

CASE STUDY

THERMAL OXIDIZER REFRACTORY & CERAMIC FIBER MODULE INSTALLATION SINGAPORE



Project Participants

Client

BW Offshore EPC FZCO

Maintenance Contractor

Balanced Engineering & Construction Pte Ltd

SINGAPORE PROJECT



BEC was contracted by BW Offshore EPC to carry out the refractory and ceramic fibre module installation work to the Thermal Oxidizer, located at Seatrium, Singapore.

Thermal Oxidizer Refractory & Ceramic Fiber Module Installation

The Thermal Oxidizer is made up of three sections. Section 1 is 13,223m in height and lined with insulation refractory on the inner face and dense refractory on the outer hot face. Section 2 is 15,362m in height and lined with Ceramic Fiber Module as is section 3 which is 15,548m in height. When fully assembled the Thermal Oxidizer is 44.133m high. The works started in December 2023 and was completed by April 2024.

Detail of work by BEC

BEC was awarded the work to install the refractory and ceramic fiber to the thermal oxidizer. The work scope included:

- Refractory installation inside Section 1.
- Refractory cure-out operation, including installation of blanking plates c/w insulation up to maximum 550°C.
- Install ceramic fiber insulation around the inner wall of Sections 2 and 3.
- Install ceramic fiber insulation at field weld joint location Sections 1 and 2.
- Install ceramic fiber insulation at field weld joint location Sections 2 and 3.
- Sample testing of the refractory.

Challenges

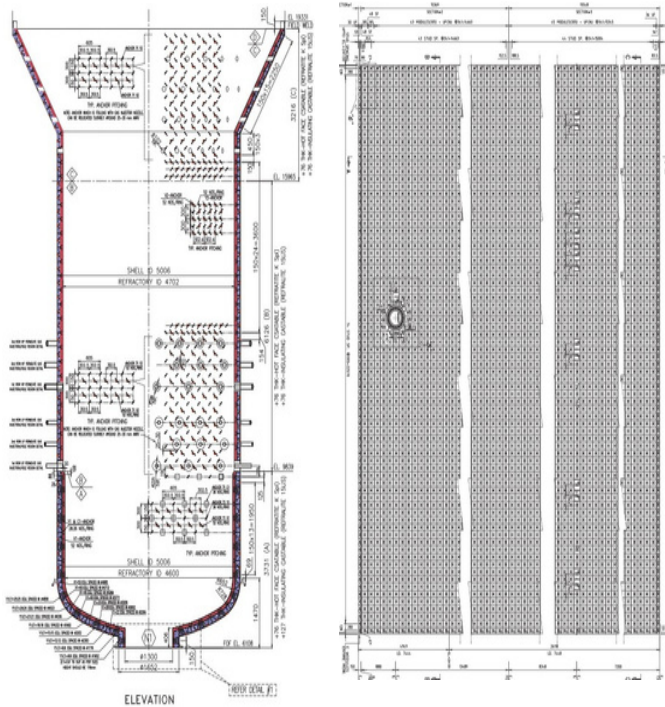
- Restricted working area for installation of forms
- Transfer of materials from ground to casting area
- Working in a confined space



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THERMAL OXIDIZER REFRACTORY & CERAMIC FIBER MODULE INSTALLATION, SINGAPORE

Thermal Oxidizer	
No. of Sections	3
TO Internal Diameter	5m
TO Section 1 Height	13.223m
TO Section 2 Height	15.362m
TO Section 3 Height	15.548m



Testing and mixing of refractory material on site



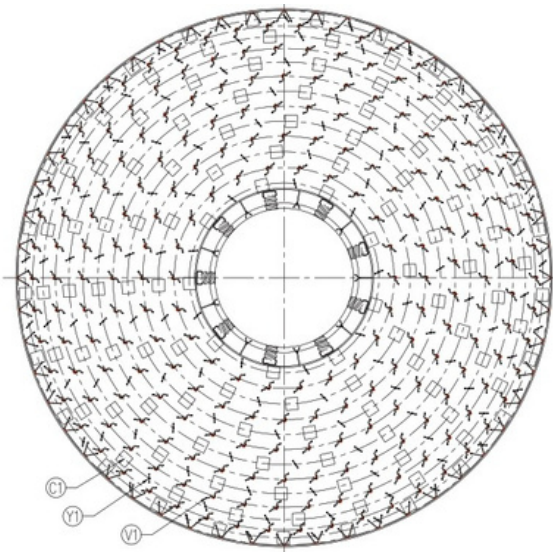
Installation of refractory material to section 1



Installation of ceramic fiber module to section 2 and section 3



Refractory curing/dry out works to section 1



Thermal oxidizer section 1, section 2, and section 3, ready to lift and connect