

## A Russian architect's dream to clean the air

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Architect Alexei Umarov's HyperFilter

A Russian architect hopes to realise his dream of a skyscraper that can filter dirty air - but is it just a pipe dream? BBC Russian finds out.

"When I read the news about people selling oxygen in canisters in Chinese cities... I think some time as early as 2025, my project will be realised," says Russian architect Alexei Umarov, 31, the man behind the idea of a skyscraper which he says could clean the polluted air surrounding it.

Mr Umarov lives in the Russian city of Khabarovsk on the border with China. He says that his project, the HyperFilter skyscraper, looks something like a giant tree, which he claims can suck in and purify the city's polluted air.

He is not the only visionary to be seduced by the desire to construct smog-eating buildings.

Many architects have been attracted to the idea of using materials and devices which could play a part in removing impurities to improve the air we breathe.

One of the most high-profile is the Dutch designer Daan Roosegaarde, who has created towers in cities like Beijing which have been billed as filtering impurities in the air.

The fact that no serious evidence exists that such constructions can make a significant dent in pollution levels has not stopped architects from taking out their pens and getting down to the design board.



HyperFilter's components, and how it might look in New York

When Mr Umarov started to contemplate his project for an international architectural contest, he knew what he wanted to focus on.

"Having assessed the situation in the world, having read some statistics, I chose air pollution, because I think it's really important," he explained.

"Every big city in the world suffers under this problem - and it's getting worse - excessive heat, polluted air, metals in the air, excessive levels of carbon dioxide. So I tried to solve the problem my way, the architectural way and to some extent in a technological way."

The HyperFilter consists of a skeleton, a porous shell and long pipes with filters inside. The designer's vision is for air to be sucked in through the pipes, cleaned and cooled, while harmful substances are separated and accumulated on the lower levels of the building for further recycling.

Back in 2014, Mr Umarov sent his project to an international architectural contest organised by a magazine. He did not make it to the final three, but the jury remarked that his idea was an interesting one.

Other skyscraper projects in the contest looked fascinating, futuristic, but they all had a traditional interior: offices, apartments, shops. Mr Umarov's design was the only one without flats or offices - only a giant air filter.

Despite the lack of evidence, Mr Umarov is convinced that his skyscraper is the future.



Alexei Umarov believes somebody could take up his idea within a decade

"I know it looks rather futuristic, but technically, my project can be partially realized even now. Since I composed it in 2014, the technologies have developed, there are 3D printing, drones and robots used in the construction, and it seems to me that my project is gradually becoming more and more important - and more and more plausible," says Mr Umarov.

The architect acknowledges it would be rather difficult and costly to assemble all the pipes without the help of drones.

Alexei Umarov is still hoping that a big international company will eventually develop his project and start to build the HyperFilters in cities like Mexico, Delhi, Beijing or Moscow.

Even if Mr Umarov's dream is not realised, such designs and other so-called smog-eating towers can help raise awareness of air pollution, even if they do little to reduce it.

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