



UrbanEcologySystems



Healthyair. Anytime. Anywhere

Urban air pollution is among the world's leading killers. And yet, we let it into our homes, schools and offices every single day - where it becomes even more dangerous.

Urban Ecology Systems tackles that challenge head on, with the only efficient solution anywhere that keeps the indoor air you breathe consistently clean and optimally healthy.

With the power of unique adaptive machine learning and fully automated regulation, we turn any building management systems into a cost-effective, untiring sentinel guarding your wellbeing against even the most dangerous pollutants.

Only Urban Ecology Systems reduces medically significant air pollution inside buildings by **40%* and more.**

| The Problem: Air Pollution

- The sources of air pollution are various and spread all around the city: industrial sources, vehicles and other modes of transportation, power plants, gas stations, construction materials and equipment, garbage dumps, incinerators, sewage systems, asphalt, household and building emissions and more.
- Current average urban air pollution levels are approximately **5 times higher than the minimum levels** known to cause significant negative health effects. Furthermore, pollution often reaches **more than 10 times these medically significant levels**.
- The greatest **health risks** during the day are when air pollution levels are higher than the daily average. Most of the negative impact of



pollution can be correlated with these daily high periods.

| The Health Risks - Scientific Consensus:

Air pollution is the largest environmental cause of morbidity and mortality *(World Health Organization)*.

Air Pollution Health Risks



Mortality

Increased infant mortality rates



Cancer

Congenital disorders and inhibited fetal development



Cardiovascular diseases

Severe osteoporosis



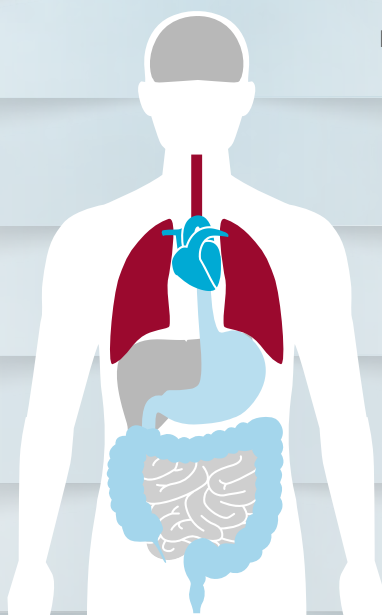
Respiratory diseases, complications and death in asthma patients

Severe diabetes



Infertility

Global disability adjusted life-years (DALYs)



Air pollution causes **7 million deaths** annually – **12.5%** of all deaths worldwide

[the Lancet]

That is twice as many deaths as AIDS, tuberculosis, and malaria combined, as well as 6 times more than all road accidents, and 11.5 times more than in wars and violent incidents.

- Air pollution is one of the largest contributors to global disability adjusted life-years (DALYs). Particulate air pollution is responsible for 103 million DALYs a year [2015].
- In high-income countries the life expectancy of patients who prematurely died due to air pollution, was significantly reduced by more than 10 years on average!

The Cost

Air pollution costs the global economy **more than \$5 trillion** in welfare costs

[according to a World Bank report, 2013].

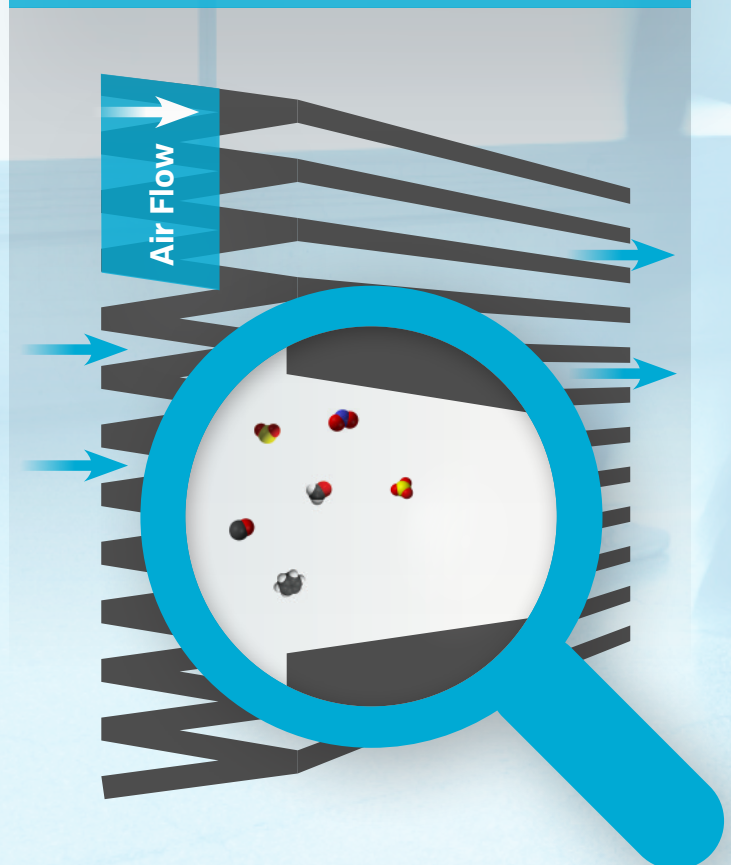
Most Health Damages Occur Indoors:

- **The air within the building comes from the outside.** Therefore, it contains the same dangerous pollutants as the ambient air.
- This indoor air is then further **contaminated by pollutants emitted inside from various sources**, such as building materials, machinery and furnishings, cleaning products, printers, paints, and more.
- In developed countries, people spend **90% of their time** indoors, **making the indoor exposure to urban air pollution predominant.**
- As a result - **air pollution within buildings is responsible for 14 times more deaths** [global average] **than outdoor pollution**, as reported by the WHO *[World Health Organization]*.

What Solutions Currently Exist?

- Even the most precise technologies - used only in hospital operating rooms and industrial clean rooms - filter molecules and particles larger than 0.5 micron. Yet, **6.25 million urban air pollution components can fit through a single pinhole of those highly advanced filters!**
- The most toxic gaseous components of air pollution [Nitrogen Oxides, Sulfur Oxides, Ozone, VOCs, Benzene, Carbon Monoxide] are measured in angstroms, which is 10,000 times smaller than 1 micron, and are similar in size to the natural components of air [N₂, O₂, CO₂, etc.]. These molecules fit within the volume of one single bacterium 100,000,000,000 to 1,000,000,000,000 times.

Urban air pollution components fit **6,250,000 times** in **1 single pinhole** of those **highly advanced filters!**



- The best current solutions to the problem of air pollution within buildings - such as mechanical filters, air purifiers, active carbon filters, negative ion and ozone

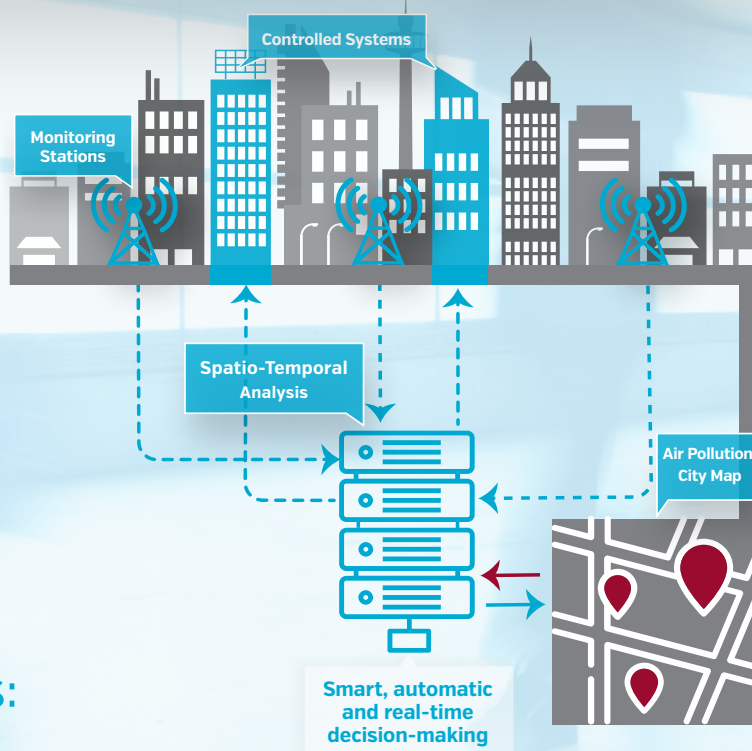
generators - are ineffective against gas molecules and small particles, and have almost no effect on these smallest of urban pollutants.

| The Urban Ecology Systems Solution: | Unprecedented Air Pollution Reduction Inside Buildings

Our innovative solution has been proven to effectively reduce approximately 40% of medically significant air pollution levels within buildings.

[↑ as measured by reduction in the most important and smallest gas molecules: Ozone, Nitrogen Monoxide, Nitrogen Dioxide – used as common markers of urban air pollution].

- Our solution accomplishes this at negligible cost to consumers while drastically **improving quality of life and productivity**.
- Our innovative approach employs advanced knowledge-based software to optimize air quality using the building's current systems, avoiding major setup costs. This enables us to maintain a very low price point.



| Proof of Concept – | Unprecedented Success:

Urban Ecology Systems already operates in buildings in several locations in Israel, including at some of Israel's leading and largest companies:

- **HP**, May 2018 - Reduction of **45.6%** in medically significant air pollution *
- **Electra**, May 2018 - Reduction of **64.1%** in medically significant air pollution *
- **Building in central Tel Aviv**, quarterly average - Reduction of **52.9%** in medically significant air pollution *

How Do We Accomplish This Reduction?

- **Regulating existing systems**

Our patent-protected technology uses computerized systems, unique algorithms and smart machine learning to control and regulate systems in the building.

- **Real-time analysis, detection and smart decision-making**

Based on an extensive and unique big data analysis, Urban Ecology Systems smart algorithms identify air pollution trends in different locations, in real time, track historical and online pollution data, and

process outdoor and indoor pollution levels for each building. Urban Ecology Systems is compatible with international standards and can be adjusted to any customer demand.

- **Smart prediction**

Our unique algorithms can identify and predict air pollution levels in real time with high precision, inside and outside the building. This capability enables us to detect points in time for optimal use of the building systems.

Our solution uniquely overcomes many obstacles, takes into consideration an array of factors and requirements, and achieves unprecedented improvements in indoor air quality!

The Urban Ecology Systems technology is the best solution for air pollution control in buildings:

When you're inside with Urban Ecology Systems – at work, school or home - you're breathing the cleanest and healthiest air available.

- **Significant improvement in health conditions**, at the heart of the busiest and most polluted urban areas
- **The only system that keeps air pollution outside the building**

- Significant potential for **energy conservation**
- **Negligible setup costs** and extremely low operating costs
- **Improvement in cognitive abilities**

and **employee productivity**, with fewer employee sick days.

- A **healthy and positive workplace culture**, a unique added value and wellness.
- The system **complies with the most rigorous standards** and can be fully adapted to meet all local regulatory requirements
- The **innovative health and technology leaders** at Urban Ecology Systems ensure the solution meets the **highest standards**
- **Fully automated** system that works 24/7 –

with no operating requirements for customers.

- Effective in **buildings of all sizes** – from small offices to skyscrapers – and can be **integrated into existing building systems**, old or new, with minimal to no hardware installation.
- A computerized smart system that is **safe to use** and doesn't change the natural composition of the air
- **No long-term commitments** – SAAS [software as a service].
- **Measurable KPI's** [Key Performance Indicators].

| More About Urban Ecology Systems

| Registered international patents

- USA, 2012
- Second patent in the USA, 2014
- South Korea, 2014
- Israel, 2015
- Canada, 2015
- European Union, 2016

| The intellectual property of Urecsys is currently managed by three professional offices:

- In Europe, by Kuhnen & Wacker, a globally oriented law firm regarded as a quality brand in the field of intellectual property, with a history of more than 40 years in the industry.
- In the United States, by Attorney Dr. Guy Levy (JD, PhD), specializing in all legal aspects of intellectual property protection and commercialization for start-ups and technology companies.
- In Israel, by Appelfeld & Co., specializing in IP protection in complex technological environments.

Raising capital from leading sources:

- Grants from the Chief Scientist's Office at the Ministry of Economy
- Grants from the Jerusalem Development Authority and others
- Investment by Israel's leading medical engineering company
- Investment by Israel's leading real estate development company
- Investment by influential figures and market leaders

Team Profile

The Urban Ecology Systems team consists of renowned scientists and entrepreneurs with vast experience in science, research and business development.

Dr. Kobi Richter, Founder and Shareholder

Dr. Richter is a co-founder, a major shareholder, and takes an active part in strategic decision-making. He is well known for his uncompromising emphasis on IP protection, developed groundbreaking health products, and was a senior partner in companies that were sold for billions of dollars. Dr. Richter is also the owner, founder and CTO of an internationally renowned medical engineering company.

Nir Bassa, M.Sc. Cancer Research, Founder and CEO

Holding a master's degree [with honors] in cancer research and biochemistry from the Faculty of Mathematics and Natural Sciences at Hebrew University. Mr. Bassa has led and generated scientific and innovative technological initiatives. He also has years of experience as a senior advisor, representing the Israeli Ministry of Economy and has consulted and successfully guided companies through R&D and innovation processes.

Mr. Bassa's work has been published in


international scientific journals and he holds several patents. In addition, he teaches courses on innovative approaches and solutions in biochemistry and on technological entrepreneurship.

Dr. Shimon Amit, Founder and CSO

Dr. Amit, with a degree in biology and advanced degrees from the Hebrew University, is an expert in technological development and the interrelationships between science and technology. He is responsible for overseeing the biological health aspects of Urban Ecology Systems technologies, as well as research and development, and patent development.

Dr. Maor Ganz (PhD)

With degrees in mathematics and computer science with honors, Dr. Ganz is an expert in algorithm development and machine learning. He has multiple awards for excellence from Hebrew University and his work has appeared in international scientific publications.

The background of the page features a blurred photograph of students in a classroom or laboratory setting. A woman with long dark hair is in the foreground on the right, looking down at a desk. Behind her, a man is also working at a desk. The entire image is overlaid with a network of white circles and lines, resembling a molecular or data structure.

Dr. Ami Lerner (PhD)

Dr. Lerner has a degree from the Faculty of Medicine at the Hebrew University in the field of Cancer Research with an emphasis on the metastatic process.

Dr. Gili Schul (PhD)

Dr. Schul has degrees in the fields of mathematics and science, as well as multiple awards for excellence from Hebrew University and international scientific publications.

Dr. Ilya Soloveychik (PhD)

Dr. Soloveychik has degrees in applied mathematics, physics and computer science with a focus on statistical signal processing. He is a two-time winner of the all-Russia university competition in physics, with multiple awards for excellence (including Summa Cum Laude), and his work has appeared in international scientific publications.

And more.

* Results for the pollutants NO, NO₂, NO_x, and Ozone [O₃] (initial studies indicate that the system measurably reduces all other pollutants tested for as well).



Breathing Better Already.

Contact us:

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