The New Year excitement was just behind us and it's time to turn over a new leaf. We have concluded the 1st Quarter of 2013 and it's our pleasure to present and reach out to you with Fast Flow Connect -- the first issue of Fast Flow newsletter for this year.

In this issue of Fast Flow Connect, we are spotlighting what we are achieving through some of our recent iconic projects across Asia. We hope that you would find it useful to your business and professional endeavours. Also, we are highlighting Fast Flow's recent milestone in developing new design techniques to keep up with building trends in Singapore. We have included the topic on common strategies to avoid flood since while the rainy season just passed, the concern of flood still haunt some regions in Asia.

In addition, we are sharing our initiative to improve safety with regards to Work-at-Height (WAH) for our installation workforce serving DSI projects in Singapore.

We sincerely thank you for taking time to read this issue. Also, we hope to receive your feedback (if any) so that we could enhance readership experience over time.

## Inside this issue…

# OUR SYSTEM IMPROVING YOUR PRODUCTIVITY

In January 2013, National Development Minister of Singapore, Khaw Boon Wan mentioned the need for local construction industry to raise productivity through the adoption of advanced construction technologies and systems that are already tested and implemented around the world. His call for productivity comes in the time where the nation is moderating its foreign worker growth, adding pressure to the current manpower crunch.

***How can Fast Flow help you improve productivity on site?***

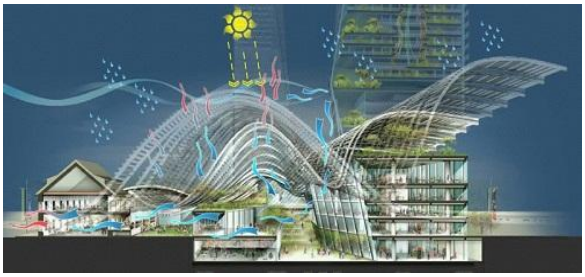
For many years, Fast Flow has been the specialist in providing our client our state of art siphonic technology that has solved numerous architecture complexities. Fast Flow Siphonic System makes use of lesser and smaller pipes compared to conventional rainwater drainage system. This simplifies and reduces the manpower required for rainwater downpipes installation. You now need less labour for the system installation. On top of that, siphonic system can solve your woes from the manpower shortage and rise of labour cost. The benefits do not just end here. With smaller pipes and the ability for pipe work to travel without gradient, Fast Flow system allows main contractor to better coordinate the ceiling space for M&E services on site. This means that the main contractor has now more time to deal with other critical site issues rather than coordinate between services to get them all in the tight ceiling space. Now, that is what we meant by “OUR System Improving YOUR Productivity”.

*Siiphonic System - Pipes and outlets installation*

# SUPPORTING NEW BUILDING TREND IN SINGAPORE

In today's construction industry, buildings no longer look like a standard simple vertical tower. They are uniquely shaped and come in all sorts of fanciful design. Every building is a masterpiece of the architect, a display of their creative thoughts. While building designs are becoming more sophisticated, design parameters are changing which can be a challenge for consultants. They have to develop solutions to make the architectural design work while not losing its original design intent. This often involves a certain degree of reverse engineering concepts in order to develop the best solution to accommodate to changes in design constraint.

Fast Flow has been supporting our clients in creating rainwater drainage solution to conform to the design requirement of the building. Our state-of-art siphonic technology are installed in projects such as The Interlace at Telok Blangah which consist of thirty one apartment blocks, stacked in a hexagonal arrangement to form eight large permeable courtyards. The Sky Habitat at Bishan with inter-link sky bridges and South Beach@Beach Road with its award winning huge "environmental filter" canopy all involves Fast Flow technology.



*A huge environment filter canopy of South Beach*
*Source: www.arup.com*

With the promotion of green living, more buildings are now designed with a green roof or sky terraces in between floors, E-decks (also known as environmental decks) or even a water retention system which is now the latest upcoming trend in Singapore. One good example is the South Beach project which includes a water retention system in its design to retain rainwater before they are discharged into the main service (external drain) in a timely manner. This minimizes any risk of flooding especially reducing flash floods occurrence as rainwater is now collected and not released into the main service during periods of high rainfall intensity. With the unpredictable climate changes in Singapore, Fast Flow is also actively involved in discussion with architects to review design parameters to higher rainfall intensity*.

*The Interlace*
*www.interlace.com.sg*

*The Sky Habitat*
*www.skyhabitat.com.sg*

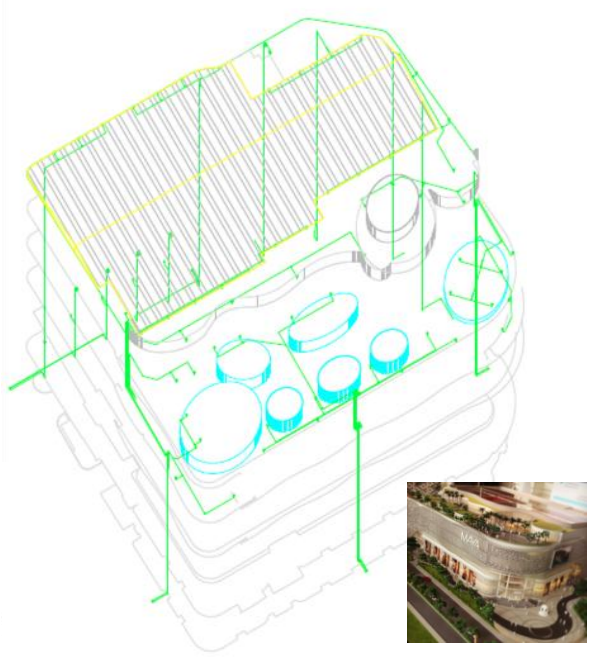
"Fast Flow will continue to adapt and provide innovative solution to drainage concept without compromising system's efficiency. Our years of experience have taught us that the key to make things work lies in creating simplicity among complexities and that is our strength." says Andrew Koh, Design Manager at Fast Flow Singapore. Every project completed by Fast Flow achieves the exacting specifications and derives the premium value of cost saving, green building lifecycle, unique architecture and engineering fulfilment.

**Rainfall intensity is a measure of the amount of rain that falls over time.*

# MAYA SHOPPING MALL, CHIANG MAI

Fast Flow provides extensive rainwater management solutions for a total roof area of 10,635 sqm to MAYA Shopping Mall, a six-story mall located at Nimmanhaemin Road, Chiang Mai.

MAYA is a unique lifestyle shopping centre located in the heart of Chiang Mai (Second largest city by GDP in Thailand). With a combination of Chiang Mai strong cultural heritage and cutting-edge design, MAYA Shopping centre is created with a concept of "The Art of Retailtainment".

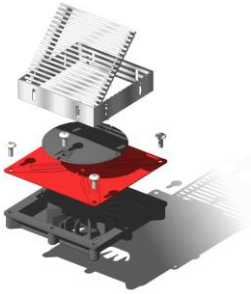


*Typical Siphonic Design Layout for MAYA Shopping Mall*

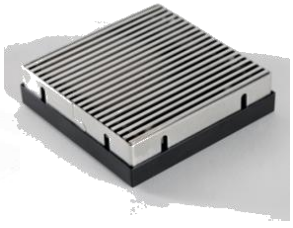
The building architecture comes with limited common shaft and space constraint to conceal rainwater pipes. Our Designer worked with the main contractor engineers to achieve a safe system which required less downspout for space management and at the same time maintaining the building's unique design. Fast Flow value


engineering siphonic solutions make use of minimal pipe work and flexible use of mixed materials, uPVC around the building and HDPE for the underground works.

The system exhibits flexibility in managing rainwater design for all types of roof and buildings through creative design and engineering. And as the finishing touch, Fast Flow utilizes one of its architectural outlet series, Arteco-S™, to fit in perfectly with the external environment of MAYA Shopping Mall. The Arteco-S™ is suitable for use in accessible terraces, walkways and pool areas, providing seamless finishing with civil works.



*Arteco-S™*

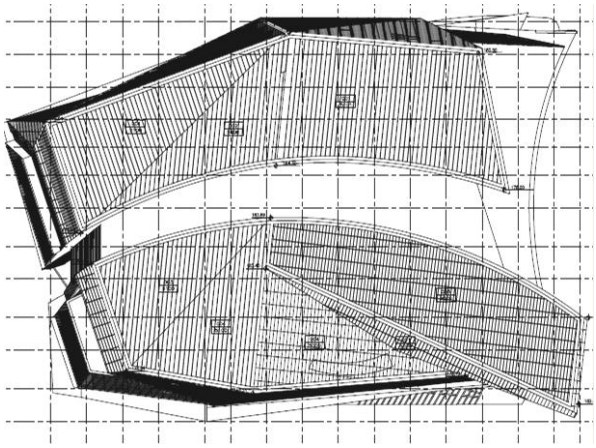


*Arteco-S12 Grating™*

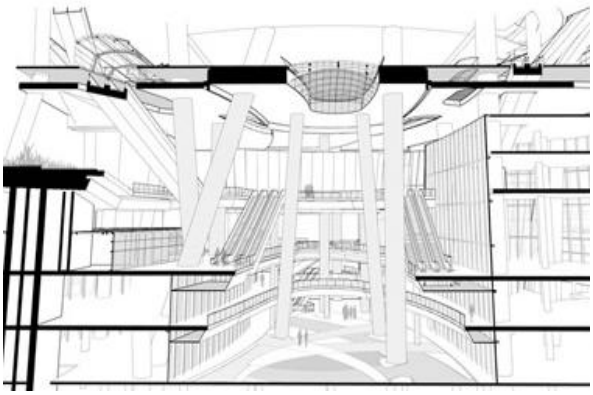
# THE STAR VISTA AT ONE NORTH

Fast Flow proudly presents the Star Vista or CCRC (Civic, Cultural and Retail Complex) as one of its huge project achievements in 2012. Fast Flow Singapore undertook the full construction of the project from design, supply and installation for this Singapore's latest retail and entertainment hub.

The building is designed with a touch of open concept setting which encourages air circulation at strategic locations. This multi-use complex houses not only an auditorium but an amphitheatre, reception and meeting halls, a rooftop garden, shops, and a pedestrian suspension bridge connecting its two sides.



*CCRC Roof Plan*



*The large steel beam , inclined columns and facades*
*Source: www.greatnewplaces.com*

"A lot of roof analysis was involved in the design proposal due to the complexity of the roof profile. With a slanted columns and twisting flexing façade, the location of the pipes have to be taken into account." says Gilbert Ang, Group Head of Engineering at Fast Flow.

Fast Flow was able to understand the complexity of the roof profile and resolve the challenges the design presented. Details were developed after interrogating the various interface issues. Some of the challenges that Fast Flow faced were the location of the pipes, the large steel beam for the roof, as well as the inclined columns and inclined facades.

Fast Flow siphonic system provided customizable solution for a building design that involved complex geometry with slanted columns and facades. It brings forth flexible pipe work configurations for design freedom.

# CONTROLLING FLOOD IN JAKARTA

Flood has been quite a major problem in certain areas in Indonesia. One of the most affected cities is Jakarta, the capital city of Indonesia. North Jakarta has been built on marsh and swamp or reclaimed land from the sea. There are 13 rivers flowing down to the city all being fed from the hills and mountains in Puncak (The Peak) - a higher ground located outside Jakarta. Days of high rainfall intensity will cause significant increase on water level of the river and reservoir.

*Heavy flood in Jakarta occupied 75% of the city area*

The recent flood event occurred because the retaining wall of West Flood Canal was unable to hold a large amount of water and hit the main street of Jakarta. Days of flooding in Jakarta peaked on 17 January 2013, bringing the megacity of more than 10 million people to a near standstill and killing 20 people. More than 40,000 people were displaced, according to the National Disaster Management Agency and more than 100,000 people's homes under water. Sadly, this is not the first time for the Jakarta people to experience heavy flooding. The previous heavy flooding in 2007 killed 57 people and displaced more than 420,000 in Jakarta. The authorities put the total damage that year at nearly US$695 million.

According to our distributor Siphonic Flow Mandiri in Indonesia, besides the flaw in the city infrastructure, the lack of environmental awareness was the other main cause of this unfortunate event. People continued to throw garbage into the river and city drainage. With more buildings built without proper planning of rainwater management system, this malfunction the green area for infiltration. Although the government has regulation for rainwater drainage, this was not followed and applied properly for houses and buildings resulting in a lot of rainwater being discharged directly to public drainage.

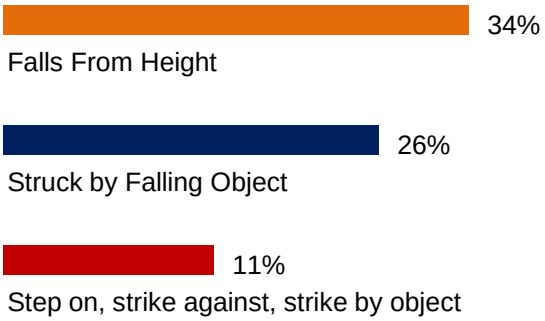
Fast Flow Chief Technical Officer, Goh Chun Hee shares, "The common strategy to avoid flood in many countries is retention, that is to provide a location or tank to contain the rainwater within the project and only allowed limited amount to be discharged directly to the public drain. However, the difficulty lies in bringing rainwater from different part of the building to a single retention tank, which can be located far from some of the roofs." In order to transport large volume of water with flexibility of routing pipe works to project requirement, avoiding key areas in building, siphonic system can be used. One of the beauty in siphonic system lies in its ability to have horizontal pipes that do not require gradient. This brings direct benefits to projects in efficient use of headroom and ease of coordination between services.

Rainwater harvesting is another natural extension to this, i.e. to harvest some of the water that is meant to be retained and reuse it for landscaping, washing, toilet flushing and for cooling towers etc. Another possible variation of retention is to use r.c. flat roof areas as part of the retention areas. This is possible with siphonic system because the ability to control precise discharge flow rate from the roof. This has to be planned in conjunction with the design and selection of waterproofing systems to ensure water tightness of the roof to a design water depth.

# WORK AT HEIGHT COURSE FOR SUPERVISORS

Work at Height is defined as working at any place that is above, at or below ground level, and from which a person could fall (i.e. fall from height). Some examples of work platforms that workers may fall off/into are boom lifts, excavation ditches, floor openings, hanging scaffolds, mast climbing work platform, open sides and roofs. Work at Height (WAH) course is not the mandatory course as per the requirement of the Ministry of Manpower. It is an awareness course, advisable for the workers who are required to work at heights. However, it is highly recommended for all line supervisors, foreman and those in charge of workers who are performing work-at-height tasks to attend the course. These supervisors should be trained to plan, supervise and manage all work at height activities in order to ensure that these works are carried out properly and to ensure the workers' safety.

Fast Flow has targeted to send all workers to attend the WAH course and be 100% certified to promote work safety within the organization. "Ensuring all our workers are working safely on site is paramount to our organization well-being." says Md Monjurul Alam, Deputy Operations Manager at Fast Flow Singapore. "Much as we want to see all our workers turn up for work every day, we want them to return home happily and safely at the end of the day."




The top three incident types which accounted for 56% of total fatalities in 2011 were Falls (Falls From Height – FFH); Slips, Trips & Falls; and Collapse/Failure of Structure Equipment (Source: http://www.mom.gov.sg/workplace-safety-health/resources/factsheets-circulars/Pages/work-heights-probe.aspx). With falls contributing to almost half of work facilities, more enforcement and engagement efforts will be rolled out to address work at height risk and get industry players to implement fall prevention plans and proper risk management. Fast Flow Singapore is currently accredited bizSAFE Level 4 by the Workplace Safety and Health (WSH) Council.

# THE IMPORTANCE OF CLEANING OUT YOUR HOME GUTTERS

Gutters are essential to the longevity of most homes. It is highly recommended to clean and maintain guttering as the gutters guide rainwater off the roof and away from your home. This prevents damage to walls, exterior paint and woodwork as well as water settling around the foundation the house, further avoiding water ingress into interior walls and basement.

Common problems with gutter are caused by the blockages in the gutter and the downpipe. This increases the amount of water on the gutter leading to overloading that will result in leaks and damaging joints, brackets and screws. Homeowners are advised to conduct a bi-annual routine inspection to their gutter. This should be considered as a regular home improvement project that maintains the value of your house.

*Clogged gutters and leaves in gutters*

**Did you Know?**

Loose debris will slowly begin to decompose, matting down and compressing into a solid sheet as it becomes damp, causing gutter clogs. Accumulated debris that causes clogged gutters is a fire hazard, and is extremely bad for the roof, accelerating wear and backing water up under the shingles. It can also create a solid bridge over the top of the gutters that can send water cascading over the edge.

*Holding the water when it shouldn't*

**Singapore**

Recently completed projects:
• EduSports at National University of Singapore (NUS)

*EduSports at NUS*

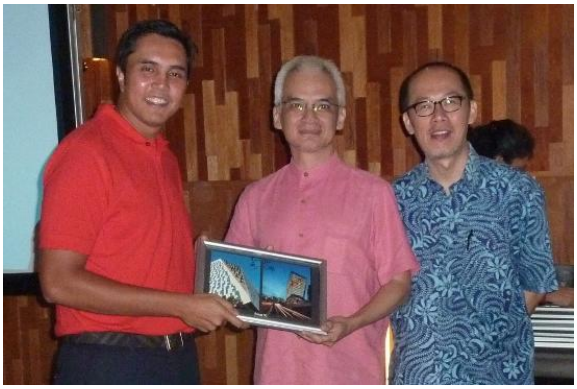
Newly secured projects:
• Singapore Institute of Technology at Ngee Ann Polytechnic
• Singapore Institute of Technology at Temasek Polytechnic
• St Thomas condominium by Bukit Sembawang
• 149 Market Street
• Punggol Watertown mixed development joint developed by Fraser and FarEast

**Indonesia**

Recently secured projects
• Coca Cola Warehouse in Cibitung, Bekasi – West Java
• Jakarta Automated Air Traffic Systems (JAATS) in Tanggerang, Banten – West Java

*Coca Cola Warehouse*

**Malaysia**



*Appreciation Dinner held by Tujuan Gemilang - Mr. Yap Kern Ling (in the middle) together with Ahmad Khalif Tan Sri Mustapha Kamal, Chairman at Tujuan Gemilang (left) and Peter Chan Sai Kong, CEO at Tujuan Gemilang (right) .*

The developer of Point 92 (19-Storey Grade A Corporate Office Tower at Damansara Perdana, Petaling Jaya, Selangor), Tujuan Gemilang took the opportunity to thank its contractors for their support and commitment in completing the Point 92 project. The fact that Fast Flow's building rainwater management system is performing to expectations provides tangible proof of a job well done.

*Point 92*
*Source: www.jefferylam.com*

**Thailand**

Under construction projects:
• The Station
• NISSAN
• Zuellig Pharma

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