Report on the Public Colloquium on 'Public Toilet Design and Technology'

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Since 2004, the IEM Standing Committee on Corporate Affairs has been organising regular public colloquia dealing with issues of public interest as a means of reaching out not only to IEM members but also the community at large; i.e. how the application of Engineering, Technology and Innovation (ETI) has contributed to making a better living environment for the community.

The latest IEM Public Colloquium (the 9th in the series) took place on 10 November 2007 (9.30 a.m. to 1.30 p.m.) at the IEM Conference Hall with a participation of over 80 people. The event was also attended by seven representatives from the media.

The presentation, consisting of seven parts, was jointly and seamlessly delivered by Engr. Fong Tian Yong (Advisor to the Ministry of Housing and Local Government) and Engr. Hooi Yoke Meng (Director of the Drainage and River Department, Kuala Lumpur City Hall). With the aid of audio-visual materials (including two short video shows), the overall presentation was most informative, impressive and even entertaining.

The opening gambit by Engr. Fong set the tone and flow of the presentation; beginning with the universally accepted definition of a 'toilet' which is 'the plumbing fixtures and disposal system primarily intended for the disposal of bodily wastes: urine and faecal matter' – referring to the fixtures themselves or to the room containing the said fixtures. In the local context, a toilet means the whole enclosure containing cubicles, wash basins, urinals, changing rooms, circulating space, etc.

The subject matter is by no means a domestic issue. Engr. Fong provided the holistic backdrop, recalling an UNEDP report which stated that 1.1 billion of the world's population have no access to clean water; 2.6 billion (approximately 40% of the world's population) have no access to basic sanitation (of which 80% are in Asia and Africa); and over 5 million die each year due to waterborne diseases. The audience was also reminded of the UN Millennium Development Goals; specifically Goal 7 which aims 'to halve, by 2015, the proportion of people without sustainable access to safe drinking water and sanitation from the baseline date of 1990'.

With such noble and global linkages, it was not surprising to learn that another 'WTO' is involved. However, this WTO has nothing to do with globalisation and trade liberalisation. World Toilet Organisation was formed in 2001 when the First World Toilet Summit was promoted and held in Singapore. Since then, other annual World Toilet Summits have been hosted by Seoul (2002), Beijing (2003), Taipei (2004), London (2005), Moscow (2006) and India (2007).

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Design of toilets merits serious discussion

PETALING JAYA: Gone are the days when toilets were just toilets. Now, they have morphed into restrooms used for a variety of purposes.

Participants at a half-day public colloquium organised by the Institution of Engineers Malaysia (IEM) yesterday were told that toilet design was not an exact science, but has evolved to suit the changing needs of society.

Fong Tian Yong, adviser to the Housing and Local Government Ministry, said the toilet revolution began in Korea in order to upgrade the country's toilet facilities in preparation for hosting the 1988 Olympics and the 2002 World Cup.

Similarly, he said, China is now investing in toilets in preparation for next year's Beijing Olympics.

As far as design issues were concerned, Fong said toilets in the West were usually dry while the ones in Malaysia were always wet and had smaller space.

"Equipment-wise, toilets in Malaysia are not user-friendly, with no hooks to hang bags and unsuitable piping for body cleansing. There is also weak enforcement and no uniformity and method in toilet management."

City Hall Drainage and River Management Department director Hooi Yoke Meng said toilet designs should take into account the culture, behaviour and social habits of users.

He said Muslims need water for cleaning the body after using the washroom and airport toilets needed to be bigger as people bring in a lot things, including their suitcases and trolley.

Toilet doors for the disabled should be sliding for easy accessibility. Women's needs include facilities for breastfeeding and changing diapers.

Fong Tiang Yong says toilets should be disabled friendly

With participation at the WTO, Malaysia is realigning the country's toilet related standards and culture to international best practices; and has created the National Toilet Cleanliness Committee (KPKT), which among other duties and functions, is tasked to formulate policies towards public toilet cleanliness. To supplement and complement the Government's effort, we have 'QRAM' (Quality Restroom Association Malaysia) which provides the platform to educate the public on 'cultured' restroom usage and behaviour; and a forum for public toilet designers, contractors, providers, suppliers and users for information exchange. Both Engr. Fong and Engr. Hooi are members of QRAM.

In the past, a toilet was a rudimentary place to solve our physiological needs. However, the present approach to the subject is: a toilet is a comfortable place with conveniences to serve additional affiliated behaviours. Korea, for example, considers the state of their public toilet as the barometer of the country's cultural level. Hong Kong, on the other hand, learning a dear lesson from the 2003 SARS outbreak, imposes stringent standards in the design and SOP for cleaning activities, as does Singapore. As usual, Malaysia is not far behind when it comes to laws, regulations and standards (but not necessary the actual operation, maintenance and enforcement). For legislations, we have the following:

- UBBL (Uniform Building By-laws);
- Public lavatory Bylaws (Local Authority);
- Proposed Internal Sanitary By-laws; and
- Water Services Industry Act 2006 (Act655).

Then there are the proposed Internal Sanitary By-laws of six parts, which are:-

Part 1: Preliminary,
Part 2: Notices, plans and licenses,
Part 3: Standards of workmanship and materials,
Part 4: Sanitary provisions,
Part 5: Sanitary installation, and
Part 6: Internal Sanitary lines.

Last but not least, we have a national standard, the MS2015: 'Public Toilet – minimum design criteria'; with coverage of all public toilets either standalone or inside structures. In accordance to MS2015, a public toilet is to provide:

- a safe environment;
- a hygienic environment;
- for users of all gender, age and disabled persons;
- requirements and expectations of users;
- fittings to be vandal resistant; and
- well lighted and good ventilation.

Furthermore, MS2015 deals with factors that affect the number of toilet units as those for:-

- length of stay of population in an area;
- population in the area;
- the arrival rate;
- the gender ratio; and
- the occupancy time.

It is interesting to note that the design occupancy time for a female is a total of 150sec. (90sec. for use time and 60sec. for hand wash time), whilst that for a male is 100sec. (60sec. for use time and 40sec. for hand wash time). For gender specific toilet, there are guidelines in MS2015 which can be applied in the computation; but in 'clean-toilet-culture-centric' Korea, the deterministic cubicle ratio is for men and women is 1:3.

Engr. Hooi, on his part, dealt with the various aspects relating to the design of a public toilet by highlighting some key factors to good toilet design such as:

- In tandem with social-economic exchanges;
- Where modern sanitation is absent, disposal of solid waste is important;
- Where water is scarce, the use of water-efficient and water-less sanitary wares is important.

The current design approach was dealt with, which places greater emphasis on the experience of the user, which leads to the 'Must' list which should includes:-

- Conveying image,
- Standing up to vandalism,
- Handicap compliance,
- Ease of maintenance,
- Aesthetic,
- Satisfy operation criteria.

Engr. Hooi continued to deal at length with the various design aspects which will require a higher level of professional input from architects and engineers: dealing with location; building envelope; blending in with the environment; ambience; environmentally friendly concepts; natural ventilation and lighting; layout (for privacy); ease of maintenance; accessibility; gender issues; culture, behaviour and social habits of users. In the case of Malaysia, the dominant influence of social behaviour is religion such as 'Islamic Toilet Manners' which has influence or direct implications on the design and planning of toilet facilities. Cleaning with water creates a wet floor – and that is the primary challenge to the Malaysian designer and operator.

Engr. Hooi's presentation also included many visuals of Kuala Lumpur City Hall's public toilets (those which were newly commissioned, namely, new and unused 'white-gloves-tested' 'clean Malaysian public toilets') and other examples illustrating recent technological advances worldwide which have created innovative technologies such as water saving toilet, dry toilet, biological treatment, etc. At this juncture, Engr. Fong's intervention dealt with the special requirements for the design of toilets for the disabled, as per the requirements of MS2015, and more importantly, addressing the concerns as per feedback from disabled users.

Two short video shows brought the presentation to an end; followed by a lively session of Q&A and comments from the house. The half day colloquium closed with a concluding appreciation that Malaysia has already in place the required laws, regulations and standards. All we need now to realise a toilet culture that is second to none is the political will for the enforcement of the correct asset management processes concerning toilets and the proper usage of those toilets designed and developed in accordance to MS2015. It is every Malaysian's duty to ensure that the state of the country's public toilets do truly reflect the state of its cultural level.

The reporter is honoured to preside over the presentation by Engr. Fong and Engr. Hooi. Indeed, a toilet is more than a rudimentary place to solve our physiological needs. The appreciation from the house was spontaneous. Many have been converted to being activists for good public hygiene. ■

Remember, 19 November 2007 is World Toilet Day!