



## Cooling Hong Kong's highest: A tall order.

ICC Tower, Kowloon Station, Hong Kong

Case story

When the 490-meter ICC Tower opens at Kowloon Station in 2010, it will be Hong Kong's tallest and the third tallest building in the world. Alfa Laval is involved in this remarkable construction project, by supplying heat exchangers for the HVAC system that keeps the entire building comfortably – and efficiently – cooled, heated and ventilated.

Today's Hong Kong is a land of skyscrapers. Tallest to date is the 88-story Two IFC building. The ICC Tower (International Commerce Centre) will stand 70 meters (or 10 floors) taller, adding a significant landmark to the city's business district and skyline. The swooped architecture is as striking as the location – right on the Kowloon waterfront, on top of the Airport Express Station.

### **Bustling harbour activity.**

The building's top 15 floors will be the home of a new luxurious Ritz Carlton Hotel, which thus becomes the highest hotel in the world. The office space, totalling about 3,500 square meters per floor, will be Hong Kong's most spacious, offering ceiling heights of up to 3.15 metres.

Together with the Two IFC building on the opposite shore, the ICC Tower will form the Victoria Harbour Gateway. Tenants will be able to follow the bustling harbour activity night and day from an exclusive height – including dazzling fireworks on various festive occasions.

### **Pressure breakers.**

Keeping temperatures at an even, comfortable level throughout this gigantic building – and throughout the year – is no simple task. The pressure needed to keep the cooling liquid running vertically up to 490 meters is prohibitively high. The solution is to divide the building into three vertical zones, and use heat exchangers as pressure breakers between them. Such pressure breakers need to perform with a minimum of temperature losses, using a minimum of incremental energy.

Also, the owner, Sun Hung Kai Properties, has to make sure the air conditioning is able to match the premium nature (and rent) of the office space they are putting on the market. In other words, malfunctions and down-time of the system must be minimized (preferably eliminated).



Architect: Kohn Pedersen Fox Associates (KPF).

To ensure this high level of efficiency and reliability, the contractor, Takasago Thermal Engineering Co, turned to Alfa Laval for the heat exchangers.

### **Superior heat recovery.**

– We have previously supplied similar equipment to other Takasago projects, says Irene Lau, a technical manager at Alfa Laval's Hong Kong office. They are comfortable by now

that our plate heat exchangers will perform as reliably as they have promised Sun Hung Kai Properties.

The efficiency of the Alfa Laval heat exchangers is ensured through their exceptionally close temperature approach. LMTD is guaranteed to be less than 1 K. The result is a very high NTU score and, hence, superior heat recovery at every breaker level throughout the ICC building.

Ms Lau and her Alfa Laval colleagues are naturally proud to be part of this prestigious construction project, which will be completed in 2010:

– It's a flagship building for the owner, and a flagship assignment for everyone involved.



Image: Kohn Pedersen Fox Associates (KPF) and Superview.

#### Facts & Figures:

For the pressure breakers throughout the ICC building, Alfa Laval is supplying a total of 14 large plate heat exchangers MX25 – each optimized for the specific thermal duties on each breaker level. The plates are made of premium 316 stainless steel, to guarantee reliable performance with a minimum of maintenance. The design pressure is 20 barg.



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#### How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at [www.alfalaval.com](http://www.alfalaval.com)