Steelcase, MIT Researchers Team Up to Study Pathogens

Together, the organizations will explore how workplace design can mitigate the spread of disease.

Infection mitigation is a new priority at the office. Today, Steelcase is announcing its collaboration with MIT professor and disease transmission specialist Dr. Lydia Bourouiba, director of The Fluid Dynamics of Disease Transmission Laboratory at MIT to study how diseases spread in the workplace. Bourouiba specializes in fluid dynamics and understanding properties of turbulent gas clouds that are produced when people exhale, sneeze or cough and how that spreads respiratory pathogens. The goal of the research is to not only understand how these pathogens spread in typical office layouts, but also to develop design strategies for how to mitigate the spread of COVID-19 and other illnesses at work.

While the majority of people currently working from home due to COVID-19 restrictions want to return to the office (88-90%*), the workplace must be safe. Organizations will be looking to make smart investments to help reduce the risk of disease transmission.

Steelcase data about the most common office configurations among its global customers shows:

- 77% of individual work spaces do not provide 6ft/2m or more of distance between employees as recommended by CDC guidelines.
- 51% of work spaces have one or no space division elements in the front, back or on the side of an individual.
- When combined, 98% of seats in the office will be at risk. This means these settings do not have either 6 feet of distance between the next closest employee or a space divider that is 54 inches high.

Workplaces that were designed to foster creativity and innovation now must be reimagined to help mitigate the spread of disease.

“The workplace is essential to drive growth, build culture, and fuel innovation. So getting people back into the workplace is critical to help jump start the economy,” said Allan Smith, vice president of global marketing for Steelcase. “Organizations want to bring people back to offices that are compelling, but also safe. Our work with Dr. Bourouiba is critical to understanding how pathogens travel through enclosed environments like the workplace and how we can design spaces that mitigate the spread of disease, helping people to be safer at work.”

How does the coronavirus travel through the air?

This question has been hotly debated during the COVID-19 pandemic. Dr. Bourouiba is one of the leading experts studying how respiratory diseases move through air by exploring the interaction between fluid dynamics and epidemiology. Her team at MIT has used a variety of approaches including high speed imaging, lighting techniques, image extraction and mechanistic modeling to test how airborne pathogens travel. They work to determine how sneezes, coughs and exhalations help transmit everything from the common cold to the coronavirus. By studying speed, density, volume and evolution over time, they have found predictable and deterministic patterns. These insights are the framework for understanding how to reduce the pathway of transmission.

Dr. Bourouiba's research on fluid dynamics has helped inform COVID-19 policies and her 2018 TEDMED talk has been viewed more than 12,000 times. "Our mission is to apply our scientific discoveries to positively impact public health," says Dr. Lydia Bourouiba. "The opportunity to work with Steelcase, the global leader in workplace solutions, is exciting because it allows us to amplify our work to mitigate the spread of disease at a larger scale and maximize the number of safe workspaces around the world."

How can office design mitigate the transmission of pathogens?

Steelcase will be working with Dr. Bourouiba to conduct combined laboratory testing and modeling of furniture configurations and materials to determine the best combinations for mitigating the spread of respiratory diseases. The work will happen over a series of phases. Insights will be able to immediately benefit organizations by providing best practices to assist in retrofitting or reconfiguring existing workplaces. In future phases, the teams will focus on advanced mitigation strategies supported by scientific research, mathematical algorithms and modeling to inform better workplace designs.

Steelcase is committed to sharing information as we learn it to help organizations create safer spaces. Steelcase and Dr. Bourouiba plan to publish their first findings in the next few months.

* According to *Gensler U.S. Work From Home Survey 2020 and Cushman & Wakefield The Future of Workplace 2020*

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