



Skyrise Greenery Award 2012 - Project Presentation

Project: The Hong Kong Jockey Club Headquarters

“Our Green Place”



Reduce Carbon Footprint !
3R (Reduce, Reuse, Recycle)



香港賽馬會
The Hong Kong
Jockey Club

Board Presentation

Our Green Place 綠之源

70% Materials are 3R's 7x3R 5x4

- Water-Proofing Material: 80% Recycle Plastic in PVC Sheet
- Energy Roof Material: 80% Recycle PVC
- Energy Wall Material: 80% Recycle Plastic
- Energy Floor Material: 80% Recycle Plastic
- Eco Timber: 70% 100% Recycle Wood, 30% Recycle Plastic
- Tree Planter on Wall: 100% Recycle Wood, 40% Recycle Plastic
- Lighting: 100% LED
- Solar Energy Timer: 100% Recycle Plastic
- Solar Lamp: 100% Recycle Plastic
- Solar Irrigation Timer: 100% Recycle Plastic
- Green Roof Material: 100% Recycle Plastic
- Wind Turbine: 100% Recycle Plastic
- Solar Panel: 100% Recycle Plastic
- Solar Lamp: 100% Recycle Plastic
- Solar Irrigation Timer: 100% Recycle Plastic
- Raised Tires: 100% Recycle Plastic

Renewable Energy + Recycle Material + Water Collection

Eco Features

- Temperature Sensor
- Solar Panel
- Solar Lamp
- Solar Irrigation Timer
- Raised Tires

Cooling Effect of Green Roof Layer reduce 2-4 °C throughout the day

High Tolerance Green Roof Plants

Plants are selected to have ability to live throughout of dry and high condition. They are able to handle the high temperature and drought.

The benefits of green roof were seen in terms of its environment, water and environmental issues. It not only provides cooling and water reuse for people, it also enhances ecological value, improves air quality and provides other high-level effects. Green roof is an innovation through nature to provide the best life quality. This innovation increases not only the ability to reduce the water temperature, but also the ability to reduce the amount of energy consumption for an environment.

Reduce Carbon Footprint & Sustainable

Layout Plan

Location

Project Information

Project Name: 綠之源 / Our Green Place

Project Location: The Hong Kong Jockey Club Headquarters

Greening Size:

- a. Green roof garden - Approx 350m²
- b. Green wall - Approx 20m²
- c. Eco- timber - Approx 135m²

Design Objectives

- a. Reduce carbon footprint by using as much recycled materials or environmental friendly products as much possible
- b. Be 3R (Reduce, Reuse and Recycle)
- c. Combination of green roof and green wall design
- d. Made use of the existing gondola rails by installing a removable Eco- timber deck.
- f. To ensure enough loading and good waterproofing works
- g. Maintenance must be as low as possible by selecting appropriate species
- h. Make good use of space
- i. Green promotion
- j. Reduce Roof temperature

Special Features

Recycled Materials:

- a. Waterproofing materials: PVC sheet 65% recycled (plastic)
- b. Green roof materials: 80% recycled (plastic)
- c. Green wall materials: 80% recycled (plastic)
- d. Eco-timber : 75% recycled (35% wood, 40% plastic)
- e. Tires planters on wall: 100% old tires (21 nos)



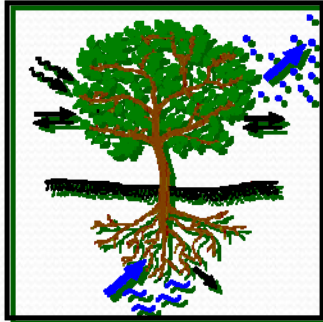
Renewable Energy:

- Irrigation system: All solar energy timer
- Lightings : Solar lamps and Wind Power
- Temperature sensor: Monitoring temperature different

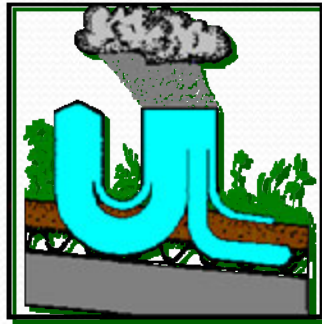


LEED certification
Potential Points 1- 4.

Environmental Advantages



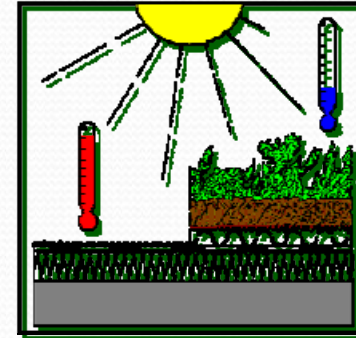
Oxygen Release



Water Retention



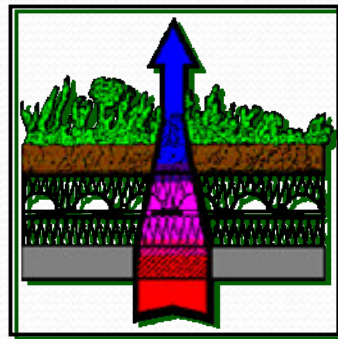
Noise Reduction



Heat Reduction



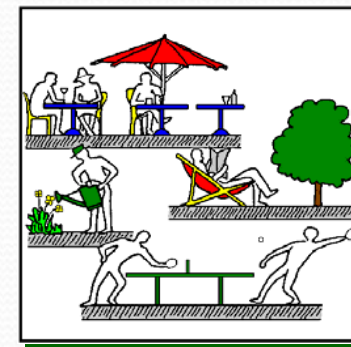
Dust Reduction



Save of Energy



Wildlife Attraction



Use of Space

LEED certification
Potential Points 1- 4.

Type of Green Roof Systems

Layon Type



1. Root Barrier

2. Protection Mat

3. FD 25 Drainage Board

4. Filter Sheet

Modular /Tray Type



1. ML125 Modular System

80% Recycle Materials

Important Factors

- **Loadings**
- **Waterproofing**
- **High Drainage Capacity**
- **Wind Uplift and Green Roof Edge**
- **Correct Plants and Substrates**
- **Insects**
- **Low Water Consumption**
- **Simple Irrigation System**
- **Maintenance (Weeds Control)**

Loadings

0.75kPa – Type A

1.3kPa – Type B

1.8kPa – Type C

Inorganic /Soilless -Planting Medium



Crushed Bricks



Lava

Mixture of Crushed Bricks & Lava

Sedum

Inorganic /Soilless - Planting Medium



Crushed Bricks



Peat Moss

Mixture of Crushed Bricks & Peat Moss

Sedum ,Turf & Ground Covers

Organic - Planting Medium



Soil



Peat Moss

Mixture of Soil & Peat Moss

Ground Cover, Turf ,Shrubs & Trees

Substrates Height. 100mm

Waterproofing

Membrane Type



Liquid Type



Booth O.K ! Absolutely no nailing on Green Roof!



Drainage Capacity

FAST DRAINAGE as possible!

Drainage Capacity

0.75kPa – Type A



FD 25 Drainage Board or Modular ML-125



+



Crushed Bricks

+



Lava

Fast

Excellent

1.3 kPa – Type B



FD 25 Drainage Board or Modular ML-125



+



Crushed Bricks

+



Peat Moss

Fast

Excellent

1.8 kPa – Type C



FD 25 Drainage Board or Modular ML-125



+



Soil

+

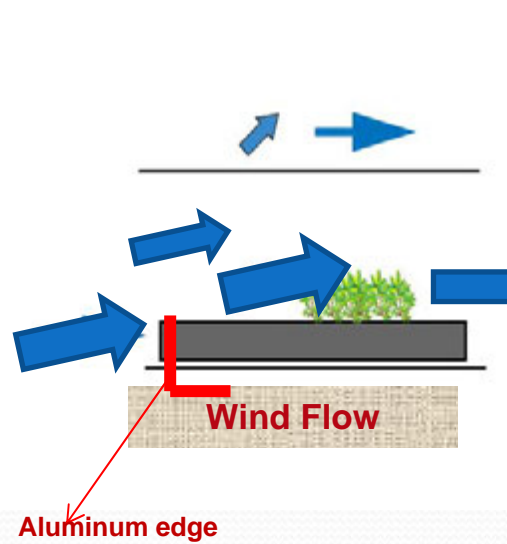


Peat Moss

Relatively Slow

Acceptable,
Chance of
overflow if
severe rainfall

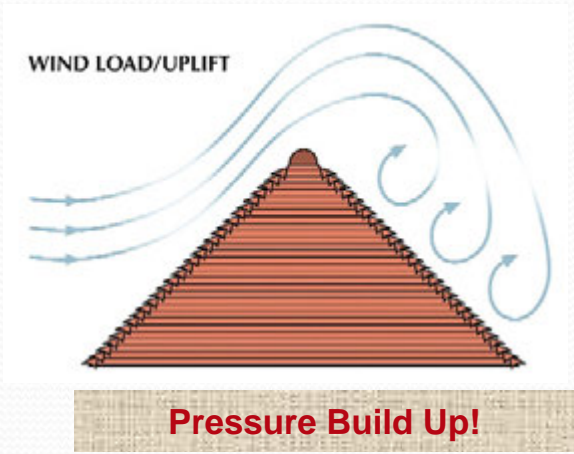
Wind Uplift



Simple Solution



Aluminum Edge Prevent Pressure Build Up!



Inspection Chamber for Rain Outlet Protection














Aluminum Edge

Correct Plants and Substrates

0.75kPa – Type A

1.3kPa – Type B

1.8kPa – Type C

 <p>Crushed Bricks + Lava</p>	 <p>Crushed Bricks + Peat Moss</p>	 <p>Soil + Peat Moss</p>
 <p>Sedums</p>	 <p>Sedums</p>	 <p>Ground Covers</p>
 <p>Ground Covers</p>	 <p>Ground Covers/ Shrubs</p>	 <p>Ground Covers/ Shrubs/Tress</p>
	 <p>Turf</p>	 <p>Turf</p>

Insects

0.75kPa – Type A

1.3kPa – Type B

1.8kPa – Type C



+



Crushed Bricks

Lava

Major Insects



+



Crushed Bricks

Peat Moss

Major Insects



+



Soil

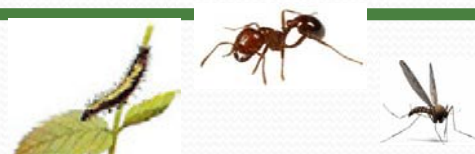
Peat Moss

Major Insects



Chances

Mosquito - Low Chance
Fire Ants - Low Chance
Caterpillars - Low Chance



Insects

Mosquito - Low Chance
Fire Ants - Low Chance
Caterpillars - Low Chance



Insects

Mosquito - Low Chance
Fire Ants - **High Chance**
Caterpillars - Low Chance

Low Maintenance With Least Water Species Used



1. 鋪地臭金鳳
Lantana montevidensis



2. 花葉蒲草
Liriope spicata
'Variegata'



3. 蚌花
Rhoeo discolor



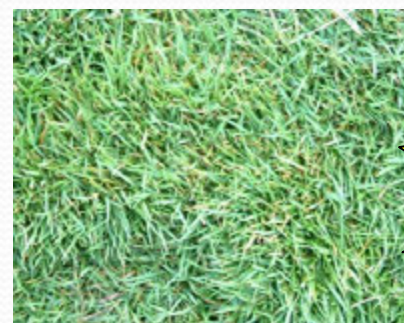
4. 風雨蘭
Zephyranthes candida



5. 腎蕨
Nephrolepis auriculata



6. 長葉蒲草
Ophiopogon japonicus



7. 朝鮮草
Zoysia japonica

Average Water
Consumption
2L/m² /week !

Low Water Consumption and Simple Irrigation

1. Irrigation as simple as possible
2. Water as little as possible



Control Panel



Rain Sensor



Sprinklers



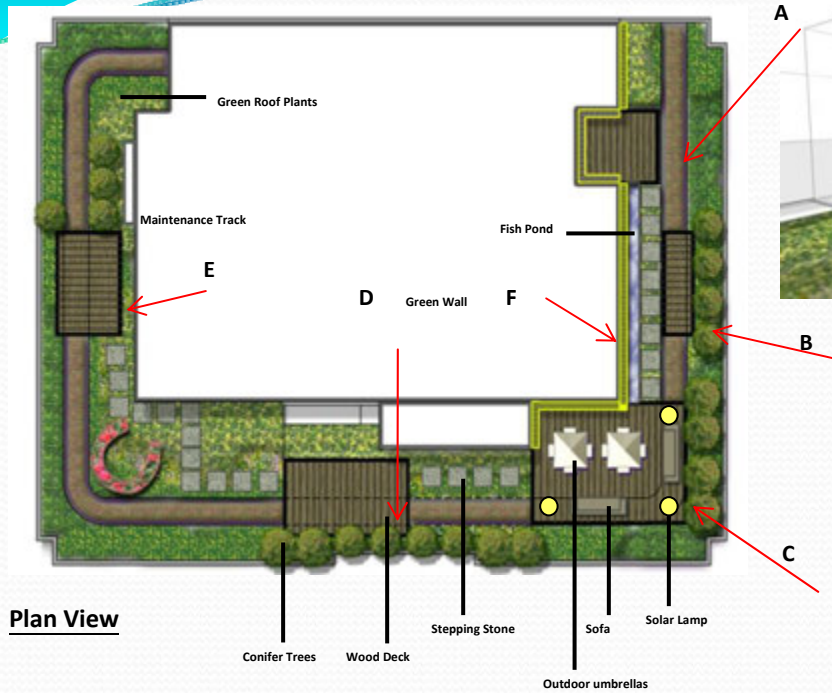
Solar Timer



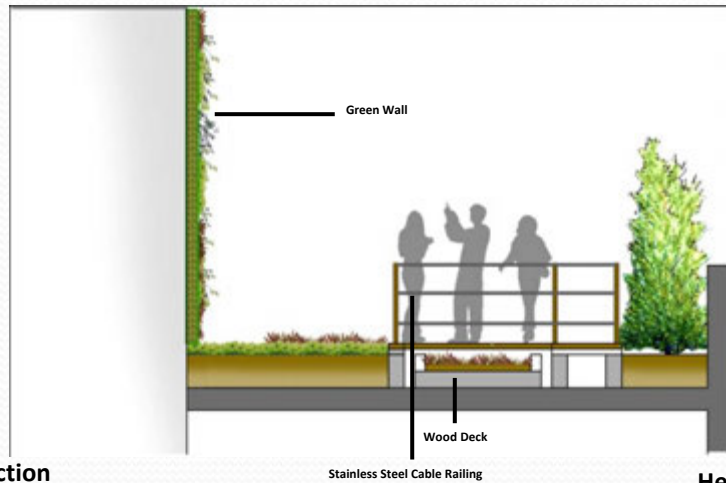
Valves



Design Proposals



Plan View



Section



Green Wall

Extensive Green Roof Plants



金葉佛甲草
Sedum lineare
"golden teardrops"



松葉牡丹
Portulaca grandiflora



山菅蘭
Dianella ensifolia



蚌花
Rhoeo discolor



佛甲草
Sedum lineare



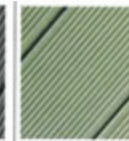
虎尾蘭
Sansevieria trifasciata



Decking 地板



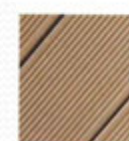
Color Code: CW-KW-C08
Granite 麻石黑



Color Code: CW-KW-C09
Olive Green 橄欖綠



Walkway 人行徑



Color Code: CW-KW-C21
Cedar 紅雪松



Color Code: CW-KW-C22
Brown 古巴城

Eco-Timbers



Solar Lamp



Roof Farming Area



Paver



Conifers



Green Roof Area
(Planted with Grass Acrospora compressa)



Ophiopogon japonicus

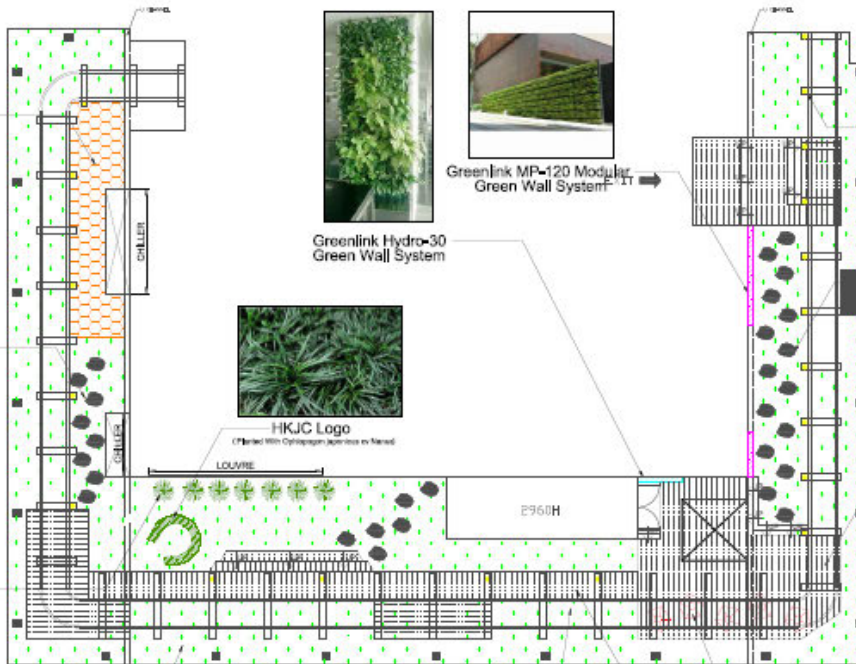


Nephrolepis cordifolia



Ophiopogon jaburan

Planting Under Gondola Rail



Greenlink Hydro-30 Green Wall System



Greenlink MP-120 Modular Green Wall System



Solar Light



Paver



Eco-Decking



Furnitures



Timber Paver

NO.	DATE	REVISION	BY
1	2011-11	FOR COMMENT	
2	2011-11	FOR COMMENT	
3	2011-11	FOR COMMENT	

LANDSCAPE ARCHITECT	DATE	TIME
DESIGN	2011-11-02	14:11:53
CHECKED	2011-11-02	14:11:53

Client: _____
Contract No: _____
File No: _____
Project No: _____
Contract: _____

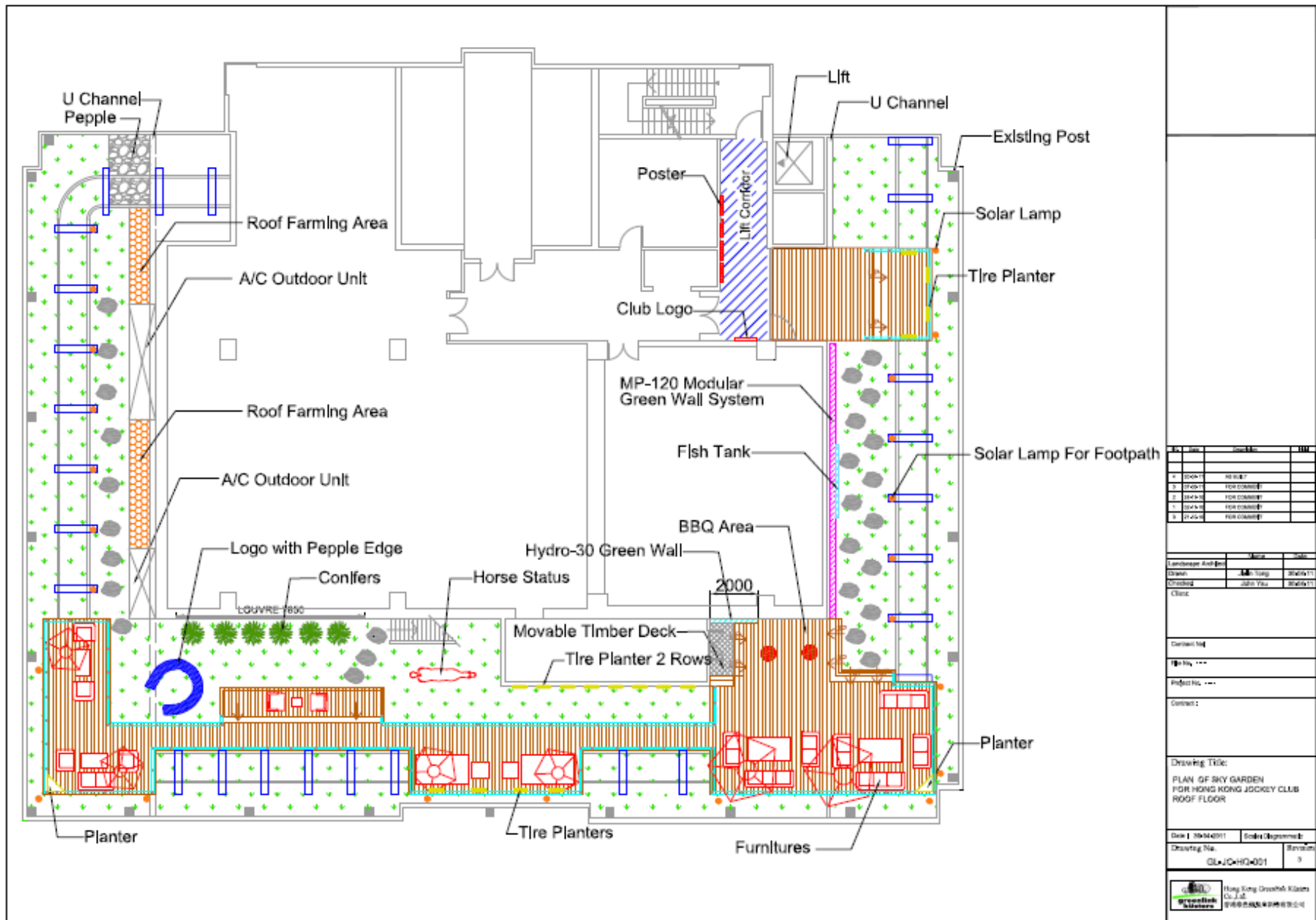
Drawing Title:
DESIGN DRAWING OF GREEN GARDEN INSTALLATION FOR HONG KONG JOCKEY CLUB ROOF FLOOR

DATE	SCALE	DEPARTMENT
2011-11-02	1:1	LANDSCAPE

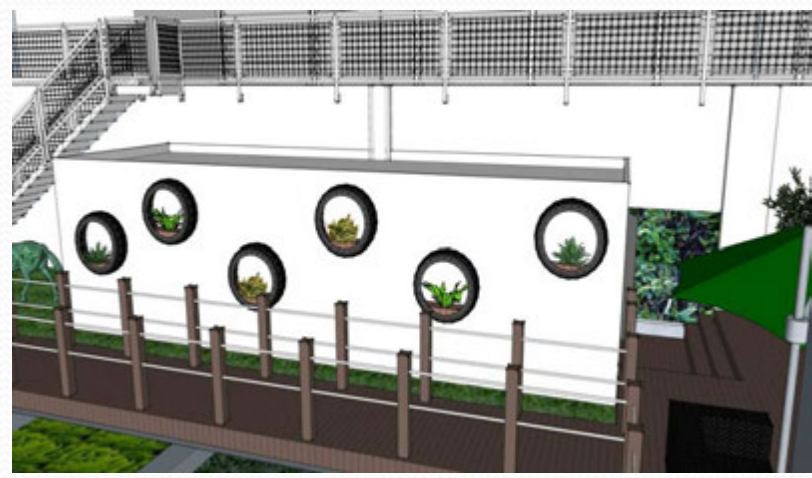
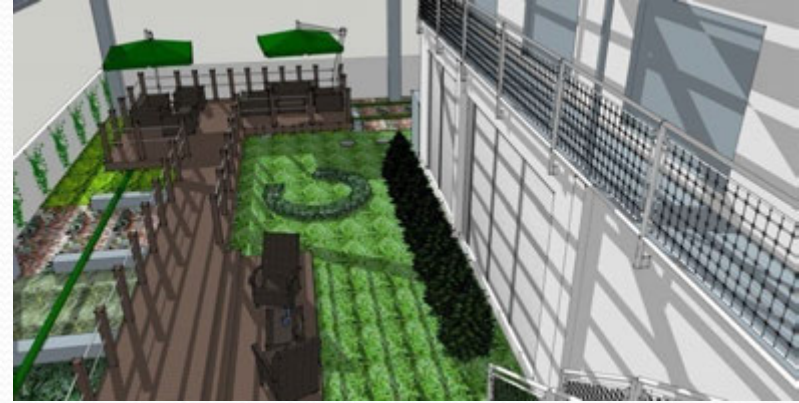
Drawing No: GL-JC-DESIGN-001
 Date: 2011-11-02
 Scale: 1:1
 Department: LANDSCAPE
 Project: HONG KONG JOCKEY CLUB ROOF FLOOR
 Drawing Title: DESIGN DRAWING OF GREEN GARDEN INSTALLATION FOR HONG KONG JOCKEY CLUB ROOF FLOOR

(Design Proposal)

As Built Drawing



Prospective Drawings



Before Greening



Construction Works



Waterproofing Works



Green Roof System Installation



Soiling



Eco-Timber Installation



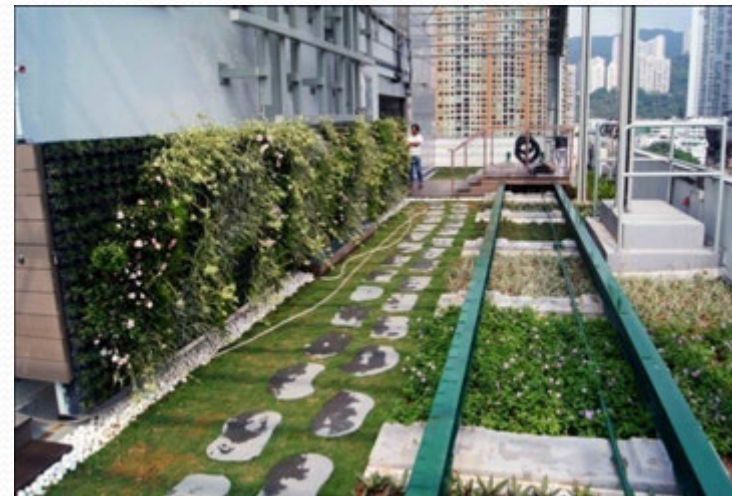
Plantings

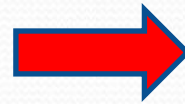
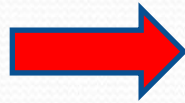


Vertical Green Wall- Sub frame



Vertical Green Wall

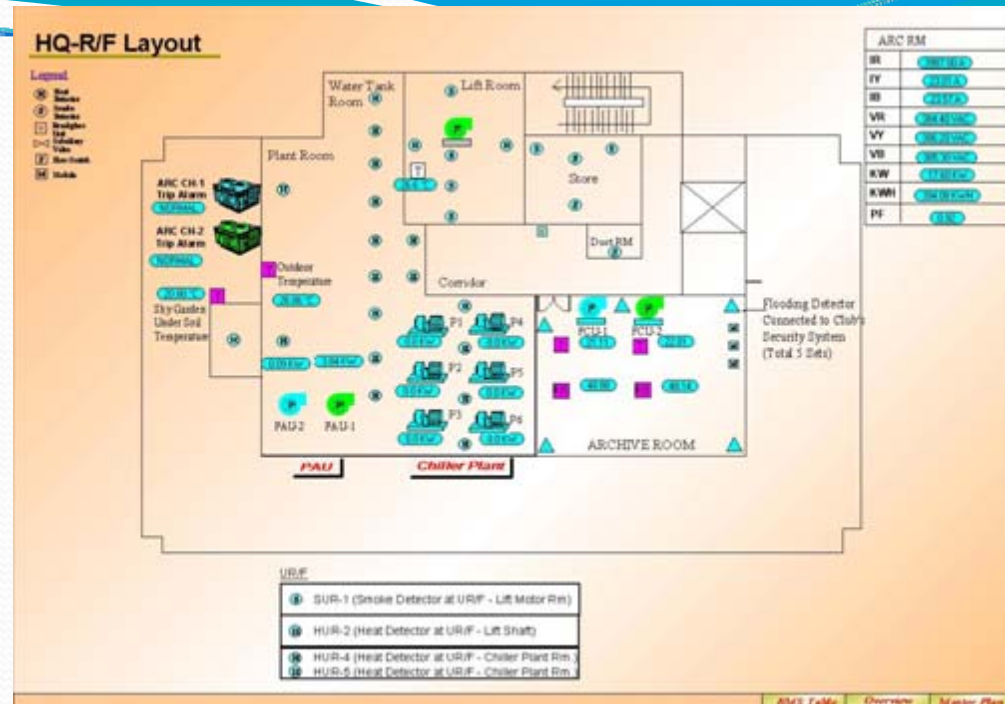




Completion

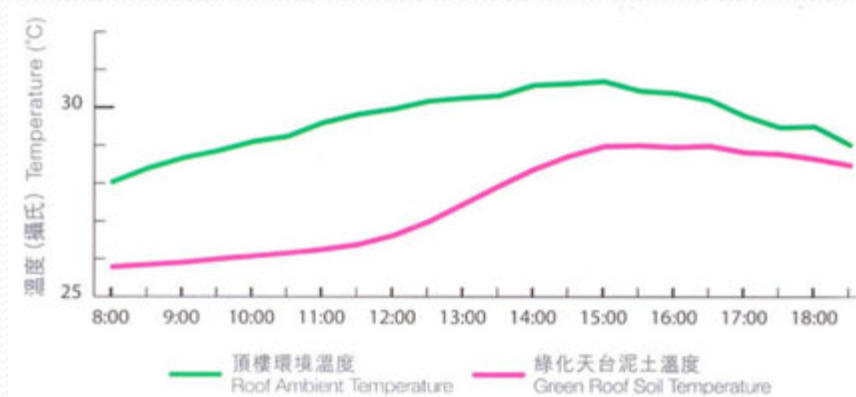


Temperature Sensor



Sensor Monitoring

So Cool!
Average 4C ° drop!





Green Promotion - Open Day for

The Hong Kong Chapter of The International Facility Management Association (IFMA)



Client Group Photo



**End and Thank
You!**