

Masinloc Unit 5 Philippines

Slipform Construction and Steel Flue Installation

DATA AT A GLANCE

Chimney height	155 m
No. of internal steel flues	1
No. of internal platforms	6
Windshield concrete volume	2,760 m^3
Diameter of internal flue	5.4 m

Slipform Performance

Peak climb rate of 5 metres in 24 hours, averaging 3 metres per day.

Precision Installation

Coordinated heavy lifting, embedded steelwork and flue installation within restricted clearances.

Quality & Safety

Close supervision and safety controls supported precision construction and complex lifting operations.

Project Overview

Balanced Engineering & Construction (BEC) undertook specialist construction works for the Masinloc Unit 5 power plant chimney in Zambales, Philippines, as part of the facility's generating capacity expansion.

The project involved construction of a reinforced concrete windshield approximately 151 metres high, with an internal diameter of 11 metres, housing a single 5.4-metre-diameter steel flue extending to 155 metres.

The project required close coordination between concrete construction, steel installation, embedded components and engineering interfaces, with particular attention to the positioning of internal access structures and the installation of the flue inlet elbow.

Challenges

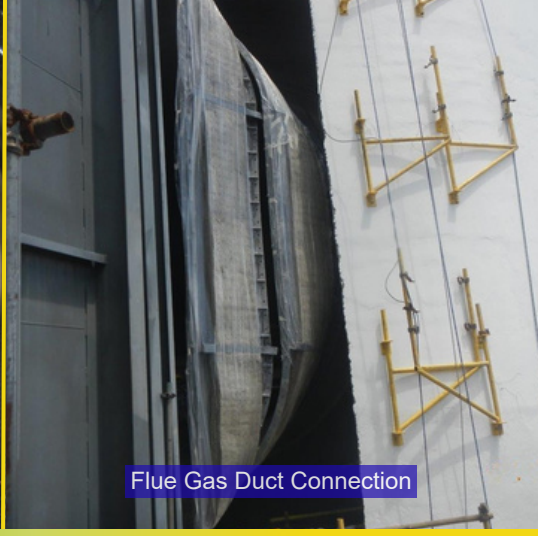
- **Embedded steelwork and access structures.** The positioning and levelling of cast-in plates and connection points required particular precision to ensure the subsequent alignment of internal platforms and staircases.
- **Installing the flue inlet elbow in a restricted space.** One of the most technically demanding activities was assembling and positioning the curved steel elbow connecting the internal flue to the incoming ductwork. Limited installation clearances required carefully controlled lifting and positioning to avoid interference with the surrounding structure.
- **Managing programme constraints.** Delays in the handover of the structure compressed the available construction programme, increasing the importance of effective sequencing, resource coordination and maintaining progress against critical milestones



Reinforcement Installation



Inlet Elbow Installation



Flue Gas Duct Connection

Owner

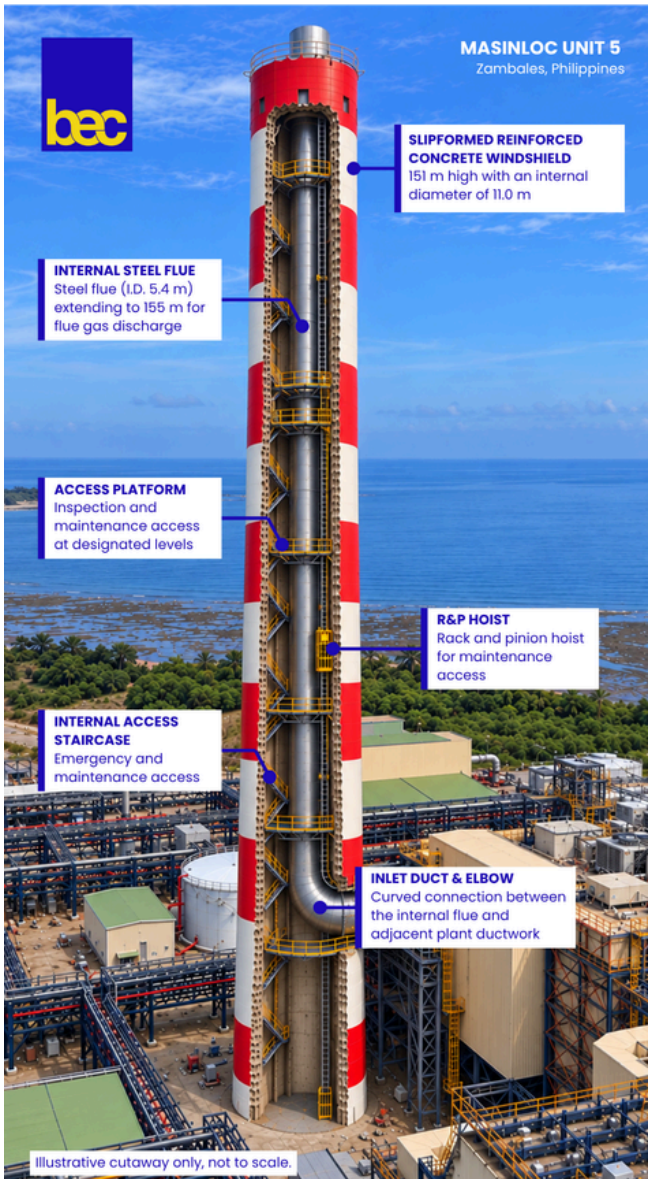
Masinloc Power Co Ltd

Client

Formosa Heavy Industries Corp.

Completion Date

November 2026



BEC Scope and Delivery

BEC's scope combined specialist slipform construction with fabrication and installation of internal structural steelwork, steel flue liner cans and access systems, supported by heavy lifting operations.

Key works included:

- Detailed design, engineering and slipform construction of the reinforced concrete windshield.
- Fabrication and installation of internal structural steelwork, steel flue liner cans and the inlet elbow within restricted clearances.
- Installation of internal access platforms, staircases and liner support systems.
- Supply and installation of the rack-and-pinion access hoist.
- Installation of corrosion protection, roof and ventilation components.
- Electrical works, including access lighting, lightning protection and aviation warning lights.

Close supervision and regular safety briefings supported simultaneous construction, lifting and work-at-height activities.

The BEC Impact

The project demonstrated BEC's specialist slipform capability, achieving an average climb rate of 3 metres per day and a peak of 5 metres in 24 hours. This performance was delivered while coordinating concrete placement, reinforcement, embedded steelwork and lifting operations, despite variable concrete supply and challenging overnight conditions.

Through close supervision, careful construction sequencing and responsive engineering coordination, BEC managed the technical demands of this high-rise industrial structure, maintaining a focus on safety and achieving the critical windshield completion milestone despite programme constraints

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