

# CASE STUDY DEVELOPMENT OF 6<sup>TH</sup> WASTE- TO-ENERGY PLANT, SINGAPORE PROJECT



## Project Participants

Owner  
National Environment Agency

Client  
Hydrochem (S) Pte Ltd

Chimney EPC Contractor  
BEC Pte Ltd.

Lining System  
SCR-TEN 2

## CHIMNEY DESIGN AND BUILD

6<sup>TH</sup> WTE, SINGAPORE PROJECT



The National Environment Agency has selected the consortium comprising Hyflux Ltd (Hyflux) and its partner Mitsubishi Heavy Industries, Ltd. (MHI), as the preferred Bidder for the construction of a new Waste-to-Energy (WTE) plant located at Tuas South Avenue 3, Singapore. As the Preferred Bidder, Hyflux and MHI will form a concession company to enter into a Waste-to Energy Services Agreement with NEA to provide 3,600 tonnes per day of incineration capacity.

## 6<sup>th</sup> WTE, Singapore Project

The 6th WTE will be Singapore's largest and most energy-efficient WTE plant. It will be able to produce 2,880MWh of electricity daily, which is equivalent to 800kWh per ton of waster incinerated under standard operating conditions. The electricity will be used to power the plant and the excess power will go towards supplying Singapore's needs. The 6th WTE plant will also be Singapore's most land-efficient plant. Situated on a 4.8-hectare site, it will have a processing capacity of 750[2] t/d per hectare.

The new WTE plant is part of NEA's long-term plan to meet Singapore's future waste management needs. With the scarcity of land in Singapore, the constant challenge is to find the most efficient solutions. This plant will be developed to optimize land use, achieve greater environmental sustainability and further provide for Singapore's waste management needs.

## Detail of work by BEC

BEC was awarded the contract to design and build a 120m high, concrete reinforced stack with 4 x 2.650m ID liners. The works included slipform, heavy lifting of roof, floors and flues, installation of internal rack and pinion hoist, AWLs, internal lighting, lightning conductor and earthing works.

## Challenges

- Compact Site – limited working area
- Lifting and installation of four flue liners into a windshield space
- Installation of 4 entry ducts through a single windshield opening

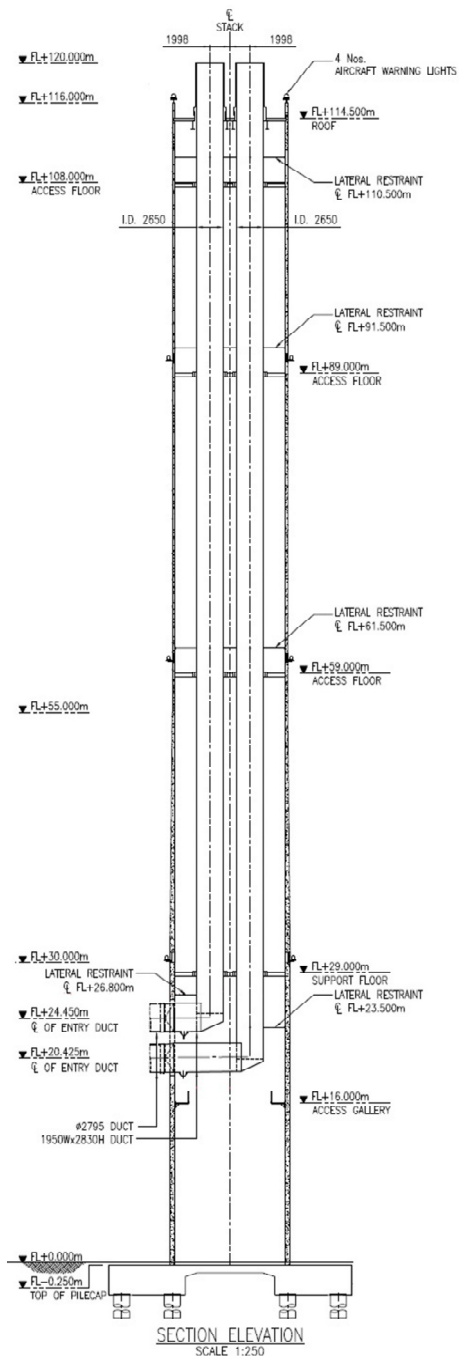


### BEC Group of Companies

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## 6<sup>th</sup> WTE Plant Stack elevation

Chimney Data	
Height	120m
No. of internal steel flue	4
No. of internal platforms	4
Diameter of internal flue	2.650m
External concrete diameter	12.000m – 11.500m
Piles	21 Nos. x 1,600mm dia.
Pile Cap	24,200mm dia. x 3,000mm thk



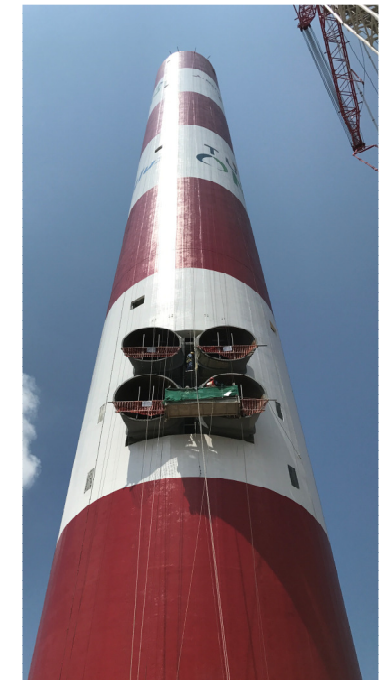
Chimney Construction in progress



Installation of Floor Beam



Lifting of Flue Liners



Installation of Insulation