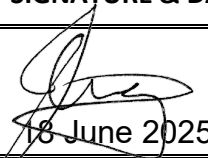


Classification:

**OPEN**

REPORT No.:	NLM-REP-25/196
Department/Section	WM/DP
TITLE:	Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System

#### Authorization

	NAME	SIGNATURE & DATE
<b>PREPARED</b>	<b>J Cronje</b> HVAC Specialist	 18 June 2025
<b>CHECKED</b>	<b>JH Lubbinge</b> Decommissioning Specialist Decommissioning Services	
<b>CHECKED</b>	<b>S Mngoma</b> Chief Mechanical Engineer Engineering Services	
<b>APPROVED</b>	<b>Y Mandri</b> Engineering Manager Engineering Services	
<b>ACCEPTED</b>	<b>CS Melane</b> Manager Decommissioning Services	

#### Distribution list

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

NO.	NAME	NO.	NAME	NO.	NAME
1	NLM QA RECORDS	11		21	
2	J CRONJE*	12		22	
3	JH LUBBINGE*	13		23	
4	N Kalume *	14			
5	T Phalane *	15			
6		16			
7		17			
8		18			
9		19			
10		20			

\* = Distributed via E-mail

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

## Contents

<b>1.0</b>	<b>Purpose .....</b>	<b>2</b>
<b>2.0</b>	<b>Background .....</b>	<b>2</b>
<b>3.0</b>	<b>References .....</b>	<b>2</b>
<b>4.0</b>	<b>Abbreviations .....</b>	<b>2</b>
<b>5.0</b>	<b>Scope of Work .....</b>	<b>2</b>
<b>6.0</b>	<b>Formal Agreement .....</b>	<b>3</b>
<b>7.0</b>	<b>Program .....</b>	<b>3</b>
<b>8.0</b>	<b>DRAWINGS.....</b>	<b>4</b>
8.1	Necsa’s Drawings and Specification.....	4
8.2	Structural Drawings .....	4
8.3	Installation Drawings Submission.....	4
8.4	“As-Built” Drawings .....	5
<b>9.0</b>	<b>Equipment Selection Submissions.....</b>	<b>5</b>
9.1	Sample Submissions .....	5
9.2	Submission procedures.....	5
<b>10.0</b>	<b>Operating and maintenance manuals, wiring and control diagrams .....</b>	<b>6</b>
<b>11.0</b>	<b>Guarantee .....</b>	<b>7</b>
<b>12.0</b>	<b>Practical Completion .....</b>	<b>8</b>
<b>13.0</b>	<b>System Description .....</b>	<b>8</b>
<b>14.0</b>	<b>Functional Description .....</b>	<b>9</b>
<b>15.0</b>	<b>Interlocks .....</b>	<b>9</b>
<b>16.0</b>	<b>Schedule of Equipment .....</b>	<b>9</b>
16.1	Dampers .....	9
16.2	Fans.....	9
16.3	Pre-Filters.....	10
16.4	HEPA Filters.....	10

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

16.5	Safe Change Filter Housings .....	12
16.6	Differential Pressure Gauges .....	12
16.7	Ducting .....	13
16.8	At-Source filtration .....	13
	<b>Bills of Quantities .....</b>	<b>15</b>
<b>17.0</b>	<b>Preambles .....</b>	<b>16</b>
	<b>TERMS AND CONDITIONS OF CONTRACT .....</b>	<b>25</b>

## Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System

### 1.0 Purpose

The purpose of this document is to provide detailed technical specifications for the ventilation system, required for the Cutting Rooms, located within D-Building on Necsa's Pelindaba precinct. This will enable a ventilation contractor to provide Necsa with a commercial offer for the detailed design, equipment selection, installation and commissioning of the Cutting Rooms ventilation system.

### 2.0 Background

D-Building is situated on the Eastern side of the Pelindaba site. Three rooms within the building are earmarked for cutting/size reduction of decommissioned, radioactive contaminated material. For the realisation of the cutting activities in these rooms a ventilation system needs to be established to ensure safe operation within these areas.

### 3.0 References

[1]	ENS-MES-SPE-0004	HVAC User Requirement Specification for D-Building Cutting Rooms
-----	------------------	--

### 4.0 Abbreviations

HEPA	:	High Efficiency Particulate Arrest
------	---	------------------------------------

### 5.0 Scope of Work

The ventilation contract works to be carried out within the scope of this specification, consisting of the engineering, supply, delivery, off-loading, erection testing, setting into operation, commissioning, testing and balancing, guarantee and maintenance, complete with Operating & Maintenance manuals and "as built" drawings of the mechanical services as described herein. The ventilation contractor shall fulfil the role of a main contractor and is responsible for all activities to successfully complete the work.

The engineering, quality control and inspections, equipment selections, preparation of installation drawings, testing, balancing, commissioning and the preparation of operating and maintenance manuals, shall be executed in a systematic manner, in accordance with an agreed program, under Necsa's general supervision for approval by Necsa for:

- a) Programming the works.
- b) Equipment selection.
- c) Installation drawings.
- d) Procurement of equipment to be installed.
- e) Installation.
- f) Testing, balancing and commissioning documentation.

## Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System

- g) Operating, instructions and maintenance manuals.
- h) Inspections and check lists.

### 6.0 Formal Agreement

It shall be expected from the successful contractor to enter into a formal agreement/Service Level Agreement with Necsa. Necsa shall provide the basis for the agreement/Service Level Agreement.

Items within the agreement will be mutually agreed upon before signature.

Annexure 1 contains the Standard Terms and Conditions of such a contract for reference purposes.

### 7.0 Program

The ventilation contractor shall submit to Necsa, within **two weeks** of his appointment a practical work program. This practical work program shall provide the following minimum information:

- a) Required access date
- b) Long lead item procurement schedule
- c) Installation plan, detailing the sequence of installation activities
- d) A project schedule for the submission of structural, installation, equipment selections, inspections report or completed portions of the Works, Operating & Maintenance Manuals, testing, balancing and commissioning.
- e) Health and safety file

Sufficient time shall be allowed for re-submission of rejected documentation and Engineer's review/approval.

On a regular basis, the ventilation Contractor shall submit updates of the practical work program should amendments be required. All such amendments are to be subject to Necsa's approval and shall not amend the project's completion date, unless official extension to the contract period has been granted.

Should the ventilation contractor fall behind the practical work program, the ventilation contractor shall take such steps as may be necessary to recover lost time.

This may require additional shifts, overtime, or additional plant and manpower, and to submit for approval by Necsa, revised practical work programs to demonstrate the manner in which the required rate of progress will be achieved, all without additional cost to the client.

Regular meetings to monitor progress will be held. These meetings must be attended by as many representatives as is required. In addition, the meeting will be attended by the various Professionals at their own option and solely in their consulting capacity.

Progress meetings shall be held on a regular basis as determined by the Necsa Project Manager.

Allowance shall be made to attend such meetings on a weekly basis for tendering purposes.

The meeting shall be attended by as many representatives from the contractor side as is required to provide accurate and informed feedback on the project progress, status and

## **Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

challenges experienced. As a minimum the meeting shall be attended by the contractor's appointed responsible person.

### **8.0 DRAWINGS**

#### **8.1 Necsa's Drawings and Specification**

Drawings prepared by Necsa, as part of this document, show only the general layout of all equipment and distribution systems, complete with schematic arrangements. These together with this specification, will give sufficient information to enable the ventilation contractor to determine the cost and to establish how the system must be installed, tested, balanced, inspected, operated, serviced and maintained.

These drawings are not to be used as installation drawings and therefore cannot be used as construction/ installation drawings. Dimensions and locations shown are only guides to the routes and zones in which the service must be installed.

Design, selection and construction details, and/or installation arrangements for equipment and distribution systems are available from either the manufacturer or the supplier in their officially published literature/ documentation, design/application manuals, or other authoritative sources of information such as:

- a) South African Bureau of Standards (SABS)
- b) Chartered Institute of Building Services Engineers. (CIBSE)
- c) American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE)

Information issued shall be used as a basis for development of detailed design, manufacturing, and installation drawings. The specific source to be clearly identified when making submissions. Where the information contained in the equipment quality specifications do not provide sufficient details, reference must be made to one of the above sources.

#### **8.2 Structural Drawings**

Where applicable the ventilation contractor shall supply Necsa with a set of structural drawings and or other drawings, showing requirements to fit equipment apparatus and materials to be installed by him.

It will be the ventilation contractor's responsibility to ensure that sufficient installation, maintenance and operation clearance is provided into the building space provided. Such drawings shall be accepted by an approved Necsa responsible person before implementation can take place.

#### **8.3 Installation Drawings Submission**

Installation drawings shall indicate all equipment, distribution systems, testing, inspection, instrumentation positions, access requirements and work to be carried out by others.

Installation drawings shall be based on the information as supplied during tender stages such as this document, diagrams and drawings supplied as well as approved equipment selection and approved samples. The installation drawings shall have been checked and passed by a responsible member of the ventilation contractor's staff, such as the Project Engineer/ Manager.

Copies of the installation drawings of all parts of the ventilation contract works shall be submitted to Necsa for approval by an approved Necsa responsible person.

## **Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

### **8.4 “As-Built” Drawings**

“As-Built” drawings shall comprise the installation drawings as specified above, updated with indicating all terminals and equipment controller position and further system diagrams, indicating the intended functioning capacity data and control functioning of all systems.

### **9.0 Equipment Selection Submissions**

The details contained in the Equipment Quality Specification, as listed under item 16 – Schedule of Equipment, are guidelines based on which the ventilation contractor should select the equipment. These selections shall be submitted to Necsa for approval.

No equipment shall form part of this contract until the equipment selection submission has been approved by Necsa. All equipment selection submissions shall be stamped and signed by a ventilation contractor’s responsible person, such as Project Engineer/Manager, signifying that all the requirements of this specification have been complied with. Any deviation shall be highlighted in the equipment selection submission.

Pre-ordered equipment shall be handled in the same manner, with the ventilation contractor submitting equipment selection submissions. It is the responsibility of the ventilation contractor to ensure that the pre-ordered equipment complies fully with the requirements of this specification

### **9.1 Sample Submissions**

Samples required by Necsa, are physical examples required to illustrate materials finished, equipment or workmanship, and /or to assist with the onsite co-ordination, and/or to set standards by which the works may be judged. Where applicable certification, indication compliance with statutory and regulatory compliance must accompany such a submission. The approved samples will be retained by Necsa until the relevant component is supplied and delivered as per samples but will then be returned to the ventilation contractor for incorporation in the works.

### **9.2 Submission procedures**

Submission of installation drawings and equipment selections shall consist of the following activities carried out by the ventilation contractor and the other involved /interested parties:

- a) The ventilation contractor shall prepare his submission in a manner and format agreed with Necsa. All submissions shall be dated and signed by the ventilation contractor’s responsible person and shall be submitted in any orderly sequence and timeously as not delay the works, giving the approving parties sufficient time to proper approval procedures.
- b) All submissions shall clearly indicate, and Necsa shall be informed in writing of all deviations from the requirements of this specification.
- c) All equipment selection submissions shall be accompanied by a copy of the applicable Quality Specification, as indicated under item 16 – Schedule of Equipment, with each clause clearly marked “Complies” or does not comply”. Motivation for the noncompliance shall be supplied with equipment selection submission duty countersigned by the ventilation contractor’s Project Engineer/Manager.



**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

- d) Equipment selection submissions shall be indexed in a manner to conform with the indexing of the Operating and Maintenance Manual, to allow direct incorporation.
- e) At least 3 copies of all Installation drawings, diagrams and Equipment selections shall be submitted to Necsa for approval. By submitting drawings, diagrams, Equipment selections and/or samples, the ventilation contractor confirms that he has determined and verified all site measurements, site instruction criteria, materials, catalogue numbers, and that he has checked and coordinated with all available drawings issued for compliance with the requirements of the works and that of this specification.
- f) Necsa shall approve the ventilation contractor's submissions with reasonable promptness for conformance with the design concept of the ventilation contract works and with the information given in this specification. Necsa's approval of a separate item shall not indicate the approval of the assembly in which the item functions.
- g) The ventilation contractor shall make all corrections to the submissions required by Necsa and shall re-submit the required and corrected copies for re-approval until approved by Necsa. This process is to take place with reasonable promptness so as not to cause any delay to the works. The ventilation contractor shall highlight any revisions on the re-submitted documents, other than corrections required by Necsa on previous submissions.

## **10.0 Operating and maintenance manuals, wiring and control diagrams**

The ventilation contractor shall prepare a draft operation and maintenance (O&M) manual and submit this to Necsa for approval. The manual must be typed in English on A4 paper with consecutively numbered pages and shall contain the following information arranged in sections in the order stated below:

- Section 1: System Description (this section shall contain a brief description of the system, what its function is and how it operates. A list of any abbreviations used in the O & M manuals shall be included.)
- Section 2: Operating Instructions (this section should describe how to start and stop the systems, any special procedures after a power failure, how to change system parameters, etc. This can cross-reference to the control section for more detailed information.)
- Section 3: Trouble Shooting (this section shall provide schedules of procedures to follow to find faults in event of a system malfunction.)
- Section 4: Commissioning Data (this section shall contain all the final measurements of the installation as commissioned and shall also include full details of the design parameters specified.)
- Section 5: Maintenance Instructions (this section shall detail maintenance operations to be carried out on a daily, weekly, monthly, etc. In addition, it should detail which daily/weekly activities should be carried out by the Client during the guarantee period.)
- Section 6: List of Equipment Suppliers (this section should list all the equipment, with make, model no., and serial no. as well as full particulars of the suppliers contact details.)
- Section 7: Spare Parts List (this section shall detail the recommended spare parts, differentiating which should be held on site and which could be ordered as required. Details of all lubricating oils and greases required must be included.)

## Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System

- Section 8: Equipment Data Schedules (this section shall contain schedules giving the full particulars of each item of equipment and its subcomponents e.g. Size, mass, flow rates, current ratings, safety devises, gas charge, motor/fan rpm, etc.)
- Section 9: Supplier's Literature (this section shall all the relevant catalogues, performance curves and pamphlets of the equipment installed.)
- Section 10: Control System (this section shall contain details on the operation of the control system, control philosophy, block logic diagrams, etc.)
- Section 11: Electrical Drawings (this section shall contain the panel layout drawings and the wiring diagrams.)
- Section 12: As-built Drawings (this section shall contain all the as-built and detail drawings of the installation. Separate as-built drawings indicating the positions of all control devices and sensors must be included)

After approval of the draft described above, a soft copy of this manual as well as two sets bound in hard covers, shall be handed to Necsa.

The Final Certificate of Completion will not be issued until this manual has been supplied and the wiring diagrams installed.

### 11.0 Guarantee

The contractor shall guarantee the entire installation (materials, equipment and workmanship) for a period of 12 months. The guarantee shall cover patent and latent defects and all items that become defective during the 12-month guarantee period shall be replaced and installed free of charge.

Any equipment in need of replacement, but came into contact with radioactive substances shall not be removed from site and cannot be recovered by the contractor.

The guarantee period shall commence at the date when the installation is put into beneficial use to the satisfaction of Necsa. Beneficial use may take place before or after the official completion and hand-over date and beneficial use shall mean full time operation of the system by the Client or at the request of the Client.

Equipment purchased well in advance of the completion of the project, shall still carry the 12-month guarantee from date of handover or date of beneficial use. Where the installation is handed over in phases, the guarantee for equipment of that particular phase shall commence on handover of that phase.

The guarantee shall only commence once the following criteria have been met:

- Practical completion has been achieved.
- All commissioning data submitted and approved.
- O & M Manuals approved and issued to the Client Validation data issued and approved.
- Client training has been carried out.

## Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System

### 12.0 Practical Completion

Practical completion shall mean the following:

- All remedial items within the facility and any items which may affect the continued operation of the installation, shall be completed.
- Commissioning data shall have been submitted for approval.
- O & M manuals shall be made available. The guarantee will not commence until O & M manuals are submitted.

### 13.0 System Description

Refer to Figure 1.

The new process type, ventilation system shall serve all three areas simultaneously. The system will pull air from the three spaces and as a first filtration stage, remove coarse particles within the room. From there ducting will channel air to a secondary and HEPA filtration stage before it passes through a fan and is discharged to the atmosphere.

Air will be pulled into the three areas via wall mounted grilles from the greater area of D-Building. This will cause the building to be under slight negative pressure, as air will leak into the building from the outside through existing openings.

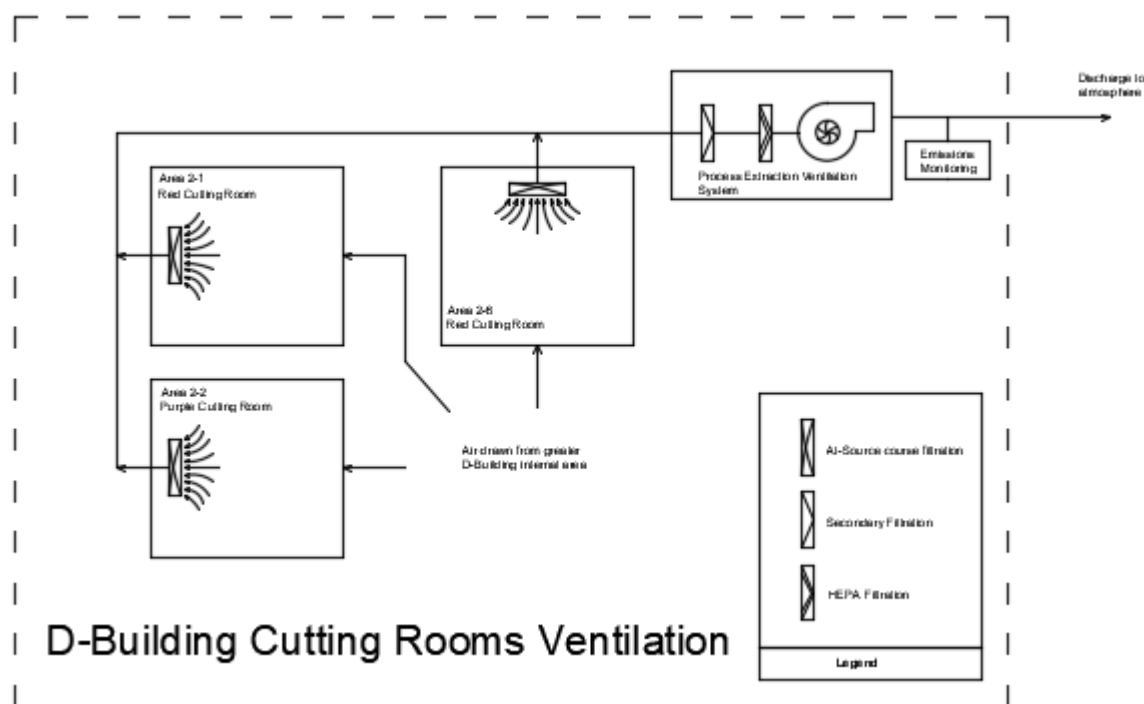


Figure 1 – D-Building Cutting Rooms Ventilation Flow Diagram

## **Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

### **14.0 Functional Description**

The system shall be switched on via a remote switch located within proximity of the cutting rooms such as in the passage. The final location shall be confirmed upon installation. The system shall run continuously with no automated controls. Switching off will be via the same remote switch as discussed above. All dampers shall be manually set during commissioning and locked in place.

### **15.0 Interlocks**

- a) Provision shall be made to “trip” the system when a signal from the fire system is received.

### **16.0 Schedule of Equipment**

#### **16.1 Dampers**

A balancing damper shall be fitted on each vortex filter box for manual adjustment as part of commissioning. The damper material and construction shall be robust and aligned with the ducting material capable of handling elevated air flow velocities without suffering damage during operation.

Sheet metal used for damper fabrication shall be same as or thicker than ducting sheet metal. Locking mechanisms shall be sturdy and allow for positive locking under high air flow conditions.

#### **16.2 Fans**

A single fan shall be installed, downstream of the HEPA filter housings.

The fan duty shall be 41 200m<sup>3</sup>/h at 2 100Pa at an altitude of 1300 meters above sea level and a temperature of 35°C. Fans selected shall have at least 10% spare capacity above the specified duty point.

The fan shall be a direct or belt drive, floor standing, gas tight, single inlet, backward or forward curved centrifugal fans. Fan motors, pulleys, bearings and belts shall not be located within the airstream.

The fans shall be skid-mounted, complete with anti-vibration mountings and constructed from mild steel with continuously welded seams and shall be gas tight, with painted or galvanised finish.

The fan shall be selected for continuous operation.

The fans shall be started by means of a star-delta configured motor control device complete with the relevant over-load protection.

Provision shall be made for the installation and termination of an armoured cable from an identified distribution board to the fan installation location, complete with a circuit breaker and isolator at the ends. Cable shall be installed on a 100mm wide cable ladder with supports at suitable intervals.

A COC shall be issued for the electrical installation upon completion.

## Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System

### 16.3 Pre-Filters

All pre-filters supplied shall be supplied by a reputable manufacturer holding a valid ISO 9001 certificate.

Filter case shall be constructed as a minimum from galvanised sheet steel with an external dimension of 595mm x 595mm.

Faces of the filter case shall be flat and parallel to within a total allowance of 5 mm. The filter case shall be square to within a total allowance of 10 mm when measured diagonally across the corners of both faces.

Gaskets shall be a closed cell, oil resistant, low swell, expanded cellular elastomer. The gasket shall be sealed to the filter frame to ensure no leak path is possible. The edge of the gasket shall not project beyond the outside of the frame.

If gasket joints are required, they shall be formed in such a way as to eliminate leak paths through the joint. There shall be no more than four gasket joints per filter.

The filter element shall be a pleated element manufactured from non-woven synthetic fibres. Filter media shall be tested in accordance with EN 779: 2012 and shall meet the requirements for a G4 classification.

Filters shall be packed in cartons with shock absorbing properties to prevent damage during shipping and handling.

Each filter shall be labelled clearly showing the following information as a minimum:

- Manufacturer's name or company logo
- Model Number
- Serial Number
- Manufacturing Batch Number
- Rated flow capacity
- Direction of air flow

At least one filter per batch shall be tested for resistance to air flow in accordance with ISO 9053 / DIN EN 29053 and a certificate to this effect shall be provided to Necsa for acceptance.

At least one filter per batch shall be tested in accordance with EN 779: 2012 providing proof of filter efficiency meeting G4 requirements and a certificate to this effect issued to Necsa for acceptance.

The test certificate shall at least include the following:

Model

Individual filter serial number and test result

Name and address of laboratory/facility

Name and address of client

Name and signature of person(s) who checked the results

Name and signature of person(s) that performed the test

### 16.4 HEPA Filters

HEPA filters shall have a minimum efficiency of 99.995% (H14) in accordance with EN1822 and shall be readily commercially available off the shelf. Dimensions of HEPA filters shall be 610mm x 610mm x 295mm.

All HEPA filters supplied shall be supplied by a reputable manufacturer holding a valid ISO 9001 certificate.

## Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System

All filters shall be individually tested after manufacturing and an inspection and test certificate (Certificate of Filter Efficiency) shall be provided.

The test certificate shall at least include the following:

- Model
- Individual filter serial number and test result
- Name and address of laboratory/facility
- Name and address of client
- Name and signature of person(s) who checked the results
- Name and signature of person(s) that performed the test

Filter casings shall be constructed from galvanised sheet steel or powder coated sheet steel.

The faces of the filter case shall be flat and parallel to within a total allowance of 1.6 mm. The filter case shall be square to within a total allowance of 3 mm when measured diagonally across the corners of both faces.

The filter casing shall have a dimensional tolerance of +0, -3 mm on outside dimensions and +1.6, -0 mm on the filter depth dimensions. These tolerances are taken excluding gaskets.

All filter case joints shall be sealed.

Filter gaskets shall be a closed cell, oil resistant, low swell, expanded cellular elastomer which deflects 25 % in height under a compression force of between 0.6 kg/cm<sup>2</sup> to 1.2 kg/cm<sup>2</sup> (Grade 2C3 and 2C4 in accordance with ASTM D 1056)

The gasket shall be sealed to the filter frame. The edge of the gasket shall not project beyond the outside of the frame.

If gasket joints are required, they shall be notched or dovetailed and the edges glued in a manner that assures no leakage. There shall be no more than four gasket joints per HEPA filter.

After installation of the HEPA filters an in-place filter test shall be conducted to verify the installation meet or exceed the filter efficiency specified.

Filters supplied shall be free from contamination, thick or thin spots, wrinkles and damage, such as tears, cracks, holes, abrasions and punctures.

There shall be no more than one splice in the filter pack and no patches shall be allowed.

Filters shall be individually packed. Cartons shall have shock absorbing properties. Filters shall be packed with pleats in a vertical position and packaging material marked accordingly for proper identification. Stacking of filters more than three high shall not be acceptable.

Labelling of each filter shall be on the top of the filter when the pleats are vertical, of such size and legibility that it can be read at a distance of 0.9 m. As a minimum the following information shall be provided:

- Manufacturer's name or company logo
- Model Number
- Serial Number
- Rated flow capacity
- Direction of air flow for penetration and pressure drop test
- Pressure drop in Pa at rated flow
- Overall penetration or efficiency at rated flow

Labelling of each carton containing one filter shall be of such a size and legibility that it can be read at a distance of 0.9 m.

## Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System

As a minimum the following information shall be provided:

- Manufacturer's name or company logo
- Arrows and "THIS SIDE UP" indicating orientation for shipping and storage and "FRAGILE" in clearly visible letters
- Filter model and number

### 16.5 Safe Change Filter Housings

The quantity of safe change filter housings shall be determined by the filtration equipment selected by the ventilation contractor and in line with the filter manufacturer's maximum air flow volume. Safe change filter housings to be supplied and installed, each with pre- filter sections to house a G4 primary filters and main sections to house a HEPA filter as specified above.

Filter housing shall be a safe change (Bag-In Bag-Out) type filter housing.

Filter housings shall be installed with a tapered plenum at the top and bottom to combine all individual housings together for connection to the ducting.

A suitable support structure shall be provided to ensure level placement as well as possible elevation required for the connection of the exhaust duct and connection with the exhaust fan. A walkway in front of the filter housings shall be supplied to ensure ease of filter replacement such that the height from the level on which a technician will be standing to replace the filter shall not exceed 1metre, measured from the platform/floor to the bottom of the HEPA filter housing main body.

Such a platform shall be wide enough to allow for easy removal of the filters by two technicians i.e. no less than 1,2m wide.

The housings shall be manufactured from 2mm minimum, epoxy coated mild steel. Proof of airtightness of the housing shall be supplied against a recognised test method such as ISO 10648-2 or others.

Filter clamping devices shall be manufactured from stainless steel and shall be of the cam lock type only. Sub-frames manually tightened by bolts to keep the filters in place shall not be acceptable.

The Filter housing shall be manufactured in accordance with an approved quality management system such as ISO 9001, ASME NQA-1 and shall conform to standards such as ASME AG-1 or AESS 30.

The filter housing shall be supplied with all accessories included but not limited to rubber ring as well as pre and main filter change bags. A total of three complete sets (enough to service all installed HEPA filter housings) of rubber rings and filter change bags shall be supplied.

### 16.6 Differential Pressure Gauges

Each primary and HEPA sections shall be provided with an analogue type magnehelic gauge to enable the measurement of the differential pressure across each filter individually. Gauges shall have the functionality to generate an alarm around an adjustable setpoint. Such an alarm shall consist of a local visual (strobe light), as well as an audible alarming device. Provisions shall be made to silence the audible alarm, however the visual alarm shall only be cancelled once the pressure-drop across the particular filter returns to within the normal operating parameters.



## Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System

All gauges shall be supplied with valid calibration certificates.

### 16.7 Ducting

All ducts shall be non-insulated, manufactured from 1.6 mm thick black steel, seam welded, with angle iron flanges and painted. Mild steel shall be painted with a high quality, acid resistant and easily cleanable epoxy resin coating with minimum thickness of 50 µm. Surfaces shall be degreased, rinsed and primed with one coat of an etch or general-purpose primer and thereafter painted with minimum 2 coats of Liquitile epoxy paint. The above is a Duraline product, an equivalent product can be used. The colour must be off-white/cream (RAL 9010). Flanges shall be flat bar with a thickness of at least 5 mm. Neoprene gaskets, 3 mm thick, must be installed between flanges. Holes in the duct flanges shall have a pitch not exceeding 150mm between hole centres adjacent each other.

Inspection openings shall be provided for the routine inspection and cleaning of ducting internals.

Individually manufactured ducting pieces shall be factory leak tested with a soap bubble test by pressurising individual pieces to twice the expected operating pressure.

Ductwork shall be erected in accordance with the Code of Practice for the installation, testing and balancing of ductwork SANS 10173. Fittings such as elbows, branch connections, off-sets and transition shall be manufactured and installed in accordance with the SMACNA standards. Flange gaskets to be used shall be 3 mm thick J&T economy from John Moffat Products or 5mm jaycostic.

Installed ducting to be leak tested at twice the expected operating pressure, inclusive of joints.

### 16.8 At-Source filtration

At source filtration shall take place by means of non-scavenged CFT Vortex tube filter housings configured as follows:

#### Room 2-1

1 off 1 800mm x 300mm with 225 tubes per 600mm x 300mm section – Extract duct connection on the top end – 400mm Dia with flanged connection with holes in the flange at a pitch not exceeding 150mm.

2 off 600mm x 300mm with 225 tubes per 600mm x 300mm section – Extract duct connection on the top end of each – 250mm Dia with flanged connection with holes in the flange at a pitch not exceeding 150mm.

Total air removed from the room – 12 200 m<sup>3</sup>/h

#### Room 2-2

2 off 1 200mm x 300mm with 206 tubes per 600mm x 300mm section – Extract duct connection on the top end of each – 350mm Dia with flanged connection with holes in the flange at a pitch not exceeding 150mm.

Total air removed from the room – 9 000 m<sup>3</sup>/h

#### Room 2-6



**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

3 off 1 200mm x 300mm with 246 tubes per 600mm x 300mm section – Extract duct connection on the top end of each – 350mm Dia with flanged connection with holes in the flange at a pitch not exceeding 150mm.

Total air removed from the room – 16 400 m<sup>3</sup>/h

For commissioning & operational purposes a magnehelic gauge must be fitted to each filter housing to ensure the flow is such that the pressure drop across the filter tubes remains larger or equal to 750Pa. This is to ensure a filter efficiency of at least 90%

The filter housing must be complete with a stand to ensure the bottom of the filter housings are positioned 500mm above ground level.

Contaminants must be collected in a tray below the filter box from where it will be collected and disposed by an operator on a regular basis.

The intake side of the filter must be fitted with an epoxy coated steel intake louvre or similar alternative, to protect the face of the filter from mechanical damage inflicted by operator movement and/or cutting activities.

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building,  
Cutting Rooms Ventilation System**

# Bills of Quantities

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

## 17.0 Preambles

- a) These bills of quantities contain pages numbered consecutively in each bill as indicated in the index. Before the tenderer submits his tender he should check the number of pages, and if any are found missing or duplicated or the figures or writing indistinct, or the bills of quantities contain any obvious errors, he should apply to Necsa at once and have same rectified, as no liability whatsoever will be admitted by Necsa in respect of errors in tender due to the foregoing.
- b) The bills of quantities form part of and must be read in conjunction with the specifications and drawings which contain the full description of the work to be done and material and equipment to be used.
- c) Tenders shall be submitted for initial consideration on the declaration of the total value of the bills. The fully priced and completed bills will be submitted with the tenders.
- d) The total tender sum in the tender form shall constitute the contract price of the successful tenderer. Tenderers are advised to check their item extensions and total additions, as no claim for arithmetical errors will be considered.
- e) No alteration, erasure or addition is to be made in the text of the bills of quantities. Should any alteration, erasure or addition be made, it will not be recognized but the original wording of the bills of quantities will be adhered to.
- f) The priced bills of quantities of the successful tenderer will be checked and Necsa reserves the right to call for reasonable adjustments to any individual price and to rectify any discrepancy whilst the total tender price, as submitted, remains unaltered.
- g) The responsibility for the accuracy of the quantities written into the bills remains with the party who prepared the bills. The tenderer shall be relieved of responsibility of measuring quantities at the tender stage, and the tender submitted shall be in respect of the quantities set out in the bills, although he will be required to make his assessment of items such as fixings, etc from details stated in the bills and shall include in the item prices for such small installation materials as are required for the complete installation in accordance with the specification.
- h) The contractor and the employer or his agent may agree that the total of any bill(s), including any variations by way of additions there to or deductions there from, represents a fair and accurate quantification of the items set out in the bills and the parties may agree final payment on that basis. In the event any dispute as to the quantities, then the disputed item(s) shall be adjusted where necessary.
- i) The quantities in these bills of quantities are not to be used for ordering purposes.
- j) Variations in the scope and extent of the work included in the bills shall be allowed to meet the employers' requirements. The rules governing the extent and valuation of variations shall be those provided for in the conditions of contract.
- k) Unless separate rates for the supply and for the installation of any item is specifically called for, the supply and installation costs of any items shall be fully included in the unit price. The description of each item shall, unless otherwise stated herein, be held to include making, conveying and delivering, unloading, storing, unpacking, hosting, setting, fitting and fixing in position, cutting and waste, patterns, models and templates, plant, temporary works, return of packing, establishment charges, profit and all other obligations arising out of the conditions of contract.
- l) All provisional sums shall be expended as directed by Necsa and any balance remaining shall be deducted from the amount of the contract sum.

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

<b>WSRF Ventilation System</b>					
<b>1. Preliminaries &amp; General</b>					
<b>Item</b>	<b>Description</b>	<b>Unit</b>	<b>QTY</b>	<b>Unit Price</b>	<b>Total</b>
1.1	Preparing and keeping to date of the manufacturing drawings up to and including the as built drawings inclusive of all duplicating of drawings as required. Note the requirement to generate CAD drawings from issued .pdf drawings.	Item	1		
1.2	Operating and maintenance manuals inclusive of duplicating Commissioning of the new installation	Item	1		
1.3	Training of the maintenance staff in the operation of the new installation	Item	1		
1.4	One-year guarantee of the new installation	Item	1		
1.5	Scaffolding	Item	1		
1.6	Rigging & Crane Hire	Item	1		
1.7	Occupational Health & Safety	Item	1		
1.8	Engineering (Detailed Design & Equipment Selection)	Item	1		
1.9	Training of Personnel – Necsa Specific Courses such as: Scaffolding Erector Scaffold Awareness Safety Harness Training First Aid Officer Necsa Orientation Compulsory Training – Emergency, Waste Management, PDO induction	PC	1	R25000	R25000
1.10	Breaking of openings in walls for grilles & ducting inclusive of make good	Item	1		
1.11	Other P&G Items (List in Cover Letter)	Item	1		
<b>Sub-total Preliminaries &amp; General, to be carried over to Summary</b>					

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building,  
 Cutting Rooms Ventilation System**

<b>2. Fan, Electrical &amp; Controls</b>					
<b>Item</b>	<b>Description</b>	<b>Unit</b>	<b>QTY</b>	<b>Unit Price</b>	<b>Total</b>
2.1	Skid mounted extract air fans as described under Item 16.2 - Fans. A fan curve of the selected fan shall be attached to this submission.	Item	1		
2.2	Ster-Delta configured motor control with overload protection. CBI Curve 1, 100Amp circuit breaker to be installed in existing DB. 100Amp Isolator near the fan.	Item	1		
2.3	35mm <sup>2</sup> Armoured cable complete with galvanised cable ladder (Cabstrut CL 76, 100mm wide or similar).	m	100		
2.4	Remote on/off switching	Item	1		
2.5	COC for electrical installation	Item	1		
2.6	Fire signal Interface	Item	1		
<b>Sub-total Fan, Electrical &amp; Controls, to be carried over to Summary</b>					

<b>3. Dampers &amp; Grilles</b>					
<b>Item</b>	<b>Description</b>	<b>Unit</b>	<b>QTY</b>	<b>Unit Price</b>	<b>Total</b>
3.1	250 Dia manual balancing damper	Item	2		
3.2	350 Dia manual balancing damper	Item	5		
3.3	400 Dia manual balancing damper	Item	1		
3.4	450 x 600 Door Grilles	Item	6		
3.5	1000 x 600 Transfer Grilles	Item	9		
<b>Sub-total Dampers &amp; Grilles, to be carried over to Summary</b>					

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

4. Filters					
Item	Description	Unit	QTY	Unit Price	Total
4.1	One complete set of HEPA filters meeting the requirements of Item 15.4 – HEPA Filters	Item	1		
4.2	Once complete spare set of HEPA filters meeting the requirements of Item 16.4 – HEPA Filters	Item	1		
4.3	Individual test certification for each HEPA filter meeting the requirements of Item 16.4 – HEPA Filters	Item	1		
4.4	One complete set of pre-filters meeting the requirements of Item 16.3 – Pre-Filters	Item	1		
4.5	One complete set of spare pre-filters meeting the requirements of Item 16.3 – Pre-Filters	Item	1		
<b>Sub-total Filters, to be carried over to Summary</b>					

5. CFT Vortex Filters					
Item	Description	Unit	QTY	Unit Price	Total
5.1	600mm x 300mm filter housing with 225 tubes per 600mm x 300mm section as described under Item 16.8, complete with stand and magnehelic gauge.	Item	2		
5.2	1 200mm x 300mm filter housing with 206 tubes per 600mm x 300mm section as described under Item 16.8, complete with stand and magnehelic gauge.	Item	5		
5.3	1 800mm x 300mm filter housing with 225 tubes per 600mm x 300mm section as described under Item 16.8, complete with stand and magnehelic gauge.	Item	1		
<b>Sub-total CFT Vortex Filters, to be carried over to Summary</b>					

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

<b>6. Safe Change Filter Housing</b>					
<b>Item</b>	<b>Description</b>	<b>Unit</b>	<b>QTY</b>	<b>Unit Price</b>	<b>Total</b>
6.1	Safe change filter bank housing as described in Item 16.5 & 16.6	Item	2		
6.2	Certification, testing & compliance documentation as per Item 16.5	Item	1		
6.3	Filter Differential pressure indicating and alarming as per Item 16.6, complete with calibration certification for pressure gauges.	Item	1		
6.4	Complete set of rubber rings and filter change bags for each filter bank	sets	3		
<b>Sub-total Safe Change Filter Housing, to be carried over to Summary</b>					

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building,  
 Cutting Rooms Ventilation System**

7. Ducting – Ref. Item 16.7					
Item	Description	Unit	QTY	Unit Price	Total
7.1	Ø250 Ducting	m	15		
7.2	Ø350 Ducting	m	25		
7.3	Ø400 Ducting	m	5		
7.4	Ø500 Ducting	m	12		
7.5	Ø550 Ducting	m	5		
7.6	Ø650 Ducting	m	15		
7.7	Ø700 Ducting	m	22		
7.8	Ø950 Ducting	m	35		
7.9	Transition pieces from CFT Filter housings to ducting	Item	8		
7.10	CFT Filter housings risers to main duct connection	Item	5		
7.11	Ø250 to Ø500 Transformation	Item	1		
7.12	Ø350 to Ø450 Transformation	Item	1		
7.13	Ø350 to Ø500 Transformation	Item	1		
7.14	Ø500 to Ø550 Transformation	Item	1		
7.15	Ø500 to Ø650 Transformation	Item	1		
7.16	Ø950 to HEPA Filter Housing Transformation	Item	1		
7.17	HEPA Filter Housing Transformation to Fan Inlet Transformation	Item	1		
7.18	Ø550 & Ø450 combined to Ø700 double bend	Item	1		
7.19	Ø700 & Ø650 combined to Ø950 double bend	Item	1		
7.20	Ø250, 90°bend	Item	1		



**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

7.21	Ø350, 90°bend	Item	2		
7.22	Ø650, 90°bend	Item	1		
7.23	Ø700, 90°bend	Item	2		
7.24	Ø950, 90°bend	Item	3		
7.25	Ø950, 45°bend	Item	2		
<b>Sub-total Ducting, to be carried over to Summary</b>					

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

Summary		
1	Preliminaries & General	
2	Fan, Electrical & Controls	
3	Dampers & Grilles	
4	Filters	
5	CFT Vortex Filters	
6	Safe Change Filter Housing	
7	Ducting	
8	Contingency Provision – to be expended only as directed by Necsa and any balance remaining shall be deducted from the amount of the contract sum.	R250 000-00
Sub-Total		
Vat		
Total		

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building,  
Cutting Rooms Ventilation System**

# Annexure 1:

## Terms and Conditions of Contract

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building,  
Cutting Rooms Ventilation System**

THE SOUTH AFRICAN NUCLEAR ENERGY  
CORPORATION SOC LTD

**TERMS AND CONDITIONS OF CONTRACT**

**June 2017**

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building,  
 Cutting Rooms Ventilation System**

**CONTENTS**

<b>Terms and Conditions of Contract.....</b>	<b>3</b>
<b>1. Definitions and Interpretation .....</b>	<b>3</b>
<b>2. Application .....</b>	<b>5</b>
<b>3. Agency .....</b>	<b>5</b>
<b>4. Assignment .....</b>	<b>5</b>
<b>5. Subcontracting .....</b>	<b>5</b>
<b>6. Indemnity and Limitation of Liability .....</b>	<b>5</b>
<b>7. Insurance .....</b>	<b>6</b>
<b>8. Fees and Payment Terms.....</b>	<b>6</b>
<b>9. Reports/Deliverables .....</b>	<b>7</b>
<b>10. Contract Amendments .....</b>	<b>8</b>
<b>11. Penalties .....</b>	<b>8</b>
<b>12. Impossibility of Performance .....</b>	<b>9</b>
<b>13. ProjectPlan and Variation .....</b>	<b>9</b>
<b>14. Delays in the Service Provider'sPerformance .....</b>	<b>9</b>
<b>15. Force Majeure .....</b>	<b>10</b>
<b>16. Confidentiality .....</b>	<b>10</b>
<b>17. Ownership and Intellectual Property .....</b>	<b>11</b>
<b>18. Settlement of Disputes.....</b>	<b>12</b>
<b>19. Breach of Agreement .....</b>	<b>12</b>
<b>20. Termination for Insolvency .....</b>	<b>13</b>
<b>21. Notices .....</b>	<b>13</b>
<b>22. Non-Solicitation of Personnel .....</b>	<b>14</b>
<b>23. Relaxation.....</b>	<b>14</b>
<b>24. Validity and Severability.....</b>	<b>14</b>
<b>25. Variation.....</b>	<b>15</b>
<b>26. Warranties .....</b>	<b>15</b>
<b>27. Applicable Law.....</b>	<b>16</b>
<b>28. Governing Language .....</b>	<b>16</b>
<b>29. Taxes and Duties .....</b>	<b>16</b>

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

## TERMS AND CONDITIONS OF CONTRACT

*These TERMS AND CONDITIONS OF CONTRACT are applicable to all bids, contracts and orders issued by the South African Nuclear Energy Corporation to service providers for the supply of goods or works or rendering of services*

### 1. DEFINITIONS AND INTERPRETATION

- 1.1 Clause headings in this *Agreement* are for convenience and reference purposes only and shall not affect the interpretation of the Agreement.
- 1.2 Where the context requires words implying the singular only shall also include the plural and vice versa and words signifying one gender shall signify all genders.
- 1.3 In this *Agreement* the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires:
  - 1.3.1 **“Agreement”** means these Terms and Conditions of Contract including all attachments and appendices hereto and all documents incorporated by reference therein and, where applicable, special conditions of contract.
  - 1.3.2 **“Bid Documents”** means Bid Specification, Request for Proposal, Request for Quotation documents, or any other document, used by NECSA to solicit the supply of goods or works or services.
  - 1.3.3 **“Fees”** means the contract price(s) as set out in the Pricing Schedule, attached as Annexure “E” in the accompanying SLA, which are payable to the Service Provider under this Agreement for the full and proper performance of the Service Provider’s contractual obligations.
  - 1.3.4 **“Order”** means an official written Purchase Order issued for the supply of goods or works or for the rendering of a service. A copy of the Order must be attached in the accompanying SLA as Annexure “C”.
  - 1.3.5 **“The South African Nuclear Energy Corporation SOC Ltd”** hereinafter referred to as NECSA

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

- 1.3.6 **“NECSA Data”** means information, reports or data and related matter, whether of a confidential or proprietary nature or not, belonging to NECSA or in the possession, or under the control of NECSA provided by NECSA to Service Provider pursuant to the Service Provider providing the Services.
- 1.3.7 **“Party”** means either NECSA or the Service Provider and **“Parties”** means NECSA and the Service Provider jointly.
- 1.3.8 **“Project Plan and Schedule of Deliverables”** means a document addressing how and when the Services are to be achieved by showing activities to be performed, the deliverables to be achieved and the milestones/timelines to achieve the deliverables, attached in the accompanying SLA as Annexure “B”.
- 1.3.9 **“Proposal”** means a document, in the form of a business proposal, quotation or other document, setting out the Service Provider’s proposed course of action or plan, with proposed solutions to address the Service needs of NECSA and the resources required, in response to the Bid Documents, attached hereto as Annexure “A” (or where Proposal is voluminous, sufficiently referenced in Annexure “A”).
- 1.3.10 **“Service Level Agreement or SLA”** means the special conditions of contract entered into by the Parties to address specific conditions applicable to specific *Services* with the purpose of either amplifying or amending these Terms and Conditions of Contract.
- 1.3.11 **“Services”** means those functional services ancillary and incidental to the supply of goods, works or rendering of services and other such obligations of the Service Provider covered under this Agreement or any document purporting to engage the professional services of the Service Provider.
- 1.3.12 **“Service Provider”** means a service provider, consultant or contractor engaged by NECSA to supply goods or works or render services.
- 1.3.13 **“Service Provider’s Intellectual Property/Technology”** means know-how, techniques, concepts, ideas, methods, methodologies, procedures, models, processes, templates; generalised features of the

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

structure, sequence and organisation of software, user interfaces and screen designs; general purpose consulting and software tools, utilities and routines and logic, coherence and methods of operation systems, created or acquired by the Service Provider or where the Service Provider otherwise obtained rights in.

1.4 All terms referred to or defined in the Service Level Agreement shall have the meanings assigned to them therein.

1.5 Any reference to days, months or years shall be a reference to calendar days, months or years as the case may be.

## **2. APPLICATION**

**2.1.** These Terms and Conditions of Contract are applicable to all bids, contracts and orders issued by NECSA to service providers for the supply of goods or works or rendering of services.

**2.2.** Where applicable, Service Level Agreements may be provided to address specific Services. Such SLA shall, by reference therein, incorporate these Terms and Conditions of Contract.

**2.3.** Where there is a conflict between the provisions of such Service Level Agreement and the provisions of these Terms and Conditions of Contract, the Service Level Agreement shall, to the extent of the conflicting provisions, supersede these Terms and Conditions of Contract.

## **3. AGENCY**

This *Agreement* does not constitute either of the *Parties* as the agent of the other for any purposes whatsoever and neither party will be entitled to act on behalf of, or to represent the other unless duly authorised thereto in writing.

## **4. ASSIGNMENT**

Neither *Party* may assign, transfer, subcontract or otherwise part with this *Agreement* or any part thereof or any right or obligation there under, without obtaining the other *Party's* prior written consent thereto.



**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

## 5. SUBCONTRACTING

In the event of subcontracting any of the work the *Service Provider* shall give preference to Black Empowerment Companies as subcontractors. The *Service Provider* shall notify NECSA in writing of all subcontracts awarded under the *Agreement* if not already specified in the *Bid Documents*. Such notification, in the *Bid Documents* or later, shall not relieve the *Service Provider* from any liability of obligation under the *Agreement*.

## 6. INDEMNITY AND LIMITATION OF LIABILITY

- 6.1. The *Service Provider* hereby indemnifies NECSA and undertakes to hold NECSA harmless against all loss or damage, from any cause arising, which the *Service Provider* and/or its employees may sustain as a result of the performance of the *Services* under this *Agreement*.
- 6.2. The *Service Provider* indemnifies NECSA against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the goods, works or rendered services or any part thereof by NECSA.
- 6.3. The *Service Provider* further indemnifies NECSA against any loss, damage, expenses, legal costs, including attorneys and own client costs, which NECSA may incur as a result of the *Service Provider's* breach of any of the warranties and representations as may have been provided.
- 6.4. Except in cases of criminal, negligence or wilful misconduct, neither *Party* shall be liable to the other, whether in contract, tort or otherwise, for any indirect or consequential loss or damage in any way arising out of or in connection with this *Agreement*.

## 7. INSURANCE

- 7.1. The goods supplied under the contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in the Service Level Agreement.
- 7.2. Each *Party* hereby accepts its own legal liabilities resulting from its culpable

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

actions and shall ensure that it has sufficient insurance cover to cover its liabilities so arising.

## 8. FEES AND PAYMENT TERMS

- 8.1. Subject to the provisions of clause 11 (Penalties), where applicable, NECSA shall pay the *Service Provider Fees* as set out in the Pricing Schedule in the manner specified in the SLA as an Annexure “E” for full and complete performance of the *Services*.
- 8.2. NECSA shall pay the *Fees* only after the *Services* have been fully performed and completed and the reports/deliverables as per Annexure “B” concerning the performance and completion of such *Services* have been accepted in accordance with the provisions of clause 9 (Reports/Deliverables).
- 8.3. The *Service Provider* shall submit a monthly statement no later than the last day of the month, along with an original invoice and associated documents, in a format acceptable to NECSA, for the *Fees* due after completion and acceptance of the deliverables.
- 8.4. If the documents mentioned in 8.3 are correct, payments shall be effected within thirty (30) days after date of statement. All payments will be made by NECSA only through electronic bank transfer into a banking account nominated by the *Service Provider*.
- 8.5. Where travel, accommodation and disbursement expenses are not included in the *Fees* and NECSA has agreed to reimburse the *Service Provider* for reasonable expenses incurred, the *Service Provider* shall, in accordance with, and subject to, the provisions of 8.3 submit an invoice for payment of such expenses.
- 8.6. Where deemed necessary, Necsa shall be entitles to a Retention Fee of 10% of the contract value. Such fees will be paid to the Service Provider within three (3) months of receipt of all Goods and/or Services and the issue of a certificate of acceptance.
- 8.7. Should the Service Provider render services and be entitled to labour costs for installation or erection on a recovery basis, a monthly statement shall be provided to Necsa no later than the last day of the month and Necsa will, if the

## Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System

statement is correct, effect payment within thirty (30) days. Should the monthly statement be in error, Necsca will be entitled to make the adjustment at the next payment or on payment of the retention fees.

### 9. REPORTS/DELIVERABLES

9.1. Where the carrying out of the *Services* requires reports to be submitted as deliverables, interim and final reports in connection therewith must be furnished to NECSA at its *domicilium*, within the stages set out by the *Parties* and attached as a Schedule in the Service Level Agreement.

9.2. Acceptance of Reports/Deliverables:

9.2.1. NECSA shall have a period of **seven (7) days** (the "**Evaluation Period**") after furnishing of the Reports/Deliverables, or any part thereof provided in stages in accordance with the agreed to Schedule, to verify that such Reports/Deliverables, or part thereof, conform in all material respects with *NECSA* requirements.

9.2.2. Should there be a non-conformity with NECSA requirements, NECSA must notify the *Service Provider*, in writing, prior to the expiration of the relevant Evaluation Period that such Reports/Deliverables, or part thereof, fail in any material respect to conform with such specifications (a "**Nonconformity**"), the *Service Provider* shall, at its expense, promptly correct such

Nonconformity, whereupon NECSA shall receive an additional **seven (7) day period** ("the **Verification Period**") commencing upon *NECSA's* receipt of the corrected Reports/Deliverables, or part thereof, to verify that the previously reported Nonconformity has been corrected.

9.2.3. NECSA shall provide the *Service Provider* with such assistance as the *Service Provider* may reasonably require to enable the *Service Provider* to verify the existence of, and correct, a reported Nonconformity.

9.2.4. Should NECSA not inform the *Service Provider* of its acceptance of the Report/Deliverables, NECSA agrees that the Reports/Deliverables, or any part thereof, which has been provided to NECSA shall be deemed accepted by NECSA upon the expiration of the Evaluation Period or, in

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

the event that NECSA has notified the *Service Provider* of a Nonconformity as provided above, upon expiration of the relevant Verification Period.

9.2.5. Upon full and final payment to the *Service Provider* of amounts due to the *Service Provider* for fully performed and completed *Services* and accepted Reports/Deliverables, all Reports/Deliverables shall, subject to the provisions of clause 17 (Ownership and Intellectual Property), become the property of NECSA .

## 10. CONTRACT AMENDMENTS

No variation in or modification of the terms of the contract shall be made except by written amendment signed by the parties concerned.

## 11. PENALTIES

If the *Service Provider* fails to deliver any or all of the deliverable(s) or to perform the *Services* within the period(s) specified in this *Agreement*, NECSA shall, without prejudice to its other remedies under this *Agreement*, deduct from the *Fees*, as a penalty, a sum calculated in accordance with a formula specified in the Penalty Formula attached hereto as Annexure "D" of the Service Level Agreement, for each day of the delay until actual delivery or performance. NECSA may also consider termination of the contract pursuant to clause 19 (Breach of Agreement).

## 12. IMPOSSIBILITY OF PERFORMANCE

12.1. In the event of a failure or delay in performance by either *Party* arising from a cause beyond its reasonable control or unforeseeable with reasonable foresight at the time of execution of this *Agreement*, such failure or delay shall not be deemed to be a breach of the *Agreement*.

12.2. If either *Party* is affected by such failure or delay, it shall give to the other *Party* notice in writing thereof within five (5) days after its existence has manifested. A *Party* shall be entitled to rely on the provisions of clause 12.1 above only if it has given such notice.

12.3. Should either *Party*, after having given the notice in clause 12.2, be unable to

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

rectify its impossibility of performance within fourteen (14) days of the occurrence thereof, the other *Party* may cancel this *Agreement* without any further notice.

### 13. PROJECT PLAN AND VARIATION

- 13.1. The *Services* shall be completed in accordance with the stages/phases set out in the Project Plan and Schedule of Deliverables attached hereto in the SLA as Annexure "B".
- 13.2. If, however, there arises a need to vary and/or add the *Services* and the Project Plan and Schedule of Deliverables as a result of matters, circumstances and/or necessary additional procedures that were not reasonably foreseen at the onset or if there are delays in obtaining the required documentation and there arises a need to vary and/or extend the delivery time frames, either *Party* will notify the other in writing, as soon as they become aware of this fact and the *Parties* shall agree on the variation of the Project Plan and Schedule of Deliverables and, where applicable, *Fees*.

### 14. DELAYS IN THE *SERVICE PROVIDER'S* PERFORMANCE

Notwithstanding the provisions of clauses 12 (Impossibility of Performance), 13 (Variation of Project Plan) and 19 (Breach of Agreement), in the event of a delay in the *Service Provider's* performance beyond the essential delivery time period, NECSA shall, without cancelling the *Agreement*, be entitled to obtain the services of another service provider at the *Service Provider's* expense or to cancel the *Agreement* and procure the services of another service provider as may be required to complete the *Agreement* and without prejudice to NECSA 's other rights.

### 15. FORCE MAJEURE

Neither *Party* shall be liable, whether direct or consequential, to fulfil its obligations in terms of this *Agreement* if such failure is caused by any circumstance or event beyond the reasonable control of such *Party* which shall without limitation include any act of God, riot, strike action, civil commotion, war, civil war, public disorder, any form of labour disturbances, acts of terrorism, insurrection, rebellion or revolution and/or any other event or activity beyond their reasonable control.

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

## 16. CONFIDENTIALITY

16.1. It is envisaged that pursuant to this *Agreement* information, reports or data and related matter, whether of a confidential or proprietary nature or not, belonging to either *Party* may be disclosed or otherwise become available to the other *Party*. Each *Party* agrees to:

16.1.1. Accept such information, reports or data and related matter in confidence and not to copy, disclose, reproduce or make such information, reports or data and related matter available to any third party, unless authorised thereto in writing by the other *Party*, and

16.1.2. Use such information, reports or data and related matter solely in connection with the performance of its obligations in terms of this *Agreement*, and

16.1.3. Restrict the use of such information, reports or data and related matter exclusively to the purpose directed by the other *Party*.

16.1.4. The *Service Provider* undertakes, upon signing hereof, to ensure that all its Employees or agents (as the case may be) who may be privy to any information, reports, data and related matter, process or any other information whatsoever emanating from this process, are well informed and aware of the contents and legal implications of Section 51 of Nuclear Energy Act, 1999 (Act No. 47 of 1999) and have signed confidentiality agreements to hold *NECSA* information in confidence.

16.2. Use of contract documents and information; inspection:

16.2.1. The Service Provider shall not, without NECSA's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of NECSA in connection therewith, to any person other than a person employed by the Service Provider in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

16.2.2. The Service Provider shall not, without NECSA's prior written consent, make use of any document or information mentioned in the Service Level Agreement except for purposes of performing the contract.

16.2.3. Any document, other than the contract itself shall remain the property of NECSA and shall be returned (all copies) to NECSA on completion of the Service Provider's performance under the contract if so required by NECSA.

16.2.4. NECSA shall permit the Service Provider to inspect NECSA's records relating to the performance of the Service Provider and to have them audited by auditors appointed by NECSA at its own cost, if so required by NECSA.

## 17. OWNERSHIP AND INTELLECTUAL PROPERTY

17.1. All *NECSA Data* and *Service Provider's Intellectual Property/Technology* and any other intellectual property rights, including but not limited to copyright, in and to the original material supplied by one *Party* to the other *Party* shall vest in the *Party* supplying the material.

17.2. Ownership in all *NECSA Data* belonging to *NECSA*, whether under its control or not, shall continue, to vest in *NECSA*, and the *Service Provider* shall not obtain any proprietary rights in such data. Any improvements to *NECSA Data* resulting from this *Agreement* shall remain the property of *NECSA*.

17.3. Where the *Service Provider* utilizes any of its property including the *Service Provider's Intellectual Property/Technology* in connection with the *Services* provided in terms of this *Agreement*, such property shall remain the property of the *Service Provider* and any improvements to the *Service Provider's Intellectual Property/Technology* resulting from this *Agreement* will remain the property of *Service Provider*.

17.4. The *Service Provider* warrants that no aspect of the *Service Provider's Intellectual Property/Technology* utilised by *NECSA* in terms of this *Agreement* will infringe any patent, design, copyright, trade secret or other proprietary right of any third party ("**third party proprietary rights**"), and the *Service Provider* shall, at its cost, defend *NECSA* against any claim that the use of the



**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

Deliverables infringe any such third party proprietary rights: Provided that NECSA gives prompt notice to the *Service Provider* of such claim, the *Service Provider* controls the defence thereof and NECSA does not jeopardise the claim in any way.

17.5. To the extent that there are any components of the *Service Provider's Intellectual Property/Technology* included in the Deliverables, the *Service Provider* grants to NECSA , a royalty-free, perpetual, non-exclusive, non-transferable licence to use such *Service Provider's Intellectual Property/Technology* solely in connection with such Deliverables.

17.6. In the event of NECSA requesting the use of any *Service Provider's Intellectual Property/Technology* outside the scope of this *Agreement*, this would be subject to the *Parties* agreeing to a written licence agreement for such use.

## 18. SETTLEMENT OF DISPUTES

18.1. If any dispute or difference of any kind whatsoever arises between the *Parties* in connection with or arising out of the *Agreement*, the *Parties* shall make every effort to resolve amicably such dispute or difference by mutual consultation. Either *Party* shall in writing notify the other of the dispute, providing the details of the dispute.

18.2. The dispute shall first be referred to the respective project managers of each *Party*, who must use their best endeavours to resolve the dispute within **seven (7) days** of the dispute having been referred to them, or such other time frame agreed between the *Parties*.

18.3. Should the project managers of the *Parties* be unable to resolve the dispute in accordance with the foregoing, the dispute shall be escalated to the respective executive managers/managing directors (or equivalent officers) of the *Parties*, who must use their best endeavours to resolve the dispute within **ten (10) days** of the dispute having been referred to them, or such other time frame agreed between the *Parties*.

18.4. Should it not be possible to settle a dispute by means of mutual consultation, then the *Parties* may exercise their rights afforded to them by law.



**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

## 19. BREACH OF AGREEMENT

In the event of anyone of the *Parties* (“the Defaulting Party”) committing a breach of any of the terms of this *Agreement* and failing to remedy such breach within a period of **seven (7) days** after receipt of a written notice from the other *Party* (“the Aggrieved Party”) calling upon the Defaulting Party so to remedy, then the Aggrieved Party shall be entitled, at its sole discretion and without prejudice to any of its other rights in law, either to –

- 19.1. claim specific performance of the terms and of this *Agreement*; or
- 19.2. terminate this *Agreement* forthwith and without further notice, to claim and recover damages from the Defaulting Party.

## 20. TERMINATION FOR INSOLVENCY

Should either *Party* become bankrupt or otherwise insolvent, or commit an act of insolvency or in the event of any of the following circumstances:

- 20.1. Either *Party* being placed under judicial management whether provisionally or finally;
- 20.2. A judgment of any competent court being given against either *Party* which judgement is not satisfied within a period of fourteen (14) days from date of knowledge thereof by either *Party*, or no application to be made to a competent court to rescind such judgement within a period prescribed by the rules of the court:

either *Party* shall have the right without prejudice to any other rights or claims which it may have, to cancel and terminate this *Agreement* without notice.

## 21. NOTICES

The *Parties* choose the addresses set out in *SLA* as their *domicilium citandi et executandi* for all purposes under this *Agreement*, whether in respect of the service or delivery of court process, notices or other documents or all other communications. The *Parties* also choose the persons named in the *SLA* as their project managers and contact persons for the purpose of this *Agreement*. Any notice to be given or to be made for any purpose under this *Agreement* shall be in writing and shall:

## Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System

- 21.1. If delivered to the addressee's physical address, be deemed to have been received when so delivered; or
- 21.2. If sent by registered post to the addressee's postal address, be deemed to have been received seven (7) days after it has been posted; or
- 21.3. If sent by facsimile, be deemed to have been received on the day on which it was sent; or
- 21.4. If sent by email, be deemed to have been received on transmission on the day on which a document was emailed.
- 21.5. Any of the *Parties* shall be entitled to change its respective *domicilium* and any other address, as the case may be, on **fourteen (14) days' notice** to the other, provided such address is within the Republic of South Africa.

## 22. NON-SOLICITATION OF PERSONNEL

- 22.1. The *Parties* agree not to make any offer of employment or to employ any member of either *Party's* personnel working on the basis of this *Agreement*, either during the period of this *Agreement* or for a period of six (6) months after completion of the *Services* in terms of this *Agreement*. The *Parties* also agree not to use either *Party's* personnel as consultants, either independently or via a third party for the same period.
- 22.2. A breach of this condition will render the breaching *Party* liable to pay damages in an amount equal to six (6) month's salary of the relevant member of personnel, provided that such damages shall be calculated in respect of the six (6) month period prior to such member of personnel leaving the employ of non-breaching *Party*. The *Parties* agree that the aforementioned damages are fair, based on the damage the non-breaching *Party* is likely to suffer, and considering the difficulty in calculating the actual damages.

## 23. RELAXATION

No latitude, extension of time or other indulgence which may be given or allowed by any *Party* to the other *Party* in respect of the performance of any obligation hereunder, and no delay or forbearance in the enforcement of any right of any *Party* arising from this *Agreement*, and no single or partial exercise of any right by any *Party* under this *Agreement*, shall in any circumstances be construed to be an implied consent or election by such *Party* or operate as a waiver or a novation of or

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

otherwise affect any of the *Parties'* rights in terms of or arising from this *Agreement* or stop or preclude any such *Party* from enforcing at any time and without notice, strict and punctual compliance with each and every provision or term hereof.

## **24. VALIDITY AND SEVERABILITY**

24.1. If any provision of this *Agreement* is found or held to be invalid, unlawful, or unenforceable, such terms will be severable from the remaining terms.

24.2. The validity of all the other remaining provisions will not be affected and will continue to be valid and enforceable. If any invalid term is capable of amendment to render it valid, the *Parties* agree to negotiate an amendment to remove the invalidity.

## **25. VARIATION**

No variation of or addition to this *Agreement* will be of any force or effect unless reduced to writing and signed by the *Parties* or their duly authorised representatives.

## **26. WARRANTIES**

26.1. The Service Provider warrants that the goods supplied under the contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract. The Service Provider further warrants that all goods supplied under this contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by NECSA's specifications) or from any act or omission of the Service Provider, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.

26.2. This warranty shall remain valid for twelve (12) months after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise in SLA.

26.3. NECSA shall promptly notify the Service Provider in writing of any claims

**Technical Specification for the Procurement, Installation & Commissioning of the D-Building, Cutting Rooms Ventilation System**

arising under this warranty.

26.4. Upon receipt of such notice, the Service Provider shall, within the period specified in SLA and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to NECSA.

26.5. If the Service Provider, having been notified, fails to remedy the defect(s) within the period specified in SLA, NECSA may proceed to take such remedial action as may be necessary, at the Service Provider's risk and expense and without prejudice to any other rights which NECSA may have against the Service Provider under the contract.

## **27. APPLICABLE LAW**

This *Agreement* shall in all respects be governed by and construed in accordance with the Laws of the Republic of South Africa and all disputes, actions and other matters in connection therewith shall be determined in accordance with such law.

## **28. GOVERNING LANGUAGE**

*The contract*, all correspondence and other document pertaining to the *Agreement* that is exchanged by the *Parties* shall be written in English.

## **29. TAXES AND DUTIES**

29.1. A foreign Service Provider shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside NECSA's country.

29.2. A local Service Provider shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted goods to NECSA.

29.3. No contract shall be concluded with any bidder whose tax matters are not in order. Prior to the award of a bid the Department must be in possession of a tax clearance certificate, submitted by the bidder. This certificate must be an original issued by the South African Revenue Services.