Information Release

Chilco Park is going to be the first building in the world to install a Sundownloader.

A Sundownloader is a non-moving convex mirror, so shaped as to always present a downward-sloping surface towards the sun, no matter where the sun is in the sky. Morning, afternoon, evening; spring, summer, autumn and winter.

The patented invention of Professor Emeritus Tom Boyde, it has been developed over 5 years of design and model testing. The first working production-scale prototype is being assembled in London now, and will soon be shipped to Vancouver.

The mirror, roughly semi-circular in appearance, will be installed at the edge of the lift shaft roof, facing due South. It has been designed specifically for our courtyard.

A Sundownloader, in short, will always reflect downwards any light reaching it, whether that is direct sunlight, or merely the brightest patch of the sky when Vancouver is enjoying its usual climate.

As things stand, direct light, no matter the time of year, never reaches ¾ of our courtyard, even on the longest day of the year, when the sun is highest in the sky. In the winter, no light at all hits the courtyard garden. It is dark, damp and dull.

The Sundownloader, if it works as we expect, will change that. A little. The mirror is perhaps 2 sqm in surface area, and our courtyard is about 65 sqm. The mirror is convex - ie, it spreads the light out. When it comes to sunlight, however, a very little extra can make a considerable difference. A difference to amenity - the space will feel brighter - and a change to horticulture too. Many plants respond very well indeed to small incremental increases in light, and we hope to see our courtyard garden responding well, and perhaps supporting plants that do better in less gloomy conditions.

There are three elements to this experiment.

There is a time-lapse camera on the roof, pointing downwards at the courtyard garden. This will photograph the passage of the light every day, telling us when it was dark, raining, bright, or sunny. It will also, over time, show how things are growing.

There are 5 professional research standard PAR light meters in the courtyard. These measure Photosynthetically Active Radiation. That is, light in the form that plants actually use. Plants, generally, absorb red and blue light, and do not absorb green and yellow light much, (which is why we perceive plants as green). This data is logged every minute, 24 hours a day, and allows us to provide hard data not just about the light reaching the courtyard floor, but also the quality of the light, from a horticultural perspective.

There is the mirror itself. It will be supported on a purpose-built beam, clamped to our roof, (so that there is no need to make holes in anything), designed by the same people, I3 Building Science and Construction, who are Strata's structural consultants. Work on this will commence soon. The mirror is made of a lightweight aluminium cladding panel and weighs less than 20kgs, including its framework.

I have provided written undertakings to Strata and Council that I will be responsible for all the costs of this experiment, including removing everything when it is concluded, repairing any and all damage, however caused (although none is anticipated at all), and they have been kind enough to grant me permission to proceed.

I have also offered to donate the Sundownloader to the building should the experiment prove a success and the owners as a whole agree later on that they want to keep it.

We expect a certain amount of scientific and architectural interest in this project, and I am very happy to explain it in more detail to anyone who may be interested.

There is, naturally, a website, and there are pictures and movies to look at and think about.

The Design for the mirror was put together by Mamou-Mani Architects, London. The mirror is being built by Fab-Pub Fabricators, London, and will be installed under the supervision of I3. The lightmeters are Apogee SQ500s

