sup>14</sup> and "No air cleaner can protect against the harmful effects of secondhand tobacco smoke. Clean air begins with a smoke-free environment."<sup>15</sup> Indeed, as a physician with the Mayo Clinic notes, ". . . if you want an air purifier that will eliminate cigarette smoke, you're out of luck."<sup>16</sup>

### Smoking rooms do not protect people from exposure to secondhand smoke.

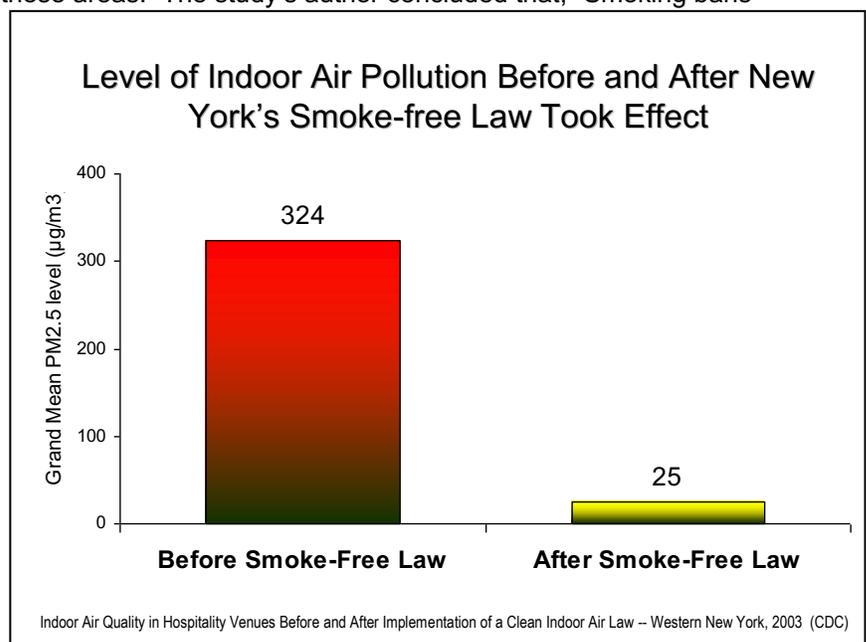
- According to the Centers for Disease Control and Prevention (CDC), even separately enclosed, separately exhausted, negative-pressure smoking rooms do not keep secondhand smoke from spilling into adjacent areas.<sup>17</sup>
- A study conducted by the Hong Kong University of Science and Technology found even the best designed smoking rooms do not fully protect non-smokers from secondhand smoke and that some leakage of secondhand smoke is inevitable.<sup>18</sup>
- It is almost impossible to prevent air from a smoking area from entering adjacent non-smoking areas. Up to 10 percent of smoking room air enters non-smoking areas just by opening and closing of a swing type entry door. Leaving the smoking room door open results in a large flow of air to adjoining non-smoking areas.<sup>19</sup> Thus, in facilities with designated smoking rooms, smoke escapes the designated smoking room and gets into non-smoking areas.
- Construction of costly smoking rooms adjacent to non-smoking areas in major U.S. airports has proven to be ineffective in containing secondhand smoke. A study of non-smoking areas in one medium-sized commercial airport found that the leakage of fine particles posed both a potential threat to patrons outside the smoking rooms and to those workers forced to enter the room on a regular basis.<sup>20</sup>
- A study of air quality in Oklahoma restaurants found that the *non-smoking* dining areas in restaurants with smoking rooms has three times the level of indoor air pollution as restaurants that were entirely smoke-free.<sup>21</sup>

### Smoke-Free Laws Reduce Indoor Air Pollution

- While ventilation systems are not effective in removing secondhand smoke and its toxic constituents from the air, numerous studies, including a 2016 comprehensive National Cancer Institute literature review, have found that laws prohibiting smoking in workplaces and public places can dramatically reduce exposure to secondhand smoke.<sup>22</sup>
- A technical article published in the 2006 issue of IAQ Applications, a peer-screened journal of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, showed that high-tech ventilation systems that attempt to filter cigarette smoke from the air in restaurants and bars are not as effective as eliminating smoking in those areas. The study's author concluded that, "Smoking bans remain the only viable option that protects the health of non-smokers and hospitality workers."<sup>23</sup>

- Declines in fine particle indoor air pollution ranging from 71% to 99% have been demonstrated after local, state or national smoke-free legislation.<sup>24</sup>

- A CDC study found that "comprehensive clean indoor air policies can rapidly and effectively reduce SHS [secondhand smoke] exposure in hospitality venues."<sup>25</sup> The study assessed the indoor air quality of 20 hospitality venues in western New York before and after a strong smoke-free law went into effect. On average, the levels of respirable suspended particles (RSPs) in the tested locations fell by 84 percent after the comprehensive clean indoor air law took effect.



- The restaurant portion of the bar/restaurants that previously allowed smoking in the bar section but not in the restaurant section experienced an average 58% decrease in the level of RSPs after the law was implemented, even though they had only indirect secondhand smoke exposure at baseline.<sup>26</sup>
- Similarly, a study in the *Journal of Occupational and Environmental Medicine* measured respirable particle (RSP) air pollution and particulate polycyclic aromatic hydrocarbons (PPAH) in eight venues before and after implementation of Delaware's smoke-free law.<sup>27</sup> The study found that secondhand smoke contributed 90 to 95 percent of the RSP air pollution and 85 to 95 percent of the carcinogenic PPAH present when smoking was allowed. The study also concluded that "smoke-free workplace laws eliminate [the] hazard [of tobacco smoke] and provide health protection impossible to achieve through ventilation or air cleaning."

**Campaign for Tobacco-Free Kids, August 30, 2023**

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<sup>1</sup> U.S. Department of Health and Human Services (HHS), *How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking Attributable Disease: A Report of the Surgeon General*. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2010.

<sup>2</sup> WHO report on the global tobacco epidemic, 2023: protect people from tobacco smoke. Geneva: World Health Organization; 2023. Licence: CC BY-NC-SA 3.0 IGO.; U.S. Department of Health and Human Services (HHS), *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*, HHS, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006,

<http://www.surgeongeneral.gov/library/secondhandsmoke/>. See also, CDC, *Inhaling Tobacco Smoke Causes Immediate Harm*, December 2010, <http://www.cdc.gov/features/smokeexposure/>

<sup>3</sup> Wagner, J, et al, "Environmental Tobacco Smoke Leakage from Smoking Rooms," *Journal of Occupational and Environmental Hygiene* 1(2):110-118, 2004.

<sup>4</sup> Pion, M & Givel, MS, "Airport smoking rooms don't work," *Tobacco Control* 13(suppl 1):i37-i40, 2004.

<sup>5</sup> HHS, *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006, <http://www.surgeongeneral.gov/library/secondhandsmoke/>.

<sup>6</sup> World Health Organization, *Protection from Exposure to Second-hand Tobacco Smoke: Policy Recommendations*, WHO Press, 2007, [http://www.who.int/tobacco/resources/publications/wntd/2007/who\\_protection\\_exposure\\_final\\_25June2007.pdf](http://www.who.int/tobacco/resources/publications/wntd/2007/who_protection_exposure_final_25June2007.pdf).

<sup>7</sup> U.S. Department of Health and Human Services. *The Health Consequences of Smoking: 50 Years of Progress. A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014. <http://www.surgeongeneral.gov/library/reports/50-years-of-progress/index.html>

<sup>8</sup> U.S. Centers for Disease Control and Prevention (CDC), "Ventilation Does Not Effectively Protect Nonsmokers from Secondhand Smoke," April 2014,

[http://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/secondhand\\_smoke/protection/ventilation/index.htm](http://www.cdc.gov/tobacco/data_statistics/fact_sheets/secondhand_smoke/protection/ventilation/index.htm). See also, HHS, *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*, HHS, CDC, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006, <http://www.surgeongeneral.gov/library/secondhandsmoke/>.

<sup>9</sup> CDC, "Ventilation Does Not Effectively Protect Nonsmokers from Secondhand Smoke," April 2014.

[http://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/secondhand\\_smoke/protection/ventilation/index.htm](http://www.cdc.gov/tobacco/data_statistics/fact_sheets/secondhand_smoke/protection/ventilation/index.htm). See also, HHS, *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*, HHS, CDC, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006, <http://www.surgeongeneral.gov/library/secondhandsmoke/>.

<sup>10</sup> American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), "ASHRAE Position Document on Environmental Tobacco Smoke," Approved by ASHRAE Board of Directors October 22, 2010, Reaffirmed by ASHRAE Technology Council June 25, 2013, <https://www.ashrae.org/about-ashrae/position-documents>.

<sup>11</sup> ASHRAE, "ASHRAE 62-1999: Ventilation for Acceptable Indoor Air Quality," Addendum 62e.

<sup>12</sup> HHS, *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*, HHS, CDC, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006.

<sup>13</sup> Communication from Janell Siegfried, Honeywell, Inc. to Dr. Clark dated June 12, 2000 in relation to debate over ventilation provision in the Duluth, MN City Council. For an extensive listing of similar statements from major ventilation equipment manufacturers, see Americans for Nonsmokers Rights' document, *Ventilation and Air Filtration: What Air Filtration Companies and the Tobacco Industry Are Saying*, <http://www.no-smoke.org/document.php?id=267>.

<sup>14</sup> Brookstone air purifier advertisement, <http://www.no-smoke.org/pdf/brookstonewinter2004.pdf>.

<sup>15</sup> Sharper Image air purifier advertisement, <http://www.no-smoke.org/images/ionicbreezead.jpg>.

<sup>16</sup> Hurt, Richard, M.D., Mayo Clinic Expert Answers, "Will an air purifier remove cigarette smoke?"

<http://www.mayoclinic.com/health/air-purifier-smoke/AN02073>.

<sup>17</sup> CDC, "Ventilation Does Not Effectively Protect Nonsmokers from Secondhand Smoke," April 2014,

[http://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/secondhand\\_smoke/protection/ventilation/index.htm](http://www.cdc.gov/tobacco/data_statistics/fact_sheets/secondhand_smoke/protection/ventilation/index.htm). See also, HHS, *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*, HHS, CDC, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006, <http://www.surgeongeneral.gov/library/secondhandsmoke/>.

<sup>18</sup> Hong Kong University of Science and Technology (HKUST), *Findings of Technical Feasibility Study on Smoking Rooms*, Legislative Council on Health Services, Hong Kong SAR, April 2009, <http://www.legco.gov.hk/yr08-09/english/panels/hs/papers/hs0420cb2-1324-5-e.pdf>.

<sup>19</sup> Alevantis, L, et al., "Designing for smoking rooms," *ASHRAE Journal*, 26-32, July 2003.

<sup>20</sup> Lee, K, et al., "Air Quality in and around airport enclosed smoking rooms," *Nicotine and Tobacco Research* 12(6):665-8, 2010.

<sup>21</sup> OU Cancer Institute, Oklahoma Tobacco Research Center, *Tobacco Smoke Pollution in Oklahoma Workplaces*, Preliminary Report, February 2010, <http://www.ouhsc.edu/otrc/research/documents/PreliminaryIAQreport.pdf>.

<sup>22</sup> U.S.National Cancer Institute and World Health Organization, *The Economics of Tobacco and Tobacco Control*. National Cancer Institute Tobacco Control Monograph 21. NIH Publication No. 16-CA-8029A. Bethesda, MD: U.S.Department of Health and Human Services, National Institutes of Health, National Cancer Institute; and Geneva, CH: World Health Organization; 2016; Hahn, EJ, "Smokefree Legislation: A Review of Health and Economic Outcomes Research," *American Journal of Preventive Medicine* 39(6S1):S66-S76, 2010, <http://www.clearwaymn.org/vertical/Sites/%7BF1680E9A-EF78-41E7-8793-6913CF57DBAB%7D/uploads/%7B8274B71A-3B37-46D7-8320-E457C961A736%7D.PDF>.

<sup>23</sup> Repace, J & Johnson, K, "Can Displacement Ventilation Control Secondhand ETS?," *IAQ Applications*, 7(4), Fall 2006.

<sup>24</sup> Hahn, EJ, "Smokefree Legislation: A Review of Health and Economic Outcomes Research," *American Journal of Preventive Medicine* 39(6S1):S66-S76, 2010, <http://www.clearwaymn.org/vertical/Sites/%7BF1680E9A-EF78-41E7-8793-6913CF57DBAB%7D/uploads/%7B8274B71A-3B37-46D7-8320-E457C961A736%7D.PDF>.

<sup>25</sup> CDC, "Indoor Air Quality in Hospitality Venues Before and After Implementation of a Clean Indoor Air Law -- Western New York, 2003," *MMWR* 53(44):1038-1041, November 12, 2004, <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5344a3.htm>.

<sup>26</sup> CDC, "Indoor Air Quality in Hospitality Venues Before and After Implementation of a Clean Indoor Air Law -- Western New York, 2003," *MMWR* 53(44):1038-1041, November 12, 2004, <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5344a3.htm>.

<sup>27</sup> Repace, J, "Respirable particles and carcinogens in the air of Delaware hospitality venues before and after a smoking ban," *Journal of Occupational and Environmental Medicine*, 46(9):887-905, September 2004, <http://www.joem.org/pt/re/joem/abstract.00043764-200409000-00001.htm>