

### Living Roof Garden

#### **What the innovation is:**

Our innovation project of Living Roof Garden has successfully created an oasis at the Densest Populated Area of the world – HSBC Mongkok Headquarter in Hong Kong. This innovative adoption of our in-house developed and existing environmental technologies has infused an excellent green environment and perfect ecological balance in this desert.

#### **Why it is innovative:**

The main features of this Living Roof Garden are the integrations of sustainable technology that include:

- Innovations of Environmental Technologies – recyclable energy, green roof, vertical greening, and chillers water reuse for harvesting, recycled materials for decking.
- Sustainable Development
- Carbon Neutral – practice balance carbon dioxides released into atmosphere with renewable energy and green roof.
- Stress Relief – provides aesthetic and Green Therapy upon viewing.
- Awareness of social responsibility – Cooperate with Hong Chi Association to provides job opportunities for youth with mental handicap

#### **What it changed or replaced:**

The innovative ideas of this project are the integration of different environmental technologies. The application of solar energy, roof greening, chillers water reuse, and use of wood plastic composites together is a superior example of environmental education to the public. Environmental technologies that applied not only help to solve carbon production problem, it also helps to solve problems of water shortage, lack of greening in urban area and waste production in daily life. This innovative project not only helps to solve severe environmental but also offer public excellent ideas of environmental protection and awareness of the rise of social issues.

#### **Where and when it originated, has been used, and is expected to be used in the future**

Living roof concept has been widely use in Europe for the 20 years. However, Integration of different environmental technologies and green roof was introduced by our company last year, 2007 to HSBC Hong Kong. The project was completed in November last year. It is expected to become a popular innovation in Hong Kong and Asia. Since then many corporation and developers are interested and seeing the advantages of living roof and sustainable design solution especially in the busiest city centre.

#### **If the nomination is for an innovative project, specifically identify its innovations**

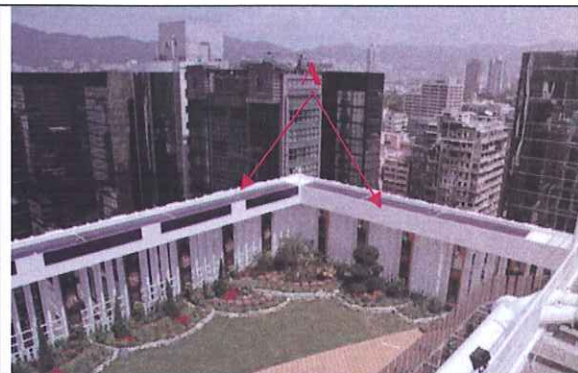
The innovations of this sustainable Living Roof Garden including:

- Renewable Energy – the combination of Thin Film Photovoltaic Panels and Grid Direct Connected system for the trade off of the power consumption at the Roof Top for lighting, irrigation system and pumping. Grid-connected inverter will collect and supply the electricity to the building.
- Green Roof is the component of this project, where the roof covered by 88% of greening. There are extensive and semi intensive green roof in this project.
- Replaceable box type and wire panel cladding type vertical greening covers 65 m<sup>2</sup> of vertical area of the roof top.
- Chillers Water Reuse for Harvesting produces 40.7 m<sup>3</sup>/month which adequately cover the water usage for planting that needs about 16.2 m<sup>3</sup>/month.
- Wood Plastic Composites decking, and furniture made of 50% of waste wood chips and 50% PE is one of the main recycled materials with a longer duration life compared to traditional wood plastic.
- Cooperate with Hong Chi Association which dedicated solely to serving people with mental handicap by assigning maintenance program like nursery of the plants are done by the youths with mental handicap.

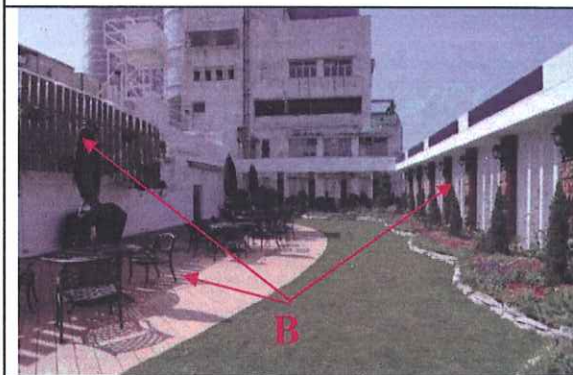




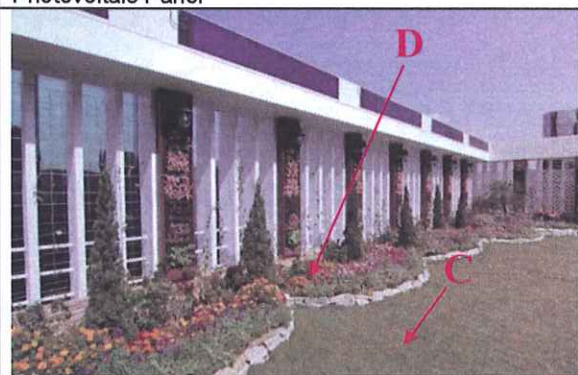
Appearance of roof top before the project



Day view of completed Living Roof Project  
Indicator A: Renewable Energy – Thin Film Photovoltaic Panel



Indicator B: Decking, decoration and vertical green box's frame made by Wood Plastic Composites.



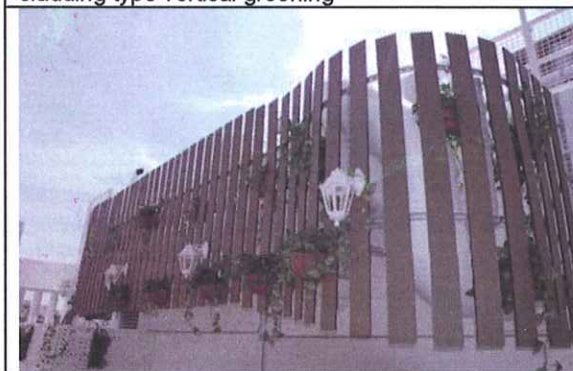
Indicator C: Turf green roof as extensive green roof  
Indicator D: Planter area as semi-intensive green roof



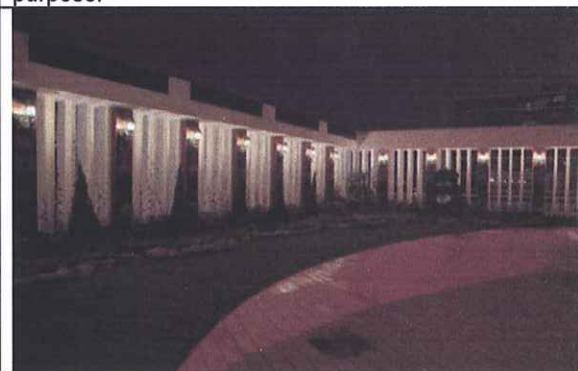
Indicator E: Replaceable box type and wire panel cladding type vertical greening



Chillers Water Reuse for Harvesting – for irrigation purpose.



Hanging Wood Plastic Composite to cover up the chillers pipe



Night View of completed living roof