

Title: **Scope of Work for Air & Flue
Gas Ducting and Dampers
Inspections, Repairs, and
Replacements**

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1. INTRODUCTION

The scope of service in this contract relates to the management, supervision, labour, consumables supply, provision of equipment, administration, warehousing and storage related to the service and maintenance on the Boilers' Ducting and Dampers (Units 1 – 10). The Employer's objectives for this contract include security of supply, economies of scale, competitive pricing, encouraging a long-term commercial relationship with the Contractor based on mutual trust, commitment to common goals and an understanding of each Party's expectations and values.

2. SUPPORTING CLAUSES

2.1 SCOPE

The scope comprises of, but is not limited to, inspections, repairs, and replacement of defective ducting, dampers, expansion bellows, ducting hangers and O₂ matrices in the Boiler air and flue gas ducts across all Hendrina units during an outage.

2.1.1 Purpose

The purpose of this scope of work is to outline all the contract work to be performed by the service provider who gets awarded the contract, and the responsibilities of all parties involved. The contract scope of work serves to support the tender technical evaluation process.

2.1.2 Applicability

This document is applicable to Hendrina Power Station's Flue Gas and Air supply ducting, dampers, ducting hangers, expansion bellows, and the O₂ matrices across all units.

2.2 NORMATIVE/INFORMATIVE REFERENCES

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

- [1] 240-168966153: Generation Tender Technical Evaluation Procedure
- [2] QM-58 Supplier Contract Quality Requirements Specifications

2.2.2 Informative

- [3] ISO 9001 Quality Management Systems
- [4] 32-1-34 Eskom Procurement Policy

2.3 DEFINITIONS

Term	Definition
Contractor	Service Provider contracted for supplying a specific service to Eskom Hendrina Power Station. Used interchangeably with the term <i>Supplier</i> .
Employer	The organization (Eskom) to which the supplier will be contracted for this tender and contracts that may result therefrom
Employer's Premises	Hendrina Power Station
Industrial Storage Facility	Physical space suitable for the storage of the items specified in the scope of work

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2.3.1 Classification

Controlled Disclosure: Controlled Disclosure to external parties (either enforced by law, or discretionary).

2.4 ABBREVIATIONS

Abbreviation	Description
OEM	Original Equipment Manufacturer
IN	Inch
KPI	Key Performance Indicators
QCP/QIP	Quality Control Plan / Quality Inspection Plan
PS	Power Station
PTW	Permit to Work
SOW	Scope of Work

2.5 ROLES AND RESPONSIBILITIES

2.5.1 The Employer

The responsibilities of the employer include the following:

- a) Issue the service provider with the SOW in time prior to a commence of an outage.
- b) Clarify the SOW to the service provider prior to the outage commencing.
- c) Make all necessary arrangements, including permit to work (PTW), for the supplier to gain site access and perform work required.
- d) Do quality checks on the service provider's work to ensure the quality of work maintains the required standard.
- e) Provide any necessary support required by the service provider.

2.5.2 Service Provider

The responsibilities of the contractor include the following:

- a) Comply with the employer's environmental, health, and safety standards, policies, and procedures.
- b) Make all repair/refurbishment information available to the employer on request.
- c) Inform the employer's representative at least 48 hours prior to any hold points that may require the employer.

2.6 PROCESS FOR MONITORING

N/A

2.7 RELATED/SUPPORTING DOCUMENTS

N/A

3. SCOPE OF WORK

The contractor will be expected to perform/carry out the activities stated below on the ducting and dampers under the instruction of Outage Management and Boiler Engineering at Hendrina Power Station and the outputs will be used to measure the performance of the contractor. The contractor will be responsible for supplying the station with the following resources during an outage:

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- Management.
- Supervisory
- Labour
- Equipment
- Tools
- Storage
- And any other items deemed necessary by the employer for the proper execution of the whole of the work covered by this enquiry or arising there from including lifting equipment.

3.1 THE BOUNDARIES OF THE AREA INVOLVED.

Flue gas ducting an dampers

- From the economiser outlet duct to the air heater casing joint (including economiser outlet dampers, damper sealing faces, flue gas turning vanes, expansion joints and O₂ Matrices).
- From the air heater outlet casing joint to FFP inlet connection frame (including connection frame, attemperator ducting with dampers, damper sealing faces, FFP inlet dampers, and crossover duct with dampers but excluding concrete).
- From FFP outlet connection frame to ID fan inlet flange (including FFP outlet dampers, damper sealing faces, cross-over duct with dampers and connection frame but excluding concrete).
- From ID fan outlet flange to ID fan discharge damper.

Air ducting and dampers

- From FD fan air intake at 170ft level to FD fan inlet flange (including inlet screen)
- From FD fan discharge flange to air heater inlet. (including FD fan discharge dampers)
- From FD fan discharge flange to last secondary air expansion joint (Including hot air recirculating damper).
- From FD fan discharge to PA fans tempering air inlet flange (including tempering air dampers and crossover ducting).
- From air heater discharge expansion joint to last secondary air expansion joint (including all dampers).
- From air heater discharge to PA fan inlet damper flange (including quick closing dampers for units 6 – 10).

3.2 THE WORKS

Flue Gas Ducting and Dampers

- Open inspection/access doors.
- Replace door packing on all inspection doors.
- Inspect all dampers condition and repair worn out dampers.
- Inspect all dampers sealing frames and repair/replace worn out sealing frames.
- Inspect all damper shafts and bushes for free play and wear, replace worn damper/bushes.
- Inspect casing and repair/replace worn/eroded areas.

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- From inspection results (Wall thickness), cut and fit window patches on areas below minimum wall thickness as required.
- Inspect for wear and repair stiffener beams/stays and protection plates.
- Inspect and repair worn/eroded turning vanes.
- Inspect and repair O₂ matrix and probes (oxygen sampling system) with shields.
- Remove inner cover plates and replace with new cover plates.
- Inspect and replace expansion joints, where damaged manufacture new inner cover plates and seal weld cover plates on high flow side only with enough retaining docks and spacing.
- Install expanded metal on high wear area and fabrication of new vanes.
- Mechanically stroke dampers to ensure effective operation and sealing (Functional test).
- Close access doors.
- Inspect and repair damaged ducting hangers.

Air Ducting and Dampers

- Open inspection/access doors.
- Replace door packing on all inspection doors.
- Inspect all dampers' condition and repair worn out dampers.
- Inspect all dampers' sealing frames and repair/replace worn out sealing frames.
- When inspections (wall thickness) are done during longer outage durations, cut and fit window patches on areas below minimum wall thickness as required.
- Inspect PA fan suction damper seals.
- Remove PA fan suction damper cylinders for testing and overhauling.
- Replace worn or damaged seals.
- Replace expansion joints.
- Re-install hot air dampers hydraulic cylinders.
- Re-install PA suction damper cylinders.
- Mechanically stroke dampers to ensure effective operation and sealing (Functional Test).
- Close all inspection doors.
- Inspect and repair damaged ducting hangers.

PA Fan Ducting and Dampers

- Open inspection/access door.
- Replace door packing on all inspection doors.
- Inspect all dampers' condition and repair worn out dampers.
- Inspect all dampers' sealing frames and repair/replace worn sealing frames.
- When inspections (Wall thickness) are done during longer outage durations, cut and fit window patches on areas below minimum wall thickness as required.

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- Inspect and repair quick closing dampers, stroke and function test dampers for sealing (Unit 6 – 10)
- Inspect hot and cold tempering air damper seals.
- Inspect PA fan suction damper seals.
- Remove PA fan suction damper cylinders for testing and overhauling.
- Replace worn or damaged seals.
- Check orifice plates and tapping points settling.
- Inspect tempering air dampers, cut out damaged ones and re-install.
- Inspect all damper shafts and bushes for free play and wear, replace worn damper/bushes.
- Repair air leaks on all the seals.
- Replace expansion joints.
- Re-install hot air damper hydraulic cylinders.
- Re-install PA suction damper cylinders.
- Stroke dampers to insure effective sealing.
- Close all inspection doors.
- Inspect and repair damaged ducting hangers.

3.3 EFFECTIVE DATE

This document will be effective from the date that the contract is authorised.

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