# Environmental Health Committee (EHC) Emerging Issue Brief

## Sept 22, 2021

## Increasing Dog Population in Office

### What is the issue?

Having dogs in the indoor environment is not new. Healthcare providers have long recognized the therapeutic benefits of dogs[i]. In 1859, Florence Nightingale wrote that patients should be allowed to care for dogs because it would help in their recovery[ii]. Today, Service Dogs assist people who struggle with physical and emotional disabilities, histories of trauma, and those in prisons. Therapy dogs are frequent visitors to hospitals and nursing homes, and sit patiently in libraries with children learning to read aloud[iii]. In fact, children who have close contact with dogs have fewer ear infections needing antibiotic treatment[iv], suggesting that dogs expose children to bacteria that strengthen their immune systems. Therapy dogs have specific requirements including bathing, health records, and visitation checklists[v]. There is a specific infection prevention policy that is adhered to ensure the safety of patients and staff. However, when it comes to an employee's own dogs in office settings, there are a lot more dogs and the standards are less rigid.

There is a growing trend in increasing dogs in the workplace as reported by Scientific American in 2017[vi]. According to a Time magazine 2018 article, there are 1,000 dogs in the Amazon Seattle Headquarters, and eight percent of US offices allow dogs[vii]. Fifty three percent of U.S. households, or about 69 million families, own a dog, according to a 2020-2021 National Pet Owners Survey conducted by the American Pet Products Association (APPA)[viii]. This trend grew during the 2020 Pandemic. Forbes Magazine recorded 1.2 million households got a dog as a "Pandemic Pet".

With the reopening of offices, there is an growing need to address dogs in the office[ix]. Per July 2021 Time magazine, 67% of dog owners said they would consider looking for a different job if their company no longer offered remote work; 78% said they would stay if they could bring their pets to work. That sentiment is widely shared among young people, according to a separate Banfield Pet Hospital survey of 1,500 pet owners, which found that nearly half of Gen Zers, ages 18 to 24, and a third of millennials, 25 to 40, said they would

rather quit their jobs than be forced to leave their pets at home alone full time[x]. Dogs in the office can be a way to attract workers, especially with the millennials and the reopening of offices post pandemic. It was reported that 42% of the millennials would like dogs in their workplace to enhance the work life balance[xi]. 50% of the executives polled said they are willing to provide flexibility for pets in the office[xii].

Important questions that urgently need answers include:

1. What are the human health and comfort impacts in a work place with an elevated number of dogs compared to a typical office with no dogs?
2. What are the design criteria for health and comfort for the dogs themselves?
3. What polices, mechanical systems adaptations, and cleaning regimes are necessary for employers and property owners/operators to respect the rights of workers with allergies to dogs?

**What does this mean for ASHRAE?**

Practitioners, building operators, and policy makers look to ASHRAE for practical guidance on reducing indoor environmental exposures for humans. Considerations on cooling load increases from dogs, and design criteria for dog indoors should all be undertaken. This may require a better definition of "dog" starting with understanding of average distribution of dog size and scale, etc. for estimating anticipated loads and impacts.

Understanding the impact of a dog-friendly work place aligns with both the 2019-2024 Strategic Plan of ASHRAE and the ASHRAE Research Strategic Plan. The ASHRAE Strategic Plan addresses indoor environment health which is increasingly recognized as the leading priority, with implications extending beyond the acceptability of indoor conditions to its influence on productivity, learning and health. Different publications have suggested that while it is a complex topic with allergies, dog bites, fall hazard, cultural issues and welfare concerns to contend with, dog-friendly work places may manifest as lower rates of absenteeism and higher worker morale and productivity[xiii]. ASHRAE can convene and collaborate with experts and stakeholders across the industry to engage in discussion and exploration of this topic to accelerate collective knowledge in the field to develop thought leadership and promote understanding of indoor environmental quality (IEQ) among practitioners. Regarding the ASHRAE Research Strategic Plan, animals is part of the research gap - "ASHRAE should collaborate with other associations to develop guidelines and design tools for spaces designed for different goods, ***animals*** and plants." There are also items which go beyond the scope of ASHRAE, e.g. whether people actually "feel" safe with dogs in the office environment.

**What Action Should ASHRAE Considered?**

- A design guide for dogs in offices.

- Develop ventilation requirements for dogs in the workplace. ASHRAE 62.1 addresses "Animal Facilities", but not dogs in the office. For example, the 2016 required ventilation

rate for an animal facility per area (cfm/ft2) is 3 times the required ventilation rate for an office space. In the 2019 version, 11 "Animal Facilities" typologies are added. However, it does not address ventilation needs for workplace with odor and droppings that are harmful from dogs - per the interpretation of 62-1 in 2008: "if the designer suspects that pet odors and droppings may be harmful, then ***other*** relevant standards for minimum ventilation requirements may supersede the ventilation rate procedure, but not Standard 62.1-2007 in its entirety".[xiv]

- Provide sensible and latent cooling loads for dogs. Chapter A25, Environmental Control for Animals and Plants, and ASHRAE Fundamentals Handbook Chapter 18, "Nonresidential Cooling and Heating Load Calculations", makes no mention of dogs, dogs, etc.

- Research guidelines for allergens control. Allergens, including fur, dander, saliva, urine, etc. are reported to have the potential to cause reactions in occupants. Of these, dander is perhaps the most pervasive and potentially problematic. Dander consists primarily of particles of animal skin. The particles are very small, in the 5 to 20 micron range. They often attach to fur, dust, or other particles[xv] and need to be addressed.

- Consider air quality control issues regarding dog waste collection, disposal, and remedial cleaning.

- Research the impact of microbes to the workplace. Dog ownership can be associated with increased bacterial richness and diversity in indoor dust and identifies specific dog ownership-associated genera[xvi]. Selected researches suggested dog exposure can increase human gut microbiota[xvii]. Pets also carry certain bacteria, viruses, parasites, and fungi that can cause illness if transmitted to humans . More research is required to understand treatment of air borne dog microbial, which is more aligned with the ASHRAE scope, but can also include residue from feet, saliva, and other bodily secretions on different surfaces.

- Quantify monetary impacts regarding indoor environmental quality with dogs in the office. There are studies indicating the potential for stress reduction from having dogs in the office[xix]. Other studies failed to confirm the benefits[xxxxi]. To conduct this research, it is important to study harms and benefits together. While some workers may experience reduced stress, other workers may experience an increase in stress brought on by diagnosed or undiagnosed psychological or biomedical responses, including phobias and allergies. These outcomes cannot be considered offsetting concerns when weighed against benefits.

- Understand the acoustic impact of dogs in office

- Develop Indoor Environment Quality considerations for dogs. Note this can be a complicated subject, since unlike other animals that have relatively more defined sizes, dog breeds have a much wider variation in size and weight. In an office environment while we typically design for the comfort, health & wellness of human occupants, it

should also be recognized that people can interact with their surroundings, and adjust their clothing level, or add supplemental heating if uncomfortable. Dogs (especially in a work environment where they are expected to behave in a matter conducive to the work being done) have no ability to interact with the space or equipment to help regulate their comfort or temperature and are at the mercy of the humans around them. These considerations can include:

1. Comfort criteria.
2. Anticipated distribution of dogs and dog size/employee for planning purposes.
3. Impact of air pollution to dogs. There are more studies now indicating air pollution can have a greater impact on dogs due to their proximity to floor level[xxii].
4. Lighting and view design. Considerations for glare, down-lighting, view, and for glazed fenestrations (window) at an appropriate height for a dog.
5. Indoor acoustic considerations for dogs.
6. Elimination of waste: possible within 15 minutes of need for dogs over five months old, within five minutes for younger puppies.
7. Body temperature control: radiant heat and cooling sources, water available for swimming if possible.
8. Indoor humidity: maintain from 40 - 60% to decrease dry mucus membranes, improve respiratory health and decrease static electricity.
9. Respect for dog sensitivity to scents: considerations on artificial perfumes in human or dog hygiene products or cleaning solutions.
10. Health and cleanliness: central vacuum system to reduce ambient dander, all dogs treated to control ticks, fleas or other sources of itching.
11. Toxins: no accessible toxic plants, no noxious off-gassing material.
12. Ventilation requirements for dog run exercise areas if indoors.
13. Recommendations for minimum cleaning policies for dog owners availing themselves of the dog-friendly workplace.

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[i] https://www.purdue.edu/newsroom/releases/2019/Q1/service-dogs-benefit-the%20well-being-of-their-handlers,-research-shows.html

[ii] https://www.latimes.com/archives/la-xpm-2007-jul-09-me-therapy9-story.html

[iii] https://www.esmagazine.com/articles/97519-beyond-the-dog-door

[iv]https://www.reuters.com/article/us-babies-dog/babies-in-dog-owning-families-may-be-healthier-idUSBRE86804320120709

[v]https://www.rush.edu/sites/default/files/2020-09/Service%20Animals%20Requirements%20with%20Appendix%20A_FNL.pdf

[vi] https://blogs.scientificamerican.com/anthropology-in-practice/the-rising-trend-of-pets-at-work/

[vii]https://time.com/5186237/dogs-at-work-benefits/?utm_source=time.com&utm_medium=email&utm_campaign=social-button-sharing

[viii] https://www.americanpetproducts.org/press_industrytrends.asp

[ix] https://www.forbes.com/sites/deborahlovich/2021/05/26/how-12-million-dogs-are-hopefully-reshaping-the-future-of-work/?sh=194c32364223

[x] https://time.com/6077005/choosing-pandemic-pets-over-work/

[xi] https://www.thehrdirector.com/business-news/gen-y/millennials-want-dog-friendly-workplaces/

[xii] https://www.inc.com/jessica-stillman/a-lot-more-post-pandemic-offices-are-going-to-be-pet-friendly-new-survey-says.html

[xiii] Anne M. Foreman, Margaret K. Glenn, B. Jean Meade, Oliver Wirth, Jo Williams, "Dogs in the workplace: A review of the benefits and potential challenges", Int J Environ Res Public Health. 2017 May; 14(5): 498. Published online 2017 May 8. doi: 10.3390/ijerph14050498
[xiv] Interpretation IC 62.1-2007-14 of ANSI/ASHRAE Standard 62.1 – 2007 Ventilation for Acceptable Indoor Air Quality.
[xv] Christopher K. Wilkins, P.E., Member ASHRAE, and Brian A. Waters, "HVAC Design in Animal Facilities", ASHRAE Journal, September 2004
[xvi] Jenni M. Mäki, Pirkka V. Kirjavainen, Martin Täubel, Eija Piippo-Savolainen, Katri Backman, Anne Hyvärinen, Pauli Tuoresmäki, Balamuralikrishna Jayaprakash, Joachim Heinrich, Gunda Herberth, Marie Standl, Juha Pekkanen & Anne M. Karvonen, "Associations between dog keeping and indoor dust microbiota", Scientific Reports, March 5, 2021
[xvii] Ashley E. Kates, Omar Jarrett, Joseph H. Skarlupka, Ajay Sethi, Megan Duster, Lauren Watson, Garret Suen, Keith Poulsen, and Nasia Safdar. "Household Pet Ownership and the Microbial Diversity of the Human Gut Microbiota", Front Cell Infect Microbiol. 2020; 10: 73. Published online 2020 Feb 28. doi: 10.3389/fcimb.2020.00073
[xviii] I Ghasemzadeh* and SH Namazi, "Review of bacterial and viral zoonotic infections transmitted by dogs", J Med Life. 2015; 8(Spec Iss 4): 1–5. [xviii] Cohen S., McKay G. Social support, stress, and the buffering hypothesis: A theoretical analysis. In: Baum A., Taylor S.E., Singer J.E., editors. *Handbook of Psychology and Health.* Volume 4 Lawrence Erlbaum Associates; Hillsdale, NJ, USA: 1984. [Google Scholar] [Ref list]
[xviii] https://www.pca.state.mn.us/featured/does-air-pollution-affect-our-furry-friends
[xix] Cohen S., McKay G. Social support, stress, and the buffering hypothesis: A theoretical analysis. In: Baum A., Taylor S.E., Singer J.E., editors. *Handbook of Psychology and Health.* Volume 4 Lawrence Erlbaum Associates; Hillsdale, NJ, USA: 1984. [Google Scholar] [Ref list]
[xx]Grossberg J.M., Alf E.F., Vormbrock J.K. Does pet dog presence reduce human cardiovascular responses to stress? *Anthrozoös.* 1988;**2**:38–44.
doi: 10.2752/089279389787058253. [CrossRef] [Google Scholar]
[xxi] Gaydos L.S., Farnham R. Human-animal relationships within the context of Rogers' principle of integrality. *Adv. Nurs. Sci.* 1988;**10**:72–80. doi: 10.1097/00012272-198807000-00010. [PubMed] [CrossRef] [Google Scholar]
[xxii] https://www.pca.state.mn.us/featured/does-air-pollution-affect-our-furry-friends

**Authors (EHC)**

Stephanie Taylor
Brendon Burley
Claressa Lucas
Corey Metzger
Don Weekes
Steve Hammerling
Jon Cohen
Junjing yang
Karel Kabele
Linda Lee
Mark Ereth
Marwa Zaatari
Nicholas Clements

Rick Hermans
Bill Bahnfleth

**External Peer Reviewers:**

Jack Gilbert
John Fraser
Stephen Katz
Niss Feiner
Sara Hammerschmidt