

A READY TO IMPLEMENT SOLUTION TO EQUIP ALL COMMUNITIES AROUND THE WORLD AGAINST MAJOR CONTAMINANTS SUCH AS VIRUSES AND BACTERIA

FENZER Technology (FT) offers a proven solution to help mitigate the global impact of climate change by significantly reducing (by 2025), and eliminating (by 2030) the world wide impact of indoor air contamination(IAC) on health and economic growth.

This solution is based on the creation of INDOOR SAFE HEAVENS, in high risk and high value facilities such as schools, hospitals, stores, offices, libraries, museums and residences. The aim is to remove and monitor major contaminants including bacteria and viruses.

The global application of FT will significantly enhance the readiness of communities across the world, in developing as well as developed countries, to cope with epidemics and other disasters.

(EXECUTIVE Summary)

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I. SUMMARY

- FT secures purified or contaminants-free air for all categories of indoor environments such as schools, hospitals, shops, offices, libraries, museums, residences, laboratories, factories, stores, barns...
- FT has been tested successfully in over 100 trials mostly in Scandinavia
- The use of FT can save millions of lives annually and ensure sustainable savings and productivity gains running into the hundreds of billions of dollars
- FT process includes: Measurement, Correction and individualized Monitoring of IAC levels for all categories of indoor environments
- INDOOR SAFE HEAVENS against major categories of contaminants, including bacteria and viruses, can be built using FT and the knowledge accumulated in over 100 trials.
- We estimate that FT can be rolled out all over the world, for all categories of indoor environments, before 2030 with significant results by 2025.

Special note: for high emergency cases such as the ongoing novel coronavirus outbreak, indoor safe heavens could be built before the end of 2020 in major high risk and high value facilities and sites such as cruise ships, hospitals, schools, and seniors residences.

II. BACKGROUND

The nature and associated costs of IAC and the benefits achievable by providing better indoor air quality.

IAC is mostly affected by three factors: (a) indoor sources of pollutants and materials, (b) the quality of ambient (outdoor) air entering the building, and (c) the air exchange rate between the indoor and the outdoor environment.

IAC depends on the presence of a wide variety of contaminants in the indoor environment that may cause harm. It includes chemical and biological contaminants in gas, liquid or solid states that people are exposed to indoors.

Because humans spend up to 90% of their time in offices, schools, and residences, and inhalation exposure is continuous, our largest exposure to pollutants (of both indoor and outdoor origins) occurs indoors.

At the global level, every year air pollution causes the premature deaths of between 5.5 million and 7 million people, making it more deadly than HIV, traffic accidents and diabetes combined. The majority of these deaths—about 4 million—are caused by indoor air pollution, primarily in developing countries. However, air pollution takes a toll in developed countries as well, especially in large cities.

In the USA, recent studies have estimated that exposure to IAC in homes accounts for about 10 percent of the annual non-psychiatric, non-communicable disease burden in the U.S. and that the savings and productivity gains achievable by providing better indoor environments in the U.S. are as high as \$200 billion annually. Studies in other countries confirmed similar data for both the impact/cost of IAC and the benefits of better indoor environments.

IAC is impacting all sectors (agriculture, manufacturing, research, health care, education, culture, etc.) and diverse categories of buildings such as schools, hospitals, residential, offices, laboratories, factories, museums and barns.

III. PROPOSAL TO WORLDWIDE STRATEGIC PARTNERS

The offer to worldwide strategic partners includes:

A) Patented technology for air purification which works effectively for all common contaminants.

The technology has been successfully tested in over 100 trial projects addressing:

- 1) Damage control and restoration/rehabilitation following disasters such as fire and floods.
- 2) Removal of all common contaminants like:

- CO/CO₂
- harmful gases
- unpleasant smells
- pollen
- aerosols
- fungal spores
- bacteria
- other

3) Litigation in a Scandinavian court of an IAC case between parties involved in the construction, management and use of buildings.

4) Creation and monitoring of indoor safe heavens in residences, surgery rooms and laboratories.

Note: The results of these trials have been documented in cooperation with clients and validated by authoritative, independent third parties.

B) 11 up and running systems (HW, SW) which have been used for over 100 test projects for almost all categories of buildings such as schools, hospitals, residential, offices, laboratories, factories, museums and barns.

(These systems have been used for a wide range of air purification and damage control purposes ranging from restoring a balanced humidity level to removing dust, gases and other contaminants from the air).

C) Reports by test users on the results of FT trials.

D) Reports on test validations by independent third parties such as leading research centers and hospitals.

E) An original process for the global roll out of FT to a wide range of communities from rural areas to large cities.

F) A continuously updated knowledge base on the policies of national, regional and international private and public organizations regarding outdoor and indoor air pollution.

G) The proposed solution is competitive due mainly to:

- indoor air purification being based on natural principles
- the underlying technology being more efficient than traditional methods, which are mainly based on outdoor/indoor air exchange, (indoor safe heaven)
- it being very simple to use (only on/off button, self-controlled and selfadjusting)
- the simple and cost efficient production of related equipment
- the high precision measurement, correction and monitoring of contaminants
- the absence of health damaging components and reactions
- the use of a standardized core technology for all applications and all categories of indoor environments.
- a wealth of knowledge and data acquired by conducting over 100 trials for all major categories of indoor environments from all sectors

IV. WHY FENZER TECHNOLOGY COULD BE USED TO ELIMINATE VIRUSES

1. General presentation of Fenzer Technology

The advantage of the FT is that exchange of air in the room is unnecessary and the indoor air itself is not circulated.

All unwanted substances in the air have an electric charge (also described in the periodic system chart). The Fenzer machine has a [Faradays cage](#) creating a negative magnetic field that will attract the charged substances. Inside the cage is a 700°C hot copper plate. The heat will burn off any “live” organisms like pollen, bacteria, fungal substances etc. Dust or dirt will be carbonized and the humidity in the air will be purified. The humidity will also be attracted by the hygroscopic copper as well as the cage. The CO, CO₂, aerosols etc. are held in position by the magnetic field in the cage. When the cyclic water flushing takes place the gases will be caught in the water fog and drained out with the water. The carbonized dust, dirt and bacteria having formed a layer on the warm copper plate will also be drained after the water creates shock cooling of the copper plate.

When poor indoor quality becomes a challenge, it is due to the existence of one or more of the following:
Lack of building maintenance causing water leaks to penetrate the building
Insufficient indoor air filtration treatment
Heavy outdoor air pollution where the pollutants are brought indoors through the ventilation system

The Fenzer solution has, through more than 100 trials, developed and optimized a technology to cope with the above.

2. An example of Fenzer Technology use for indoor safe havens

The problem faced during the Norwegian spring with pollen allergies is that pollen spores are found everywhere – outdoors and indoors. Therefore, there is nowhere for the body to enjoy rest and recovery. FT trials showed that an indoor safe havens will create the necessary environment for the body to regain strength and become better able to withstand the stress caused by the outdoor environment. A woman with allergies argued with the Healthcare Department that the alternative for her was to stay in the mountains during Spring time in the lowlands and in the lowlands when the Spring arrived in the mountains. However, she was so pleased with her FT based improved indoor air quality that she gave up medication and had the Fenzer machine in her house for the better part of 3 years paid for by the Government.

3. Why FT could be used for viruses

We have no trial cases for viruses. However, based on the trials like the above we believe the benefits with the Fenzer technology would be similar:

- Contaminated outdoor air is not brought into indoor environments such as residences, hospitals, and schools
- the machine is used to remove fungal substances, pollen and bacteria in indoor air, due to the inability of live organisms to survive the +700°C hot copper plate

V. CONCLUSION

As FT has been extensively tested and is immediately available, we estimate that it can be rolled out all over the world by 2030 with significant results by 2025, thus providing:

- 1) a significant contribution to the mitigation of the impact of climate change for all, everywhere, for all categories of activities, in developing as well as developed countries,
- 2) the elimination of the world-wide impact of indoor air contamination (IAC) on health and economic growth and,
- 3) indoor safe heavens against major contaminants, including pollen and bacteria, in vital facilities (schools, libraries, residences, hospitals, storage facilities, etc.) across communities around the world.