

VERITAS DESIGN GROUP

- architecture
- interior design
- landscape design
- environmental consulting
- quantity surveying
- planning

Greetings, Happy Halloween and World Cities Day!

In this month's e-news, we are pleased to provide an environmental assessment of the recent "Haze" phenomenon which has stricken South - East Asia. This essay is contributed by our environment/energy focused consultancy: VERITAS Environment Sdn. Bhd.

We are also pleased to feature our 4th staff quarterly meeting for 2015 and other interesting "Happenings" at VERITAS.

We hope you enjoy this month's VERITAS e-news! And please don't hesitate to contact us if you would like to know more about any of the stories featured here.

In conjunction with World Cities Day, we are delighted to feature a public service interview with our specialized "sustainability" consulting services provider: VERITAS Environment Sdn. Bhd. (VESB). The firm offers green building consultancy services to building owners, developers and design consultant teams in a process integrating engineering with architecture. Its goal is to economically and efficiently assist in the creation of high performance sustainable buildings and environments without compromising on design. VESB is led by CK Tang, a leading expert in energy efficiency for buildings in tropical climate. He wrote the technical guidelines on Energy Efficiency in Buildings for UNDR-JKR's Building Sector Energy Efficiency Project (BSEEP) and has over 18 years of experience in Green Building design and practice.

HAZE AND PM2.5

Land and forest fires in Indonesia continue to cause smog and haze across the region, with air pollutants reaching hazardous levels overnight in Singapore, Malaysia and Brunei. Indonesia's fires have reached their highest point in at least three years, with more than 13,000 fire alerts in the last week alone.



Komalathi Ramakrishna (KR) interviews CK Tang, Principal of VERITAS Environment Sdn Bhd, on what the "Haze" is all about.

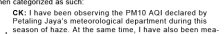
KR: What is PM2.5 and PM10?

CK: PM2.5 refers to fine particulate matters that are smaller than 2.5 microns. Our hair is approximately 100 microns in thickness. PM2.5 microns therefore refers to particulate matters that are at least 40 times smaller than the width of our hair. These particulate matters are very light, remain in the air for many days and travel hundreds of kilometres in the wind. PM2.5 is typically caused by open burning of any type of solid material, such as forests, rubbish, tyres, coal, cigarettes etc.

In Malaysia, our meteorological departments measure PM10 as the indicator of air quality. PM10 refers to particulate matters that are 10 microns and smaller but larger than 2.5 microns. Common sources of PM10 are quarries, construction sites, earthwork sites, pollens etc. PM10 particulate matters are heavier and only remain in the air for a couple of days and travel significantly shorter distance than PM2.5.

In short, PM10 and PM2.5 measure two different sizes of particulate matters. It is not right to say that PM2.5 measurement are more superior to PM10 measurements or vice-versa. It depends on the source of the particulate matters.

Fine Particulate Matter Size Comparison



KR: Could you explain further on Air Quality Indices (AQI) and PM2.5?

CK: There are many different types of Air Quality Indices (AQI) in the world today. The Americans have their own definition of what is i) acceptable; ii) minor health risk; iii) major health risk for some people; iv) major health risk for most people and v) unacceptable level for everyone. The Chinese and the European also have their own standards. Each country tries to define an AQI based on their own needs. While I am not sure which standard Malaysian AQI is based on, the American Air Quality Index (AQI) is based on the measurement of several air quality indicators. Typical indicators are PM2.5, PM10, Ozone, Carbon Monoxide, Sulfuric Dioxide and Nitrogen Dioxide. Each indicator provides one calculation of AQI. The worst AQI is then displayed to the public. Therefore, depending on the day which pollution is the highest, the AQI announced may be caused by Ozone or PM2.5, or any one of the other measured indicators.

The AQI equation allows different types of pollutants with different units of measurements (ppb, ug/m3, etc.) to be calculated into values ranging from 0 to 500. It is then categorized as such:

AQI values	Descriptions
0-50	Good
51-100	Moderate
101-150	Unhealthy for Sensitive Groups
151-200	Unhealthy
201-300	Very Unhealthy
301-400	Hazardous
401-500	Very Hazardous

CK: I have been observing the PM10 AQI declared by Petaling Jaya's meteorological department during this season of haze. At the same time, I have also been measuring PM2.5 AQI. I found that on many occasions, the PM2.5 AQI was above 200, while the PM10 was declared below 100. As I am writing this, the PM10 AQI was quoted at 90 (moderate level) in Petaling Jaya, while the measured PM2.5 AQI at my balcony is 360 (hazardous level). During this season of haze, the PM2.5 AQI is higher than PM10 by a factor of 2-3 times on most days. Therefore, it can be misleading to say that our air quality is good based only on PM10 measurement when the source of the particulate matters is open burning, which produces more particulate matters in the PM2.5 range. Random measurement of the indoor AQI of a few houses this season showed that many were having AQI readings of above 200 (very unhealthy level) without the occupants realizing it. Many homes equipped with air purifiers only achieved AQI values of 150, indicating inadequate cleaning of the air due to undersized air purifier, or a very leaky house, or both.

KR: How does PM 2.5 affect our health and what are the risks?

CK: From my survey among friends and families, I can conclude that we are all inadequately informed of the danger presented by the exposure to PM2.5 to our health. The health risk of exposure to PM2.5 from a forest fire is similar to breathing in second-hand smoke from cigarettes. Smokers are at a higher risk of getting cancer, not because of the nicotine in the cigarettes. It is the smoke (which is actually PM2.5 particulate matters) that they inhale daily when they are smoking. Most heavy smokers are exposed to PM2.5 a few hours daily; however, during this haze season, most of us are exposed to this environment 24 hours daily for several months. Doctors in Malaysia are already predicting a higher cases of Malaysians falling ill to various types of cancer (particularly lung cancer) in the coming years due to this season of haze. This is largely due to the lack of precautions taken by most Malaysians to protect themselves today. Some PM2.5 particulate matters are actually small enough to go straight into our blood stream without it being filtered by our nose and lungs. If these PM2.5 came across a path where pesticides were used (i.e. floating across a farmland), these chemicals will attach themselves to the PM2.5 particulates and go straight into our blood stream too.

Most PM2.5 will be trapped deep in our lungs for our entire lifetime, reducing the effectiveness of our lung functions, aggravating asthma conditions, lung problems and heart attack. People that are particularly sensitive to PM2.5 exposure are young toddlers, small kids and older people. Many babies and kids will be affected by respiratory illnesses, as the body tries to reject these foreign objects entering into our system. There is very strong statistical evidence linking the increased exposure to PM2.5 to sudden death of older people due to heart failure. This evidence is strongly supported by hospital records and air quality measurements around the world. The scientific evidence of death caused by exposure to PM2.5 is very much stronger than the scientific evidence of the benefits of taking supplements and organic foods. So why do we even bother to take supplements and organic foods when we are not even protecting ourselves from exposure to PM2.5?



KR: Are we safe if we work inside an air-conditioned office? Could you explain further on Malaysian building codes in relation to PM2.5.

CK: Unfortunately not. Malaysian buildings are notoriously leaky. Maybe it is because of our tradition of using natural ventilation for comfort, air-tightness has never been a strong consideration during construction. Even when air-conditioning was introduced in the 1970s, there was little emphasis on building air-tightness. Leaky air-conditioned buildings are costing us millions of Ringgit in wasted energy every year.

There is no standard (or default) requirement of the type of air-filters (or filtration effectiveness) that should be installed in our air-conditioning system. It depends on your building services engineer's specification. While some consultants provide minimum performance specification on the air-filters to be provided with the air-conditioning system, most do not. It is then up to the supplier/contractor to specify the air-filtration. If budget is tight, you will get the lowest grade air-filter installed in your building.

In addition, buildings with poor maintenance may contribute to higher particulate counts in the air delivered to you because the filters are already dirty and clogged. In short, Malaysian building codes do not address air-tightness and air-filtration requirement for air-conditioned buildings. PM2.5 is leaking into our buildings and our air-filtration system is not designed to filter PM2.5; therefore, we have been inhaling PM2.5 into our lungs daily over the past 2 months, while thinking we were safe indoors.

KR: Are we safe when we have closed all the openings in our house?

CK: Older generations of houses were designed for natural ventilation with high openings, air-wells, ventilation blocks, louvered windows and etc. These houses are very leaky and will have AQI values close to outdoor levels. The new generation of houses were designed with air-conditioning in mind and are more air-tight. When closed very well, it is typical to have AQI values between 20% and 40% lower than outdoor level depending on the air-tightness of your house. It will help if you put towels between the door and floor to seal up the exposed gap to prevent further air leakage. Be aware that if your house is too air-tight, you may not get enough oxygen for the occupants. However, when the AQI value is very high outdoor (> 400), most Malaysian homes would have indoor AQI above 200. You will need some kind of active air filtration system to reduce the indoor AQI below 100. Depending on your room size and how leaky it is, you may require to have multiple air purifiers in your house.

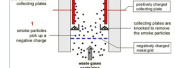
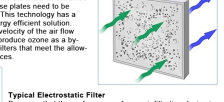


KR: Is there a Green Rating Tools that concentrates on PM2.5?

CK: Currently there is no green rating tool that addresses PM2.5 in buildings. But there are two technologies that will filter PM2.5, hepa air filters and electro-static air filters. Hepa air filters are based on mechanical filtration technology. It is basically a very fine filter that will take out particulate matters as small as 0.3 microns. Some manufacturers allows hepa air filters to be washed and reused, while other manufacturers require the hepa filter to be replaced when it is full with dust. Hepa air filters typically have very high pressure drops. This means that the fan energy consumption will be high when hepa air filters are used. Hepa air filters are commonly used in critical spaces such as hospitals and clean rooms.

Typical Hepa Filter

Electro-static air filter is based on charged particulate matters with negative charges. These negatively charged particulate are then attracted to the positively charged plates on the filter. These plates need to be cleaned regularly to maintain their performance. This technology has a very low pressure drop, therefore it is a very energy efficient solution. Removal efficiency depends significantly on the velocity of the air flow and the plate size. Some electrostatic air-filters produce ozone as a by-product. It is important to select electrostatic air-filters that meet the allowable ozone production rate for these type of devices.



Typical Electrostatic Filter

Be aware that the performance of your air filtration device is only as good as your maintenance of it. In some cases, it may add on to the particulate counts due to the lack of maintenance. Ionizers are another technology regularly used by some manufacturers. It is often found in air-conditioners, air purifiers and refrigerators. It is important to note the manufacturer's statement that the ionizer is for removing bacteria and viruses from the air, and it is not for removing PM2.5, as mistaken by many people.

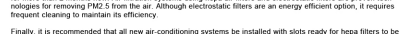
KR: Do we need to concentrate on PM2.5 in building codes?

CK: It depends. If haze occurs every year, we should insist on addressing PM2.5 in our buildings. From now on for all VESB projects, the air-conditioning system will be specified to allow hepa air filters to be slotted in when the need arises, i.e. the space has to be provided. This will only increase the cost of the air-conditioning system project. When it is haze season again, the building owner can easily slot in the hepa filter into the air-conditioning system to ensure clean air is provided in the building.



In conclusion, many Malaysians are not aware of the risk to our health due to exposure to PM2.5; therefore, not enough effort is put into protecting ourselves from being exposed to high levels of PM2.5. Malaysian buildings are not designed to keep PM2.5 out; therefore, unknowingly all of us have been exposed to high levels of PM2.5 for more than 2 months now. Air filtration systems using hepa air filters and electrostatic filters are proven technologies for removing PM2.5 from the air. Although electrostatic filters are an energy efficient option, it requires frequent cleaning to maintain its efficiency.

Finally, it is recommended that all new air-conditioning systems be installed with slots ready for hepa filters to be used when necessary. When there is no haze in the air, the hepa filters need not be used to reduce operating cost.



Images are courtesy of thestar.com; Jakartapost; Steven Mak & Nurul Dahlya

HAPPENINGS

4th QUARTERLY STAFF MEETING

VERITAS held its 4th quarterly staff meeting for this year at the Menara Getah Asli on the 10th of October. Among the highlights of the gathering were updates by the various group Principals.

The event also featured the Core Value awards, which were presented to the following VERITASian achievers:

Integrity	Mohd Fadzil Mohamad Yunos
Design	N/A
Environment	N/A
Audacity	N/A
Service	Kuber Miskin



This time round there were only 2 recipients out of 51 Congratulations to Fadzil and Kuber!!

VSSC WHITE WATER RAFTING

VERITAS Sports club held a white-water rafting trip to Slim River, Perak on 17th October 2015. VERITASians were treated to an adventurous journey down the rough waters of the Perak River for an adrenaline-pumping ride through the grade 1-3 rapid levels. The adventure involved about 3 hours of energetic paddling and leisure cruising. Lunch and refreshments were also provided along the journey and the tour ended at 3:30pm. We look forward to other great outdoor activities organized by our sports club in near future.



"30 UNDER 40" EMERGING MALAYSIAN ARCHITECTS: REVISITED ARCHITECTURE EXHIBITION

VERITAS Principals Ng Yiek Seng and Azril Amir Jaafar's projects are being exhibited at the Atelier Art Space Gallery, Petaling Jaya from the 5th October till the 24th October 2015. PAM first came up with the publication titled "30 under 40" in 2011 to recognise and promote the works of young professional architects, under the age of 40. Now 4 years after the original publication and exhibition, PAM is reviewing how the practices and works of these bright young architects have matured and contributed to the profession and development of the nation. Congratulations to Ng and Azril!!



2nd ANNUAL MIXED USE DEVELOPMENTS

VERITAS Group President David Mizan Hashim gave a presentation at the 2nd Annual Mixed Use Developments conference which was held on 19 October 2015 at ALoft Hotel, Kuala Lumpur Sentral. He gave a talk on "SKYSCAPES: Mixed Use Developments in the Vertical City" focusing on technologies and sociological challenges to achieve the ideal vertical mixed development and VERITAS' case-studies in that regard. The event was well attended by designers, government organizations, and of course property developers.



WHERE are we FEATURED?

FOCUS MALAYSIA MAGAZINE

VERITAS Principal, LILIAN TAY was featured in the October 16 - October 22, 2015 issue of Focus Malaysia Magazine. It focused on VERITAS Design Group's capabilities and achievements. The article identified VERITAS as one of top practices in Malaysia based on our numerous skyline projects in the Kuala Lumpur City Center.

STARMETRO

VERITAS Design Group's exciting mixed development project the De-Centrum City featured in the Star Metro newspaper recently. Phase one of the development will comprise a shopping centre block with 29 retail units, a serviced apartment block with 320 units, a SoHo block with 182 units, and 54 shop lots. These will be handed over to purchasers in December. Phase II comprises of four blocks of serviced apartments within De Centrum City and expected to be completed by 2017.

Profiles of distinction

A collection of profiles of distinguished professionals in the industry, including a profile of a VERITASian.

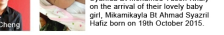


BIRTHDAY GREETING

Lau Kok Sun, Lillian Tay Wai Fun, Abdul Rahman Bin Mat Ali, Adi Ashraf B Azhar, Pappathi Munisamy, Noor Haiwani Binti Ab Rahman, Ho Cia Shin, Sazali Bin Awi, Yazid Omar, Siti Norhajarina Misran, Muhammad Fadzli Abd Aziz, Siti Nor Sabilah, Wan Muhammad Rosmadi Wan Hassan, Gairie Asyraf Bin Hamid, Mohd Asri Bin Mohd Markom, Muhammad Hafizi Bin Kamaruddin, Mazliyani Binti Alamang, Ain Mardiah, Fakhru Ridzuan Mokhtar and Nurul Nabillah Kasim.

BUNDLE OF JOY

Congratulations to our VERITAS Architects Johor Suhaimi Bin Sa'at and his wife Nor Hidayah Binti Norman on the arrival of their adorable baby girl, Nur Areesha Binti Suhaimi born on 13 October 2015.



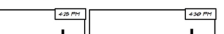
so WHO are the NEWCOMERS at VERITAS?

Architect Miguel Angel Robles Cardona from Spain; Assistant architects Nur Sofia Bt Mohamed Ghazemy and Afiq Dinie Bin Dahman for VERITAS Architects Kuala Lumpur

Architect Teh Seong Cheng for VERITAS Architects Penang.



Congratulations to our VERITAS Architects Kuala Lumpur AHMAD SYAZRIL HAFIZ and his wife Amira Syahida Bt Mohamed Yusoff Khaly on the arrival of their lovely baby girl, Mikamikayla Bt Ahmad Syazril Hafiz born on 19th October 2015.



"In a world where already over half the population lives in urban areas, the human future is largely an urban future. We must get urbanization right, which means reducing greenhouse emissions, strengthening resilience, ensuring basic services such as water and sanitation and designing safe public streets and spaces for all to share."

Secretary-General Ban Ki-moon