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FAQ CityTree 2020 – Green City Solutions GmbH

Frequently asked questions	Answers
What is new about the CityTree?	The CityTree is a high-tech product with active ventilation, an automatic irrigation system, built-in sensors and an IoT-based control system.
What special kind of moss is used in the CityTree?	We use a mixture of a variety of different moss species in the CityTree. The specific mix is designed to be suited perfectly for the environmental conditions of the certain region where the CityTree will be located in so its filtration performance is at its optimum.
Why not just plant trees instead of setting up a CityTree?	It is always a good idea to plant trees which we fully support, however it serves a different purpose than our CityTree/does not deny the use of our CityTree. Trees produce oxygen via the uptake of CO2 and provide/give shade. CityTrees filter/remove particulate matter/fine dust (out of the air) and cool the air.
How much power and water does the CityTree consume?	While the CityTree acts as an effective means of air cooling and filters thousands of cubic meters of air per hour, it merely consumes about 100W. While the water consumption usually does not exceed the one of an average household, it varies according to location and season as does the water demand of moss.
Can you recycle the CityTree?	At the core of the CityTree lays a natural and renewable resource: moss. Being a regenerative filter, it does not generate special/hazardous waste. Further, the CityTree has been designed according to the Ecodesign Directive. Hence, recycling, longevity and a small CO2 footprint/ecological footprint are clear priorities in our production. By using a lot of certified wood and recycled plastics, the CityTree 2020 has a CO2 balance of around 0.
Which factors need to be considered when selecting a location for the CityTree?	Every location requires a power and water connection. A water connection is needed since moss is a living organism and requires water for survival like any other plant. A power connection is needed for the ventilation and IoT technology which allow for a high filtration and cooling performance. Still, the energy consumption is kept at a low level of about 100W, equalling 5 light bulbs. Currently, the moss species included in the CityTree are meant for use in Central Europe. Ahead of a potential expansion outside of this specific climate zone a location analysis testing the viability of using certain moss species is required.

Where can you set up the CityTree?	The CityTree can be placed wherever there is sufficient space for installation. Currently, about 4sqm (of floor area) are needed.
Can several CityTrees be placed next to each other?	Because of the modularity of the CityTree, it can be placed side by side in any desired way/any juxtaposition of multiple CityTrees is possible.
What is the biological process behind the CityTree? What makes moss so special?	With lots of fine hairs, moss has a large surface which electrostatically attracts fine dust particles/particulate matter. In other words, the particles stick to the moss, similarly to a microfiber cleaning cloth. However, the difference is that moss can convert/metabolize the particles - meaning, it actually "eats" the particles. This means that the moss filter is never "full" and is a self-cleaning and regenerative air filter. Further, the moss evaporates water via its large surface which translates into a significant cooling effect of about 5.5 kW while only consuming about 100W.
How does the price come about? Could I not just plant some moss?	Moss is naturally not suited for the conditions within a city. The CityTree is the result of many years of research and development, making it possible for moss to strive in these harsh conditions. It is a product of sophisticated technology, designed and created after over 10 years of research, 5 years of product development and over 50 projects.
How do you maintain the CityTree and its moss?	The moss modules are designed to require minimum maintenance and inspection and thus, do not require more than routine technical support. Still, a faultless operation of the product must be ensured as per our high-quality standards. Hence, wearing parts of irrigation and electronic components are inspected/examined regularly to guarantee optimal conditions for the moss.
Does the moss die in winter?	No, it does not but the photosynthesis of the moss stops at temperatures below 4 °C. Nevertheless, the ventilation can still be used with temperatures below 0 degrees Celsius since the fine hairs of the moss continue to trap particulate matter/fine dust. In contrast to normal/foliage plants, which shut down their activity entirely as their leaves fall off, moss continues its activity year-round. As temperatures exceed 4 °C, the moss becomes more active and starts to metabolize/convert fine dust/particulate matter again. Thus, the

	filter performance remains almost constant/at almost constant levels throughout the year.
What kind of particles are removed?	The CityTree removes particles of all sizes: this includes ultra-fine particles (UFPs), as well as particulate matter/fine dust of a particle size between 0.1 micrometers and 10 micrometers (PM2.5 - PM10).
What kind of information can I obtain from the CityTree?	The integrated IoT technology enables a real-time presentation of the performance data of the CityTree. These performance data include the filter performance of fine dust/particulate matter, but also environmental data on e.g. temperature and humidity. On average, the CityTree filters 3,500 cubic meters of air per hour (roughly equivalent to the hourly breathing volume of up to 7,000 people).
Does the CityTree also work at night?	The CityTree filters the air as long as it is active. However, it is also a good idea to turn off the CityTree at night when there are no people out in the surroundings and give the moss some rest.
Does the clean air come out through the moss or is it being sucked in through the moss?	The CityTree sucks the air in through the air slots on the side and filters the air through the moss. When standing in front of the CityTree, one can sense/feel cool, fresh air coming through the moss.
Can I recognize from the outside if the CityTree is active?	If you stand in front of the CityTree, you will feel cool, fresh air coming through the moss. However, while the CityTree includes an efficient ventilation concept, its sound impact is negligible/very low. Needless to say, the CityTree meets all legal requirements concerning noise control/protection.
How does the CityTree perform concerning its ecological footprint?	The CityTree has been designed according to the Ecodesign Directive. Hence, recycling, longevity and a small ecological footprint are clear priorities in our production. Our main resource – moss – is a natural and renewable resource which does not generate special/hazardous waste.
What are doing about vandalism?	So far, vandalism has occurred rather seldomly, likely because it is a plant and thus, a living organism. The CityTree evokes positive feelings, since it does something good for its surrounding. Further, greenery puts one's mind at ease, lowers blood pressure and decreases stress. In addition, the risk of vandalism can also be reduced by an adequate site selection.

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