

BROKKS IN SINGAPORE TAKE OFF AT CHANGI

Changi Airport Terminal 2 is undergoing a major retrofitting and upgrading project which includes a complete rebuild of the building's frontage fascia.



It was initially envisaged that for demolition of the concrete and cladding façade over two storeys and roof, plus interior walls, contractors would rely on conventional jack hammers. However the restrictive night-time only working hours in the 'live' operational airport terminal building, together with concerns with noise and dust pollution, necessitated an alternative solution if the critical 30 month contract was to be met.

Two months into the contract, demolition sub-contractor Choon Construction Pte Ltd therefore introduced its first remote operated electro-hydraulic demolition 'robot' from Brokk AB, a Brokk 180. So successful was the machine that two further units, a top of the range Brokk 330 and a smaller Brokk 90 were soon also ordered.



Starting at the east end of the terminal building, demolition and rebuilding has been split into six packages each covering approximately 50m frontage over the terminal building. Demolition also includes interior walls, raised floors and escalator 'wells'.

Initial trials using the Brokk 180 with concrete crusher proved it was able to breakdown a 3m x 3m x 0.25m brick wall in just 15 minutes – a quarter of the time it would take 6 - 8 men with conventional tools. Further, the Brokk 'robot' also reduced dust, noise pollution and vibration; all important features for a 'live' business environment.

According to Choon Construction director Tommy Lim, the Brokk ensured the flexibility of 'round the clock' working compared with the previous 12pm – 5am working hours. "This allowed us to catch up on the lost time of the first couple of months," he said.

The middle of the range Brokk 180 proved to be the ideal size for the Changi project with its low weight, high capacity and good accessibility characteristics in very confined spaces.

For demolishing the major structural elements at the front of the building however, Choon recognised the need for the larger 'top of the range' Brokk 330. With concrete thicknesses of between 400-550mm with pre-cast concrete slabs and cast in-situ wall thicknesses of 300mm, the Brokk 330 is being used to remove the roof and two storey façade.



Considered to be the world's highest capacity remote controlled demolition machine, the Brokk 330 can be equipped with a variety of tools weighing up to 550kg. It is ideal for heavy demolition projects where high capacity and short demolition times are the deciding factors.

The Brokk demolition units all feature excellent reach facilities – the 330 has a reach of up to 6.5m, the 180 has a 5.1m reach when using the extra telescopic facility and the smaller Brokk 90 can reach an impressive 3.6m.

But according to Tommy Lim a major advantage is the labour saving; just one man using the remote control is required. Remote operation of the Brokk units means that the operator with a good overview of the task in hand can stand a safe distance from the working area and falling debris.