

The Future of Efficient Offices

by Jonathon Walsh

When most people think of farming, images of livestock and fields laden with crops typically come to mind. But times and technology are rapidly changing the face of the industry and increasingly food is being grown indoors. Tokyo-based Aragon St-Charles,



Operations Manager for Hogan Lovells, one of the world's largest global law firms, has been investigating ways to do this – and more – at his office in the capital. Environment writer Jonathon Walsh recently sat down with Aragon to investigate how he is helping lead the charge to make his office more environmentally friendly.

Sick building syndrome

During the company's recent expansion, the business took over a new floor in their building and completed a full fit-out and renovation of existing floor space. The company has just under 2000 square meters of space in the office, and management has been enthusiastic to expand the use of sustainable materials. This included placing large numbers of beneficial plants throughout the office.

Why did Aragon decide to introduce plants and other technology into an office environment?

“A common complaint about office buildings is based on what is called ‘Sick Building Syndrome,’” he explains. “When you have a lot of people in a relatively small space, all breathing the same recycled air that is full of the Volatile Organic Compounds (VOCs) that are present in almost all construction materials, then you will have people who will have headaches, breathing difficulties, sore throats, bad eyes from poor lighting and so forth.” Aragon adds that the psychologic issues involved with working in a poorly designed office can also be significant. “These were all issues that we made significant efforts to combat in the design phase of the build and we specifically incorporated technologies and design aspects to mitigate such issues.”

What steps were taken to create a healthier office environment?

First, lighting specifically designed for the different roles undertaken in the office was installed to help reduce eye strain and headaches for lawyers and staff. Next, glass walls that allow more natural light into the core of the

building were introduced to help reduce conditions such as Seasonal Affective Disorder. “Plants are also used extensively in the office,” Aragon says, “but in particular we researched plants that have been extensively tested by NASA and that are proven to reduce or remove VOCs and other toxic chemicals out of the air in order to physically improve air quality. Plants, small trees and green walls are also used to promote biophilia, which pertains to research which shows that being surrounded by living things,



Office cafeteria



Office cafeteria

he explains. “As with many buildings, the air tends towards the dry side and this generally affects the plants in the office.

For client-facing areas we use a rental service for plants so that they are looked after professionally and regularly rotated to ensure they remain healthy. Plants used in internal areas are looked after by our sustainability group in the office, and we also gave every staff member their own plant to care for. Occasionally we will go through the entire

such as plants, results in increased feelings of wellbeing and health, and which in turn means increased staff productivity.”

Aquaponics growing office plants

What were the main challenges Aragon faced in terms of introducing and maintaining the plants and technology?

“Our office has a central building air conditioning system so we are much more limited in how we can actively monitor and affect certain things like humidity in the office,”



Office aquaponics system

office and look at the overall health of each plant and, for example, add organic fertilizers.”

But it's not just plants in pots. It's also fish in tanks.

“We have a small aquaponics system in the office that harnesses fish, plants and bacteria living in a symbiotic relationship to support each other to grow small houseplants that thrive well in a water-rich environment.” Aragon explains. “Aquaponics reduces the need for fertilizers and chemicals and so forth and is also more water-effective



Vegetables growing by the window

than standard watering techniques. Almost all other food production systems in the office are ‘bottom watered’ to reduce evaporation and encourage strong root growth.”

In-office food

As part of Aragon's overall push to create a more sustainable, eco-friendly office, he also runs food growing courses for staff who want to help grow plants at work. “We generally have around 10 people joining in,” he says. “They learn how to plant seedlings into the various containers that we are going to use. Participants enjoy the activity and learn something new as well as promoting good camaraderie in the office.”

Why was food growing training incorporated into office activities, and what potential does Aragon see for food growing training at his and other offices in large cities?

“As a qualified permaculture teacher, I have a personal interest and desire to integrate food production and plants in general into my daily life,” he says. “By utilizing floor-to-ceiling windows that have good solar characteristics, we were able to grow tomatoes in the office, and 2018 will see us growing tomatoes, cucumbers and melons along with lettuces and herbs in specifically-design, ceiling-mounted hanging containers for planting herbs and so forth in the canteen. The planters need to be close to windows so that plants can enjoy the sunlight, but must be earthquake-proof so that they will not swing into the glass and break in the event of an earthquake. There is a growing interest in the work that we have completed in our Tokyo office and we are already in conversation with numerous other offices to include food production installations into the offices.”

The impact

Developments such as those Aragon has introduced all come at a cost. What has been the return?

“Without giving specifics, we have essentially doubled our floor space and headcount over the past two years, but a month-by-month analysis of the power usage for our entire office shows that after the refit, we have an average increase in power consumption of only about 25%,” he says. “This is due to the greater use of low-energy machines, lights and other equipment in the office, along with higher quality insulation in the walls.”

What potential does Aragon see for a similar strategy to benefit offices and other work places in cities in both Japan and around the world?

“Our office is currently in a building that has quite strict restrictions on what can and cannot be done inside the structure,” he explains. “We had a lot of rules that we had to work around and were not able to realize a great many of the additional ideas that we would have like to have incorporated.” Despite this, the design team was still able to purpose-design an office that incorporated many features and benefits that have led to a brighter, cleaner and more sustainable office that is healthier for staff and encourages a more productive environment. “Our success shows what can be done with a lot of restrictions – other offices would certainly be able to replicate a great number of our initiatives if they chose to.” ♥