

A portal into the future

You're in an ordinary building looking through an ordinary window at an ordinary street scene. Someone next to you pressed a button and the glass was instantly overlaid live data: weather forecast, current temperature, and so on. At the next instant, the fully transparent window went opaque.

This device removes the need for curtain rods, pelmets, curtains or blinds while its technology has already shielded the room from sunlight and ensured privacy. It has obvious space-saving benefits in densely populated Hong Kong where every centimetre counts in small flats. What is more important and useful is that the technology behind this high-tech window can be retrofitted to ordinary windows.

This hi-tech window is one of the inventions showcased at Sino Inno Lab in Kwun Tong. The inventions on trial and on display at Sino Inno Lab come from around the world as well as Sino Group's own in-house development. Visitors can see the practical benefits immediately. The lab aims to give Sino Group a significant lead in its core business of developing commercial and residential property.

"Within a minute or two, you'll feel pleasantly recharged. This idea is literally a breath of fresh air," said Daryl Ng, Deputy Chairman of Sino Group. The statement refers to the group's home-grown invention in collaboration with Arup which turns a bus shelter into an oasis filled up with purified air. An invisible but powerful air curtain keeps pollution out while fine suspended particles (PM10 and PM2.5) has been removed from the air pumped into the oasis by using an anti-bacterial, nano-porous filter developed by the Nano and Advanced Materials Institute Ltd in Hong Kong.

The idea for the oasis, known as the City Air Purification System, emerged when senior staff members were working on ways to incorporate high-tech elements to tackle issues in an urban environment.

There's more at Sino Inno Lab. On a wall on one side is a pleasant piece of art; but it has to be something special when being displayed at the lab. "The proprietary coating cleans the air," says Andrew Young, Sino Group's Associate Director (Innovation). "When light shines on the paint, it triggers a photo-catalytic reaction that breaks down nitrogen oxides in the air, making the paint smog-eating." Exterior surfaces of buildings with this paint applied can clean the surrounding air. The mineral-based paint is inorganic and emits no unpleasant smell as conventional paint does.

Caring for the environment is a high priority for the group. Our In-building Hydropower System uses an ingeniously designed turbine to create hydroelectricity output of about 200W from water pressure rated at three bars. The system reduces carbon dioxide emission by about 1.4 tonnes a year – equivalent to the output of 60 trees.

At the lab, visitors can get a glimpse of how latest digital technologies work and think. A screen shows that visitors are being monitored by artificial intelligence. The system correctly

labels visitors as such and spots that a teddy bear is not a person but an object. The system can also instantly label a phone which is held upright.

One may wonder why a property company is investing in an experimental lab. Normally, developers merely focus on two innovation and technology related projects: scale models of buildings and expensively decorated show flats.

Sino Group's experience with the lab suggests that this is a well invested project. There has been a constant queue of people — from scientists to business people and from government representatives to students. The biggest compliment is that other non-tech companies are also looking to set up centres to perform research and showcase innovations on the peripheries of their core products. All buildings have walls, ceilings and floors; but it's the innovations within the structures that people remember as differentiators.

“The key is to identify innovations that genuinely add value to society,” says David Ng, Group Associate Director of Sino Group. The bus shelter brings immediate and genuine benefits to the community, and has already won two invention awards and a design award from international panels. While some of the innovations are gathered from around the world, others, such as the bus shelter, are entirely homegrown.

Another example of a practical innovation for Hong Kong homes is the display of plants in one corner of the lab: edible items which can be grown indoors. In Hong Kong, very few people have gardens, so most wouldn't think of growing their own food. Hydroponic plants grow without the need for soil and are obviously cleaner, but there's a problem: “Hydroponic plants have no taste,” says Andrew Young.

The solution? The plants have been integrated with fish tanks to create a closed bio-system emulating the wonders of earthly nature; as a result, the vegetables grow well and taste delicious. And they are so clean that visitors can pluck some cress from the display and eat it on the spot.

It has become clear that Sino Inno Lab is not just a bonus for Hong Kong. Over the past nine months, an increasing number of overseas visitors have come. The lab has demonstrated an integration of innovations coming from over ten countries and territories.

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