



Research News

Water quality could be altered in buildings closed during COVID-19 pandemic

Quality of water left sitting in pipes could change



Purdue engineer Andrew Whelton holds up a water sample from a building faucet.

[Credit and Larger Version \(/discoveries/disc_images.jsp?cntn_id=300435&org=NSF\)](#)

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While restaurants, gyms, schools and other buildings are closed indefinitely to prevent the spread of COVID-19, the quality of water left sitting in pipes could change.

In buildings nationwide, water left sitting for long periods of time could contain excessive amounts of heavy metals and pathogens that are concentrated in pipes, say researchers who have begun a field study on the impact of the pandemic shutdown on buildings.

The problem of stagnant water may not be confined to buildings recently closed. Water could have been bad for months or years in old hospital buildings that cities are reopening to accommodate a potential influx of COVID-19 patients.

"We don't design buildings to be shut down for months," said Andrew Whelton, a civil and environmental engineer at [Purdue University \(/cgi-bin/good-bye?https://www.purdue.edu/newsroom/releases/2020/Q2/water-quality-could-change-in-buildings-closed-down-during-covid-19-pandemic,-engineers-say.html\)](https://www.purdue.edu/newsroom/releases/2020/Q2/water-quality-could-change-in-buildings-closed-down-during-covid-19-pandemic,-engineers-say.html). "This study focuses on the consequences and will help building owners make sure their buildings are safe and operational when occupants return."

The researchers began their study with a Rapid Response Research grant from the [National Science Foundation <https://www.nsf.gov/awardsearch/showAward?AWD_ID=2027049&HistoricalAwards=false>](https://www.nsf.gov/awardsearch/showAward?AWD_ID=2027049&HistoricalAwards=false). The work involves monitoring water quality in buildings during a period of extended vacancy and upon the return of occupants. It's part of a national effort to advise public health officials, building owners and water utilities on how to safely recommission buildings with low or no occupancy because of the pandemic.

The recommendations are based on implications from other studies of water stagnation in large buildings. Since no study has been conducted on widespread, long-term building closures, knowledge gaps remain on how best to maintain stable water quality during a shutdown. The research led by Whelton's team would be a start to filling these gaps.

"Part of what we're trying to do is put energy toward helping others develop guidelines so they can go in and start recovering their buildings," Whelton said.

Added Bruce Hamilton, a program director in NSF's Directorate for Engineering, "This study will help to avoid potentially serious consequences when buildings that are shut down are brought back into use."

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