

BACFREE – Rainwater Harvesting System

AGRICULTURAL AND FOOD ENGINEERING TECHNICAL DIVISION



by *K. Yong Hong Liang*

THE Agricultural and Food Engineering Technical Division of IEM organised a technical visit to Bacteria Free Water Engineering Sdn Bhd (BACFREE) in Subang Jaya Industrial Estate on 23 March 2013. Thirty people took part in this technical visit.

BACFREE was established in 1982 to supply water filters and waste water solutions. In 2007, the company ventured into rain water harvesting (RWH) and was appointed the Malaysian and Singaporean partner for WSY AG of Germany, a leading manufacturer of RWH systems and accessories in the world.

BACFREE technical director Dr Chee Chung Yee introduced us to the background of the company and told us that its RWH system customers included Pavilion, Bangsar Shopping Mall, IJM, Mah Sing, Sime Darby and Petronas. There are many advantages in using RWH such as:

- a. Reduces household water bills. The system provides water for non-portable purposes such as flushing toilets, laundry, landscape irrigation and car washing.
- b. Provides an alternate water supply during water rationing or supply interruption.
- c. Enhances the value of a property.
- d. Reduces storm water runoff, thus mitigating the possibility of flash floods.
- e. Being chlorine free, it is excellent for watering the garden and filling up ponds.
- f. As a main water source in rural areas where there is no supply of tapped water.

Dr Chee pointed out that the BACFREE RWH system design is compliant with the following guidelines:

- a. Rainwater Harvesting Guidebook by DID Malaysia.
- b. British Standard BS 8515:2009 Rainwater Harvesting System – Code of Practice.
- c. German Standard DIN 1989-2001-10 Rainwater Harvesting System – Part 1: Planning, Installation, Operation and Maintenance.
- d. Warta Kerajaan Negeri KPKT.
- e. MSMA, 2nd edition.



Commercial RWH filter demonstration by BACFREE



Residential RWH filter demonstration by BACFREE

f. DBKL and MPK guidelines.

At present, in Selangor, Perak and Kuala Lumpur, any new residential property development of minimum 100 m² roof area is required to install a proper designed RWH system. This applies to commercial buildings and factories as well.

Dr Chee said the WISY RWH filters have a "4 steps system" as below:

- a. Self-cleaning: FS first flush filter collector. Fits into a single downpipe.
- b. Smoothing inlet: Calming down flow to low speed when rain water enters the tank.
- c. Floating suction filter: Second filtration.
- d. Multifunction overflow: Skims off floating particles from the water surface in the tank.

Besides these, Dr Chee said, the RWH system maintenance will ensure that the system is always in good condition. Several water parameters to be examined are turbidity, colour, hardness, TDS, Coliform and pH. He also briefed us on the information needed for designing a RWH system, such as water demand, roof catchment area, days of storage, annual rainfall and intensity.

After the presentation of an IEM token of appreciation to Dr Chee, the participants were treated to nasi ayam penyet for lunch. The technical visit concluded with a project reference site visit to Nadayu 28, Sunway. ■

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