



# EMSD Headquarters



## Background

An existing Hong Kong Air Cargo Terminal 2 building (HACTL 2), located in Kowloon Bay at the junction of Kai Shing Street and Kai Cheung Road, was converted to a new EMSD Headquarters and Depot in 2004. The modified Headquarter is mainly for Vehicle Workshops from G/F to 5/F and office accommodation on 6/F and 7/F. The gross floor area is 81,800 square meters. The key elements of HVAC systems are summarized as follows:

## Energy Efficiency Chiller

Total 1200 Tons of water-cooled ammonia chillers coupling with a 200 Tons icemaker, work in different modes to produce chilled water and slurry ice for the comfort cooling of the entire building. The slurry ice is stored into 5 numbers of 110m<sup>3</sup> ice tanks and consumed during the peak cooling load period for reducing the maximum demand. The refrigeration effect of ammonia chiller is almost 9 times greater than R12 refrigerants with zero ozone depletion. Thus, creating an excellent energy efficiency and environmental friendly AC system for this project. To cope with FSD requirement and recommendation for usage ammonia, ammonia detection system, scrubber system and all other required DG licensing provisions are provided inside the mechanical plant room.

## Indoor Air Quality

The air distribution for 6/F and 7/F office is using localized ventilation system to deliver conditioned air from underfloor plenum to conditioned space through controllable floor air diffusers. The conditioned air is not like the traditional mixing ventilation system, it is moving upward and not mixing with the room air. The heat and contaminants generated from the heat source are directly removed according to the thermal plume upward movement. Air is returned back to the air-handling unit through the ceiling diffusers. The system has the benefit of displacement ventilation system, which provided improved air acceptability and better indoor air quality.



Water Scrubber for Refrigerant Leakage Protection



Ammonia Chiller



Chiller Plant

## Pre-Insulated Pipework and Ductwork

To reduce the scrap material and shorten the installation period, most of the pipework and ductwork were off site prefabricated, pre-insulated and completed with cladding before delivering to site. In order to reduce damage, the exact delivery of the required quantities were according to just in time management and rolling program for each zone.

## Project Summary

Project Site	: EMSD Headquarters, Kowloon Bay
Client	: EMSD
Architect & Engineer	: ASD
HVAC Contractor	: Krueger Engineering (Asia) Ltd.
Total Cooling Capacity	: 1200 RT coupling with 200 RT Slurry Ice Maker
Contract Sum	: Over HK\$80 million
Completion Date	: December 2004