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Q&A John Robinson Mr Sustainability

John Robinson directs the Centre for Interactive Research on Sustainability (CIRS), a hub for sustainability research that opens for business this month in an ultra-green building at the University of British Columbia (UBC) in Vancouver, Canada. Robinson explains the practical challenges involved in turning a campus into a 'living lab'.

What makes the CIRS building stand out in terms of sustainability?

The old agenda of designing buildings that do less damage is not good enough. We have to move on to the net positive agenda: can we construct buildings that actually improve the biophysical and human environment? By adding this 5,600 m² building we will actually reduce the university's total energy use.

How will it do that?

We take waste heat from the Earth and Ocean Sciences building next door, use one-third of it for our heat, and give two-thirds of it back to them. All of the water we get will be from the sky, and it will be treated so that the water leaving the building will be better quality than the rain water. And it's a wooden building, so we sequester more carbon in it (around 600 tonnes) than the amount emitted in its construction and decommissioning (525 tonnes).

What does the building look like?

When you stand in the atrium you see a big screen that displays live information about the building's performance. You can see all the main technologies, from rainwater collection to the photovoltaics. At the front, we have a 'living wall' entirely covered by vegetation: in the summer, the leaves block most

sunlight and in the winter it lets more sun through. Up a floor, you can walk out on to the green roof.

CIRS has been called North America's greenest building, but you say you don't like the label. Why not?

The term 'green' is too narrow. To most people, green means environmental. Sustainability is just as much about social justice and equity as it is about climate change and air pollution.

What are the social science aspects of this project?

The goal is to turn the occupants into inhabitants who have a sense of engagement with the building. We're going to ask everyone working there [about 150 people] to sign a sustainability charter in exchange for high air quality, individual control over air flow at the desks and access to daylight everywhere. We'll measure their health, happiness and productivity for years.

You also aim to prove that building in a green way is affordable. Is it?

Originally we thought that CIRS would cost only 8% more than the minimum standard building we're allowed to construct at UBC. Unfortunately it is more like 25%. We started

two months late, and ran into problems with rain — we had to build an extra roof during construction and bring in machinery to dry the wood. On the total cost over, say, 25 years, with all the energy savings it should be about even.

The concept for this building was born in 1999. Why has it taken so long to get built?

Anything sustainable keeps running up against the building code, or a health and safety regulation, or even 'that's not the way we do things'. We're not just talking about changing a technology, it's about changing our whole socioeconomic trajectory.

What obstacles did you hit?

We had to demonstrate that we could build this out of wood and it wouldn't be a fire hazard. One way they test this is to simulate how fast the building can be evacuated and how fast fire trucks can get there. Someone said, 'Wait a minute — weren't we talking about having water storage for the rainwater? Why can't we use that?' It eliminated our problem. We also used a lot of pine-beetle-killed wood. That's a huge issue in British Columbia: last year the dead wood released more carbon than the province's anthropogenic emissions. However, that may end up costing us a sustainability point. The wood isn't Forest Stewardship Council certified; it's clear-cut. We've been arguing for an exemption. But so far that hasn't been granted.

The UBC sustainability initiative, which you direct, aims to cut net carbon emissions by 67% by 2020, and by 100% by 2050. How?

We arrange for companies to use the campus as a test bed for innovative technologies. But ultimately it's about integrated systems. We need to treat our campus as a living lab, and build more than a smart grid. We need a smart energy system that includes all sources and uses of energy — from waste to food.

How important is it for universities to act?

Every university on the planet has a moral imperative and a strategic opportunity to use their facility as a test bed. UBC is a large area with a single owner, we have our own utility systems, we teach and do research, and we're public, so we can take risks and be forgiving about whether we get payback. Also, it's exciting to see what can be done on the community or neighbourhood scale.

What is the biggest lesson you have learned?

Three years ago I wouldn't have believed I could have the job I have now. It happened lightning fast; it's the old story of the overnight success that took 20 years. Ideas that seem crazy and impossible can become 'of course'. That gives me hope. ■

INTERVIEW BY NICOLA JONES