



HALF DAY COURSE **ON**

“WHY CURRENT RAINWATER HARVESTING SYSTEM (RWHS) SOMETIMES **FAILED TO PERFORM TO EXPECTATIONS”**

{HRDF Claimable}

SPEAKER ;
Ir. GARY LIM ENG HWA

Date : 12TH OCTOBER 2020 (Monday)
Platform : VIRTUAL Course via ‘ZOOM Platform’
Time : 9.00 a.m. – 1.00 p.m.

BEM Approved CPD/PDP Hours: 3.5
IEM20/HQ/167/C(w)

FIRST-COME-FIRST-SERVE-REGISTRATION
LIMITED TO NINETY SEVEN PAXS ONLY (97)



Closing Date: 07TH OCTOBER 2020

NO online registration will be allowed after the Closing Date

Organized & Hosted by:
Building Services Technical Division (BSTD), IEM

Cancellation Policy

No cancellation will be accepted prior to the date of the event. However, replacement or substitute may be made at any time with 7 days prior notification and substitute will be charged according to membership status.

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For intending participants who choose to ‘walk in without prior registration’,
IEM SHALL NOT be responsible for any direct or consequential losses”.

SPEAKER



Ir. GARY LIM ENG HWA
BE(Mech.) NZ, Mgt Dip. FIEM, P.Eng, Asean Eng.

Ir. Gary Lim is a committee member of the BSTD of the Institution of Engineers, Malaysia. He has a degree in Mechanical Engineering from the University of Canterbury, He is a Professional Engineer registered with the Board of Engineers, Malaysia and a Fellow of the Institution of Engineers, Malaysia. Currently, he conducts courses regularly on the concepts and design in the area of Fire Engineering, Plumbing and Sanitary systems at IEM.

SYNOPSIS

Generally speaking the conceptual aspect of any building comes from the Architects and if their design and facade deviate from the norm, these are called creative with imagination. However if an Engineer makes similar deviation from the norm, often it would NOT be agreeable because it is does not look right. This is the reality often faced by Engineers.

Take the example of the design of Rainwater Harvesting System (RWHS) which can be a contributing factor towards SUSTAINABLE Development Goal (SDG) 6 Clean Water and Sanitation, the design and selection of gutters and downpipes of RWHS is the work of the Architect and unlikely to be changed. Engineer's role is to determine the RWHS storage capacity! If Engineer offers RWHS design using GRAVITY feed system which is feasible, sustainable and economical is to be introduced then the FACADE will be changed to cater for this concept. Most Architects, Government agencies and even owners would frown on the change of the norm with RWHS storage tanks exposed instead of being inside the building. Often the call to THINK OUT OF THE BOX, sad to say many are still LIVING IN THEIR BOXES!

Basic concept of RWHS is the collected rainwater is to SUPPLEMENT the available TREATED water. (Supplement – something added to complete a thing, supply a deficiency OR reinforce or EXTEND a whole). In this respect there is a major flaw when the tank size is based on average rainfall per day without considering the instantaneous heavy downfalls. The focus should be on the available SPACE to store the rainwater. It is the norm that Treated water is being used in the sanitation system to flush toilet and this is a severe waste of resources of treating the raw water, it gets flushed into the toilet. Furthermore such practice of using TREATED water to flush toilet is NOT sustainable but is the norm. Medical journal often mentioned that a healthy person should consume 8 glasses of TREATED water equates to be about 2 litres a day whilst at the same time would flush 18 liters down the toilet; this ratio clearly shows it is NOT sustainable. Rainwater collected using a GRAVITY feed system to SUPPLEMENT TREATED water is a sustainable because after EACH rainfall the storage tanks are either refilled or being topped up.

Rainwater Harvesting System (RWHS) has been made mandatory in the UBBL 2012 since 23rd May 2011 with the objective of REDUCING the use of treated water for toilet flushing but often harvested rainwater is used for landscape ONLY. There are guidelines to design RWHS but the various systems proposed are NON sustainable because it is difficult to service and to have "clear" water for toilet flushing. The major weakness is the buildup of sludge and without facilities to remove the sludge the system becomes inoperable. The use of water pump with various controls would create nightmare for the layman when the system malfunction since all moving equipment will eventually fail and requires maintenance or repair.

RWHS can be a very simplified and economical system yet reliable if designed purely on gravity feed with sedimentation tanks to allow sludge to settle which is to be drained to the garden regularly however the FAÇADE of the building has to be changed to cater for this concept! RWHS Gravity system is very cost effective BUT is not emphasized in all the RWHS guide books published instead use of pumps with controls advocated which is NOT sustainable on the long run.

In 1999, the Ministry of Housing and Local Government has produced a Guideline on Installing a Rainwater Collection and Utilization System. In support of the Government's interest in rainwater harvesting, NAHRIM through collaboration with other government agencies such as Department of Irrigation and Drainage (DID), Department of Local Government, Universiti Teknologi Malaysia (UTM), Universiti Sains Malaysia (USM) and Universiti Malaya (UM) is currently pursuing R&D on rainwater harvesting focusing on hydrologic and hydraulic design, system design and performance, installation and operational costs and water quality aspects. (NAHRIM Website).

SDG6: Clean Water and Sanitation - The NON Sustainable ways

- To find more raw water sources, damage to environment
- To change the users' habit on "abuses" takes a long time
- Toilet and urinal flushing, at times insufficient due to cost element

Use of Gravity feed Rainwater Harvest System (RWHS)

- Design concept of RWHS and OSD, combination for effectiveness
- Sustainable and maintainable RWHS

PROGRAMME

Time	Topics
9.00 a.m. – 9.10 a.m.	Welcoming & Introduction
9.15 a.m. – 10.30 a.m.	Session 1
10:30 a.m. – 10.40 a.m.	Break Time
10.40 a.m. – 12.20 p.m.	Session 2
12.20 p.m. – 12.30 p.m.	Break Time
12.30 p.m. – 1.00 p.m.	Question & Answer Session End of Seminar

For further details, kindly contact:

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REGISTRATION FORM

HALF DAY COURSE ON
"WHY CURRENT RAINWATER HARVESTING SYSTEMS (RWHS)
SOMETIMES **FAILED** TO PERFORM TO EXPECTATIONS"
12TH OCTOBER 2020 (Via ZOOM PLATFORM)

REGISTRATION FEE : 6% GST EFFECTIVE 01ST MARCH 2019 (HRDF Claimable)

	Online Fee	Normal Fee
Student Member	RM 40.00	RM 50.00
Graduate Member	RM 75.00	RM 90.00
Corporate Member	RM 125.00	RM 150.00
Non IEM Member	RM 240.00	RM 300.00

No	Name(s)	Membership No.	Grade	Fee (RM)*
SUB TOTAL				
+ 6% SST				
TOTAL PAYABLE				

PAYMENT DETAILS :

Cash RM _____

Cheque No. _____ for the amount of RM _____ (non refundable) and made payable to
"THE INSTITUTION OF ENGINEERS, MALAYSIA" and crossed 'A/C Payee Only'. Bank Account No. : 640320010020215,
Bank Name: Alliance Bank Malaysia Berhad. (SHOULD PAYMENT IS MADE, KINDLY EMAIL THE 'BANK-IN-SLIP' TO IEM FOR VERIFICATION BEFORE THE EVENT FOR EASY REGISTRATION)

FULL PAYMENT must be settled before commencement of the seminar, otherwise participants will not be allowed to enter the hall. If a place is reserved and the intended participant fails to attend the course, the fee is to be settled in full. If the participant failed to attend the course, the fee paid is non refundable. The Registration Fee includes lecture notes, refreshment and lunch.

For **ONLINE REGISTRATIONS**, please note that payment **MUST** be made **BEFORE the closing date**. If payment is not received within the stipulated time, the registration fee will be reverted to the normal registration fee.

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- Payment via CASH / CHEQUE / BANK-IN TRANSMISSION / BANK DRAFT / MONEY ORDER / POSTAL ORDER / LO / WALK -IN will be considered as NORMAL REGISTRATION
- The Organising Committee reserves the right to cancel, alter, or change the program due to unforeseen circumstances. Every effort will be made to inform the registered participants of any changes. In view of the limited places available, intending participants are advised to send their registrations as early as possible so as to avoid disappointment.