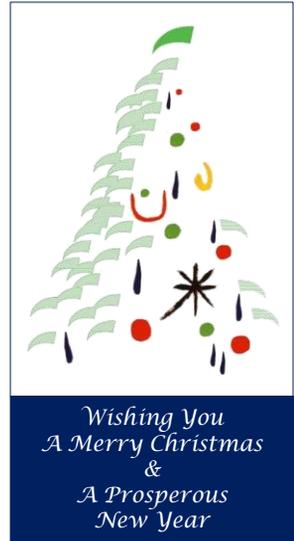


## Changi Airport Development



Source: [www.visitsingapore.com](http://www.visitsingapore.com)



Since 2008 Fast Flow has completed four airport projects in Singapore. The projects include the four terminals of Changi Airport, Crowne Plaza Changi Airport and Jewel Changi Airport.

The Changi Airport Development is well equipped with Fast Flow Siphonic System. The company undertook the full construction of each project from design, supply to system installation. Fast Flow team worked closely with the developers, consultants and main contractors to analyze the water flow and design the solution to control the water depth on the roof top as well as transporting the rainwater to the rainwater tank and discharge area.

The development utilizes Fast Flow rainwater outlets to drain a total roof area of 343,738 square metres. Fast Flow's pipe system (psPipe™ System) is also used extensively in the discharge pipeworks and stacks at Terminal 4 and Jewel. Under Dynamic Flow, the psPipe™ is specially designed to withstand Positive (+ve) Pressure of 6.0 Bar and Negative (-ve) Pressure of 0.9 Bar.

Changi Airport Singapore achieved great success at the 2018 World Airport Awards, being voted by air travellers as the World's Best Airport for the sixth consecutive year. This is the first time in the history of the awards that an airport has won this prestigious title for six consecutive years. The Terminal 5 development will provide exceptional aviation and passenger journey experience to meet the needs of Singapore's growing aviation and tourism industry.

### Inside this issue...

- Changi Airport Development
- Changi Airport Project Reference
- Jewel Changi Airport

- Project Highlights
- Our Presence



Project Name : Upgrading of Changi Airport T1  
 Project Location : Singapore  
 Material : Cast Iron  
 Completed Year : 2011  
 Design RFI : 300 mm/hr  
 Catchment Area : 56,400 sqm



Project Name : Changi Airport T2  
 Project Location : Singapore  
 Material : UPVC  
 Completed Year : 2014  
 Design RFI : 330 mm/hr  
 Catchment Area : 55,000 sqm



Project Name : Changi Airport T3  
 Project Location : Singapore  
 Material : UPVC  
 Completed Year : 2008  
 Design RFI : 220 mm/hr + 110 mm/hr  
 (overflow system)  
 Catchment Area : 127,000 sqm



Project Name : Changi Airport T4  
 Project Location : Singapore  
 Material : UPVC & Cast Iron  
 Completed Year : 2017  
 Design RFI : 220 mm/hr + 220 mm/hr  
 (overflow system)  
 Catchment Area : 80,000 sqm

## Jewel Changi Airport



In September 2015, Fast Flow Singapore was appointed by Woh Hup - Obayashi JV to be the rainwater solution provider of Jewel; a nature-themed entertainment and retail complex at Changi Airport. The company seized the chance to participate in the design development of Jewel Changi Airport.

Fast Flow was tasked to provide design and installation of the Siphonic System in this aesthetically pleasing building where gardens, attractions, dining options, retail and aviation facilities are put under one roof. Fast Flow utilised its unique design capabilities, coupled with the exclusive rainwater outlets ranging from Piccolo™ to Primo™ series to drain a total catchment area of 21,178 sqm.

The project required six CHS (Circular Hollow Section) columns, each with a diameter of 600 millimetres and 12 metres length to support the ETFE (Ethylene tetrafluoroethylene) canopy at the entrance. It was a challenge for Fast Flow Operations team considering the size and the weight of the column. And with no opening made through the steel column, the team had to come out with a special bracketing system that suits the design and condition in order to eliminate the modification works to the column when inserting the Ø150 mm Galvanized Iron pipe.

Fast Flow completed the Jewel project in March 2019. It received the Special Jury Award at this year's Mopic Awards, which rewards excellence, innovation and creativity in the global retail real estate industry. The Mopic Awards, which is in its 24th year, saw a total of 111 entries from 33 countries across 11 categories.

## Fast Flow Group Newly Secured Projects Q4/2019

### Singapore

- Punggol Digital District (PDD)
- Surbana Jurong Campus
- SGH Plot H9A
- Choa Chu Kang Camp II
- Mixed-Use Development at Beach Road
- Ascott Service Apartment
- A&A To Shaw Plaza @ Balestier Road
- 20 Tuas South Ave 14

### Malaysia

- Golden Pines Bandar Tun Razak
- Senibong Residence JB @ Sovereign Bay
- Daikin Shah Alam
- Midas Property Sri Petaling
- Plot 113 Warehouse
- UNA Service Apartment

### Thailand

- Khon Kaen Airport
- HAVI LOG
- Siampiwat Shopping Mall
- Ajinomoto Phase 2
- PFP Songkhal
- Belton 2

### Indonesia

- Makassar Airport Expansion
- IKEA Jakarta



Project name: Punggol Digital District (PDD)  
Country: Singapore  
Catchment area: 50,000 sqm

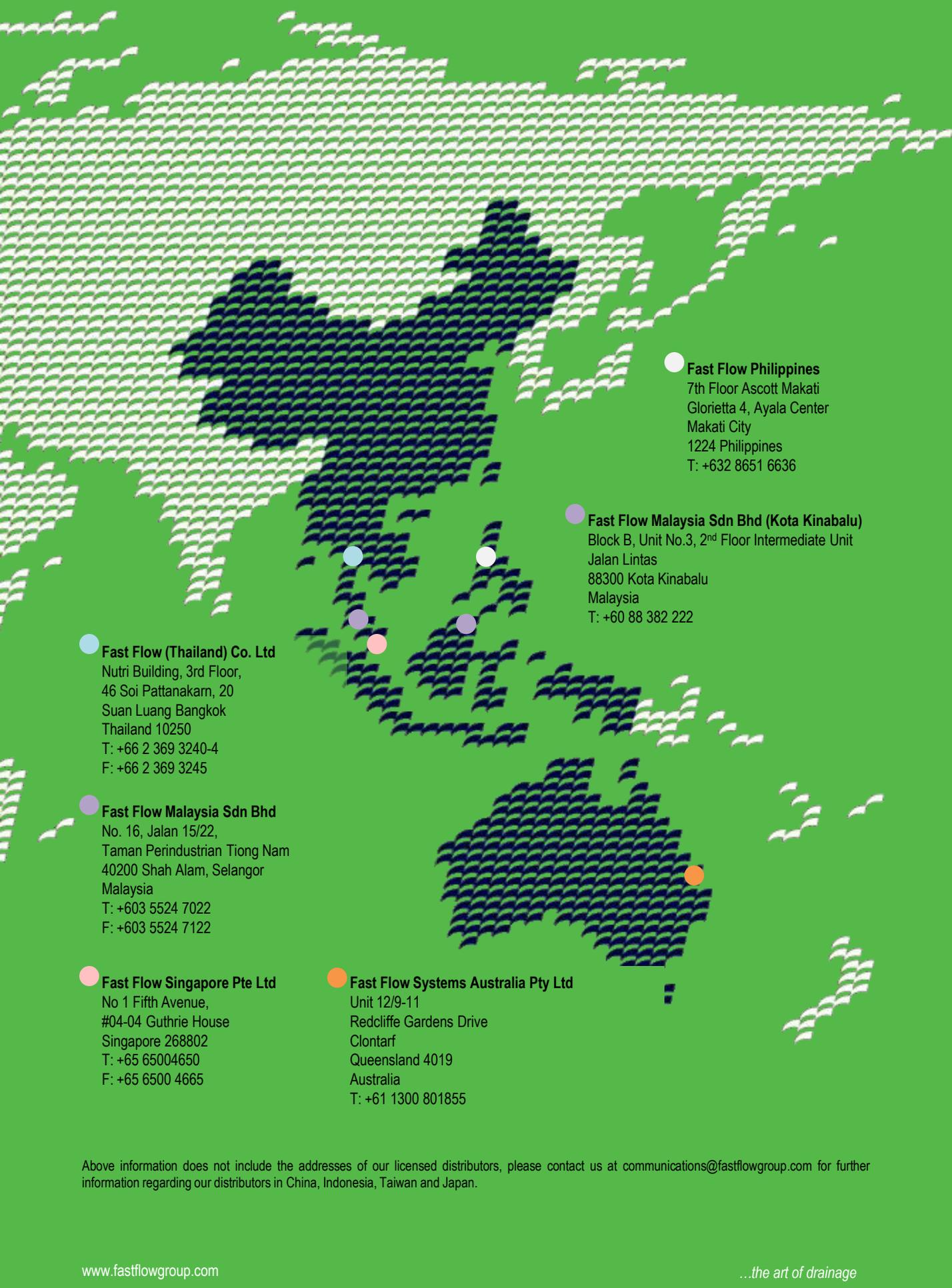


Project name: Makassar Airport Expansion  
Country: Indonesia  
Catchment area: 88,993 sqm



Project name: Khon Kaen Airport  
Country: Thailand  
Catchment area: 22,460 sqm





● **Fast Flow Philippines**  
7th Floor Ascott Makati  
Glorietta 4, Ayala Center  
Makati City  
1224 Philippines  
T: +632 8651 6636

● **Fast Flow Malaysia Sdn Bhd (Kota Kinabalu)**  
Block B, Unit No.3, 2<sup>nd</sup> Floor Intermediate Unit  
Jalan Lintas  
88300 Kota Kinabalu  
Malaysia  
T: +60 88 382 222

● **Fast Flow (Thailand) Co. Ltd**  
Nutri Building, 3rd Floor,  
46 Soi Pattanakarn, 20  
Suan Luang Bangkok  
Thailand 10250  
T: +66 2 369 3240-4  
F: +66 2 369 3245

● **Fast Flow Malaysia Sdn Bhd**  
No. 16, Jalan 15/22,  
Taman Perindustrian Tiong Nam  
40200 Shah Alam, Selangor  
Malaysia  
T: +603 5524 7022  
F: +603 5524 7122

● **Fast Flow Singapore Pte Ltd**  
No 1 Fifth Avenue,  
#04-04 Guthrie House  
Singapore 268802  
T: +65 65004650  
F: +65 6500 4665

● **Fast Flow Systems Australia Pty Ltd**  
Unit 12/9-11  
Redcliffe Gardens Drive  
Clontarf  
Queensland 4019  
Australia  
T: +61 1300 801855

Above information does not include the addresses of our licensed distributors, please contact us at [communications@fastflowgroup.com](mailto:communications@fastflowgroup.com) for further information regarding our distributors in China, Indonesia, Taiwan and Japan.