

A National Indoor Air Quality Standard?: Heightened Relevance of the Roles of Technology and Law in Indoor Air Quality as an Illness Prevention Strategy

By Mary-Michael Robertson

Several new environmental law issues have garnered recent attention, including the potential relevance of the Supreme Court's holding in *West Virginia v. EPA* on nuclear waste storage,¹ the power of rural residents to prevail on nuisance actions against newly foreign-owned pork producers,² and the roles of technology and law in furthering the goal of clean indoor air.³

Americans spend 90% of their time indoors.⁴ Researchers have shown that our environments play a substantial role in general wellbeing, whether it be the level of natural light and design choices in a classroom affecting students' learning progress,⁵ the role of urban design on city dwellers' degree of perceived loneliness,⁶ the level of mixed-use development's impact on physical activity,⁷ the relationship between exposure to urban water and alleviation of stress,⁸ or the role of nature views in medical recovery time.⁹

In the U.S., there is no indoor equivalent to the Clean Air Act's NAAQS, although some public health scholars argue that a "National *Indoor* Air Quality Standard" could be beneficial.¹⁰ Even OSHA, which does set legally enforceable indoor pollutant exposure limits for workers, notes that its permissible exposure limits are "outdated and inadequate."¹¹

The U.S. has made great strides in "tightening our building envelopes and reducing ventilation rates," which increase buildings' energy efficiency.¹² However, studies have shown that low ventilation, high volatile organic compounds, and high carbon dioxide can negatively

¹ See Matthew Daly, *Supreme Court climate ruling could impact nuclear waste case*, AP News, (Aug. 29, 2022), <https://apnews.com/article/texas-pollution-air-ken-paxton-f82c63a42f9e1c778a89fb66989ae5bb> (Texas Attorney General Ken Paxton recently argued that the "major questions doctrine" and *West Virginia v. EPA* should be used to stop a commercial facility from storing radioactive waste in West Texas, stating that Congress has not spoken directly to the issue of whether the NRC can license a private company to engage in temporary waste storage in West Texas.)

² See CORBAN ADDISON, *WASTELANDS: THE TRUE STORY OF FARM COUNTRY ON TRIAL* (2022).

³ See JOSEPH G. ALLEN & JOHN D. MACOMBER, *HEALTHY BUILDINGS: HOW INDOOR SPACES DRIVE PERFORMANCE AND PRODUCTIVITY* (2020).

⁴ *Id.* at 39.

⁵ SARAH WILLIAMS GOLDHAGEN, *WELCOME TO YOUR WORLD: HOW THE BUILT ENVIRONMENT SHAPES OUR LIVES* 10 (2017).

⁶ See CHARLES MONTGOMERY, *HAPPY CITY: TRANSFORMING OUR LIVES THROUGH URBAN DESIGN* 161 (2013).

⁷ See ANDREW L. DANNENBERG (ED.), *MAKING HEALTHY PLACES* 33 (2011).

⁸ JENNY ROE & LAYLA MCCAY, *RESTORATIVE CITIES: URBAN DESIGN FOR MENTAL HEALTH AND WELLBEING* 41 (2021).

⁹ TIMOTHY BEATLEY (ED.), *HEALTHY ENVIRONMENTS, HEALING SPACES* 123 (2018).

¹⁰ See ALLEN, *supra* note 3, at 40.

¹¹ See *id.* (When OSHA was created in 1970, its permissible exposure limits were based on 1968 data and were "grandfathered in"; OSHA has only promulgated 16 new limits since 1970.)

¹² *Id.* at 31.

affect cognitive function and productivity.¹³ During the COVID-19 pandemic, the role of ventilation has emerged as key in reducing the spread of contagious disease.¹⁴

Many office buildings, homes, and up to 90% of U.S. schools are not meeting even minimum ASHRAE industry ventilation standards.¹⁵ The role of technology in increasing ventilation can include: running mechanical systems longer hours to keep buildings under positive pressure and the air filtered, upgrading buildings to MERV 13 filters which can remove almost 90% of fine particles, and using new sensor technologies for continuous building commissioning.¹⁶

New private healthy building certification programs could aid in a push for healthier buildings,¹⁷ as could legislation or agency action establishing national indoor air quality standards¹⁸ (albeit more unlikely than private governance in the near future, much like environmental action more broadly).¹⁹ With the reduction in sensor technologies' cost over time combined with signaling from investors of a greater focus on environmental, social, and governance (ESG), it is likely that the real estate and corporate sectors will continue to move in the direction of healthier workplaces even without substantial federal action on the issue.²⁰

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¹³ *Id.* at 57.

¹⁴ *Id.* at 59 (“The amount of fresh outdoor air brought inside – what’s known as ventilation – is a critical determinant of health. This steady stream of research has demonstrated that enhanced ventilation has been shown to reduce sick building syndrome, cut absenteeism, and even reduce infectious disease transmission.”)

¹⁵ *Id.* at 61-62.

¹⁶ *Id.* at 89-91, 233 (Some companies already offer air quality monitors able to stream real-time data, and in the future, “seeing air pollution sensors in an office or apartment building will be as common as seeing a thermostat on the wall.”)

¹⁷ *Id.* at 173.

¹⁸ *Id.*

¹⁹ See JONATHAN Z. CANNON, ENVIRONMENT IN THE BALANCE: THE GREEN MOVEMENT AND THE SUPREME COURT 289 (2015) (“In his path-breaking piece, Michael Vandenberg depicts a host of private orderings around sustainable practice... Voluntary approaches of this kind have the potential to address global issues such as climate change in the face of governmental inaction at the national and international levels.”)

²⁰ See ALLEN, *supra* note 3, at 35-36.