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Urban dwellers will like the sound of these noise-canceling windows

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One of the joys of living in the countryside must surely be pushing open the windows each morning to allow the soothing sounds of birdsong to float in and fill your home.

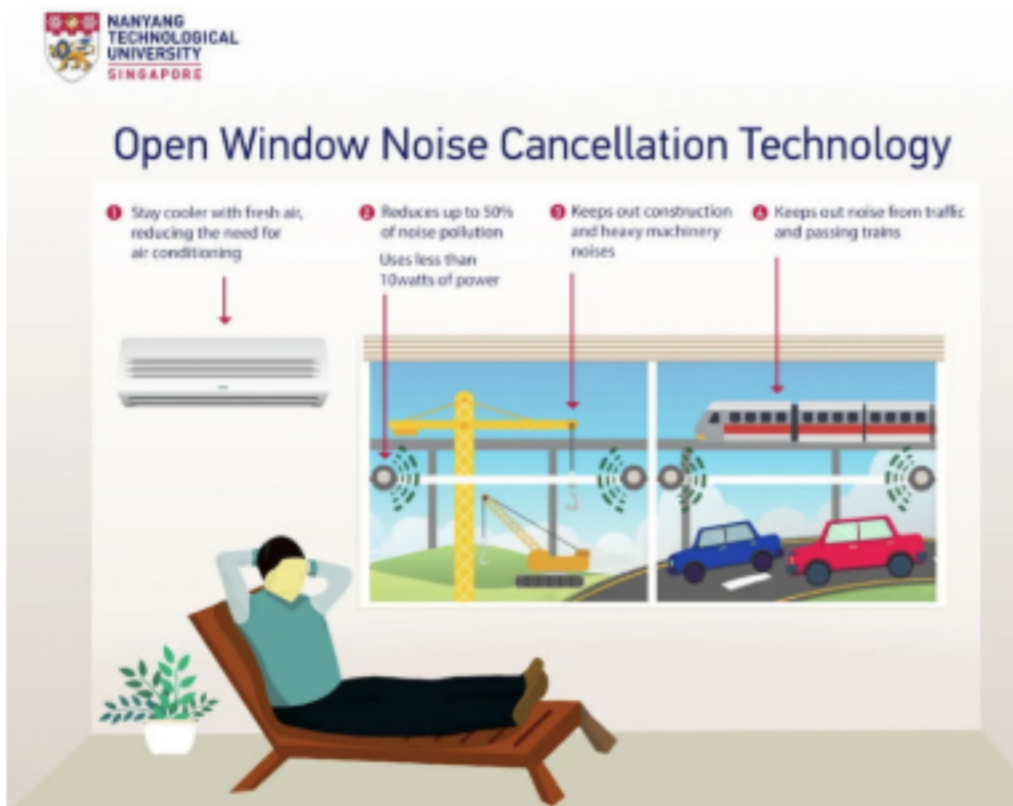
Living slap in the middle of a city, however, is an altogether different matter. There's traffic noise, honking horns, roadworks, trains, aircraft, as well as people shouting at the top of their voices across the street, into their phones, or simply to themselves.

If only there was a way to rid your urban home of this head-splitting cacophony, giving you a chance to actually relax and enjoy your living space without having to slam the windows shut.

Well, there soon might be.

Researchers at Nanyang Technological University (NTU) in Singapore have developed a window-based device that uses technology similar to that found in [noise-canceling headphones](#).

The initial design, which fits on a window grille, cuts noise levels by as much as 50 percent. This should encourage the occupant to keep the windows open on a hot day, allowing the flow of air and thereby reducing the chances of the occupant turning to power sources such as an air conditioner or electric fan. Indeed, the research is part of efforts by the university to develop solutions for sustainable living.



[Nanyang Technological University](#)

The technology behind the device detects incoming noise using small microphones. Once it processes the specific characteristics of that noise, it immediately emits an inverted sound or "anti-noise" that has the same waveform characteristics as the external noise.

"When both outside noise and anti-noise converge, they cancel each other out, resulting in a softer ambient sound entering living spaces," the researchers said in [a release](#).

"Our innovation not only computes the right amount and type of 'anti-noise' to emit, but also does it faster than the detected noise can reach inside the building," said Professor Gan Woon Seng, who led the research.


Gan added that compared to noise-canceling headphones, his team has achieved something more technically challenging "as we needed to control the noise in a large open area, instead of just around the ear."

The current setup comprises several of the noise-canceling units placed together to form a grid-like array on a window grille.

The team is continuing to work on improving the efficiency of the system, while at the same time reducing its size and cost. It hopes to commercialize the technology within three years.

Of course, keeping the windows open in an urban location is going to let in air pollution from outside, so our lungs rather than our ears may end up suffering. With that in mind, perhaps the researchers might like to look into adding some filters to its noise-canceling design to improve the quality of incoming air, too.

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