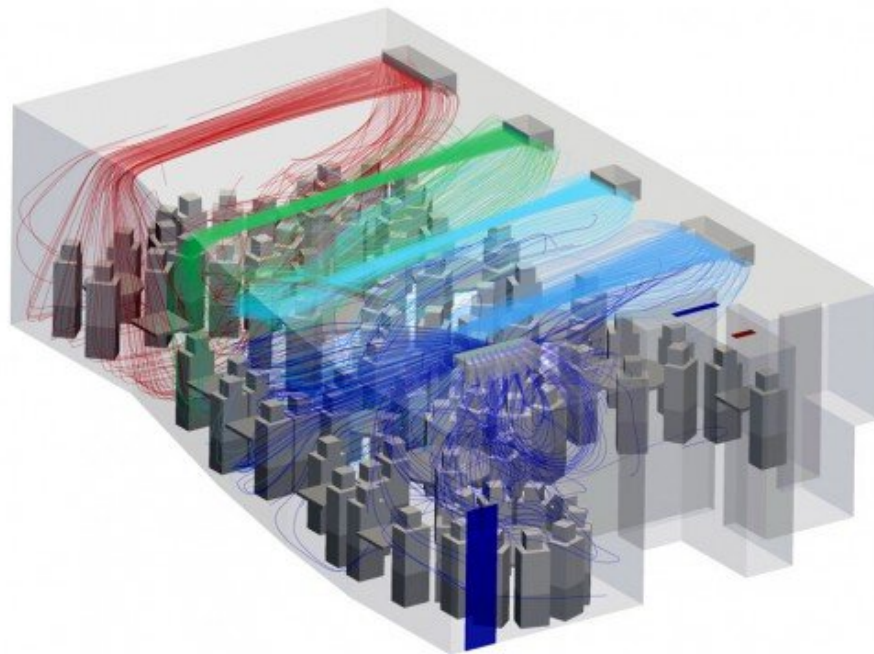


Software tool breathes life into post-COVID office airflow

July 6 2021, by Blaine Friedlander



The new indoor module for Cornell's Eddy3D software, which shows airflow in various indoor configurations, will be available July 30. Credit: Cornell University

As offices nationwide spring back to life, interior space designers and architects will soon have an easy-to-use planning tool to place indoor workplace furniture, staff, partitions and ventilation in a manner that maximizes fresh air flow and reduces the risk of airborne pathogens.

The Cornell Environmental Systems Lab in the College of Architecture, Art and Planning will introduce a new indoor [module](#) for their existing Eddy3D software, a professional-level airflow and microclimate simulator that can help improve ventilation.

The new indoor module will be released this summer, while the research supporting it will be presented at the International Building Performance Association conference this September in Belgium.

Based on computational fluid dynamics, the tool features a simple user interface, a validated simulation engine and streamlined simulation setup for a fast analysis. It shows the eddies of air flow and can indicate regions in rooms where air is stagnant and pathogens begin to concentrate.

The lab's research show that furniture—and people—have a large influence on virus diffusion throughout the floor plan. Plastic partitions can block the virus diffusion, but direct air allows a higher virus dissipation rate.

"As a designer or an architect, it's very difficult to develop an intuition for airflow," said Timur Dogan, assistant professor in the Department of Architecture, who directs the Environmental Systems Lab. "With this, you are getting a good synchronization of airflow everywhere, so that you're not mixing or transporting bad air from one location to another, or from one desk to another."

"Architects and designers are not necessarily experts in [computational fluid dynamics](#)," Dogan said. "The goal is to help professionals make decisions about workplace and classroom environments."

The Cornell Atkinson Center for Sustainability funded the research.

More information: A preprint of the September research presentation work is available at www.researchgate.net/publication/354111111
<https://doi.org/10.1101/2021.07.06.447888>
[onable Simulation-based](https://www.techxplore.com/news/2021-07-software-tool-life-post-covid-office.html)

Eddy3D—currently without the new module—is available now for free at www.eddy3d.com/. The new module will be available July 30.

Provided by Cornell University

Citation: Software tool breathes life into post-COVID office airflow (2021, July 6) retrieved 24 April 2024 from <https://techxplore.com/news/2021-07-software-tool-life-post-covid-office.html>

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