

## **Mechanical & Fire Engineering services**

### **1. Description of services:**

The Professional Mechanical Engineer from the appointed Service Provider will be required to perform in full the Standard and Additional Mechanical and Fire Engineering services for the Domestic Terminal Expansion project at ACSA's Cape Town International Airport delivered as per the latest gazetted Engineering Council of South Africa (ECSA) Guidelines for Scope of Services and Tariff of Fees for persons registered in terms of the Engineering Profession Act 46 of 2000 (Act No. 48 of 2000). The standard and additional services to be performed for the Mechanical Engineering services shall be priced accordingly as per the pricing instructions.

#### **1.1. Standard Scope of Service:**

The Mechanical Engineer shall perform the full standard scope of service as outlined in the latest gazetted ECSA Guideline Scope of Services and Tariff of Fees for persons registered in terms of the Engineering Profession Act 46 of 2000 (Act No. 48 of 2000).

As outlined in the Scope of Work document (Part C3.1), the standard scope of service for the Mechanical Engineer shall include Fire Engineering services. The implementation of the Domestic Arrivals and the Domestic Departure projects had through previous implementation (pre-Covid 19) achieved Stages 1 and 2 completion. However, beyond these completed stages, only The Domestic Arrivals project had achieved up to Stage 3 completion.

ACSA is re-activating these projects and has opted for a combined implementation of these projects as a single project. The completed Stages 1 and 2 will not be redone and the appointed Consultant' Team as part of this Bid will be required to activate the project by commencing with implementation of their appointed services from Stage 3 and also proceed with the subsequent project stages 4 to 6 once approval is received from ACSA.

Therefore, ACSA requires that the following statutory project delivery stages will be implemented by the appointed Professional Mechanical Engineer in alignment with the Framework for Infrastructure Delivery and Procurement Management (FIDPM) stages outlined below in fulfilment of the required outputs per stage:

<b>Appointed ECSA Stages</b>	<b>Equivalent FIDPM Stage Appointed for</b>	<b>Required Stage Gate Output</b>
Stage 3	FIDPM Stage 3	Detailed Design Development Report
Stage 4	FIDPM Stage 4	Design Documentation and Procurement
Stage 5	FIDPM Stage 5	Construction and Works Completion
Stage 6 (Spilt the stages as per FIDPM)	FIDPM Stage 6	ORAT and Handover Documentation
	FIDPM Stage 7	Final Completion and Close Out

For the appointed services to proceed to stages 4 – 6 (FIDPM 4 – 7), it will be subject to ACSA's approval, of which such approval is strictly subject to ACSA's Investment decision – refer to section 2 below.

#### **1.2. Additional Scope of Service:**

a) Building Information Modelling (BIM) Services.

BIM Level 3 (OpenBIM), with Level of Development that enables LOD 300 & 350 to enable services clash detection. Handover of the BIM drawings will be required as part of As-Built drawings handover and the confirmation of As-Built drawing accuracy at handover stage.

b) Level 3 Full Time Construction Monitoring.

A Professional Mechanical & Fire Engineering Resource with minimum 10 years Mechanical engineering work experience and professionally registered as a Professional Engineer or Professional Technologist will be required to be appointed for the Full Time Construction Monitoring services as follows:

- Maintain a full-time presence on site to constantly review samples of materials and work procedures, for conformity to contract documentation, provide design/ technical clarifications and review completed work prior to covering up, or on completion, as appropriate.
- assist with the preparation of as-built records and drawings to the extent required in the agreement with the client.

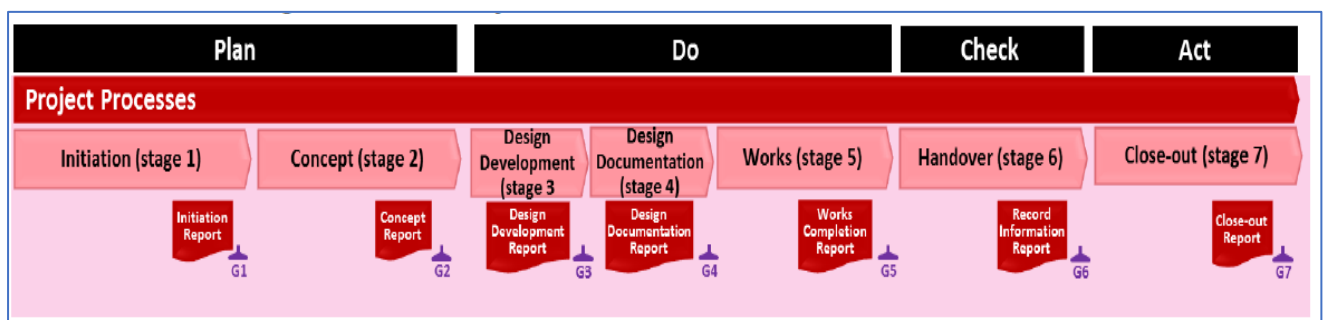
## **2. Extent of the Normal Scope of Services**

The first phase of the appointment is for provision and successful completion of the ECSA Stage 3 services. It is at this important junction that ACSA will, through the Executive Project Sponsor, apply for an investment decision for the project. The approval thereof by ACSA (and notification to commence) will trigger the second phase of service. The second phase being for the professional team to commence with SACPCMP Stage 4 – 6 (FIDPM 4 – 7): Tender preparation, procurement of the construction Contractor/s, monitor and manage the construction team, handover and project close-out (Linked to FIDPM Stages) within the confines of the investment decision taken by the Employer.

The project will be managed as per National Treasury FIDPM. The extent of appointment is thus from FIDPM Stage 3 - 7 and implemented in two phases as follows:

- Phase 1 (FIDPM Stages 3) and,
- Phase 2 (FIDPM Stages 4 – 7).

The Framework for Infrastructure Delivery and Procurement Management (FIDPM) is “primarily focused on governance decision making points as well as alignment and functions to support good management of infrastructure delivery and procurement processes.” All consultants are expected to be familiar with the FIDPM processes and are expected to perform their duties in line with these requirements.



The IDM Project Processes (FIDPM, 2019)

The services required by the Employer from the Professional Service Provider can be summarized as, but not limited to, the following:

- Provide high-quality technical support and advice to facilitate the initiation, planning, preparation, design, procurement, construction, and contract management, monitoring and reporting on the identified infrastructure projects.
- Implementation of projects in accordance with the FIDPM with particular focus on the planning, preparation, appropriate procurement, construction, monitoring, quality control, cost control, risk identification, risk management and control, co-ordination, and reporting.
- Ensure that all Stage Gate reports are prepared and finalised to the highest standards in line with requirements of FIDPM End of Stage Deliverables. All Stage Gate reports are to be signed off by a Professional Registered Engineer in terms of IDoW for registered professionals.
- Provide continuous monitoring and reporting on the implementation of project work against baselines and where necessary the formulation of interventions, in consultation with stakeholders, to minimize / eradicate obstacles, delays, cost overruns and schedule slippage. Ensuring that the Contractors and Sub-contractor's technical proposals and drawings confirm with the design and specification requirements.
- Providing all necessary contract administration to monitor the various Contractors/ Sub- contractors diligently and timeously in the execution of the contract works, and in the event of problems being experienced, immediately notify the Clients representatives as the case may be, so that action may be taken.
- The project will entail the relocation of ACSA Operations and 3rd party Coordination to a temporary facility and back to their final location. This movement and the processing of their operations and associated office space, furniture, equipment is a key output and is deemed to be included in the scope of works for the consultant team.
- Visiting the works of relevant Contractors and Suppliers to ensure satisfactory quality control and correct utilization of materials in the fabrication process.
- Whilst most relevant to the Project Manager and the Quantity Surveyor, all service provider must note that they are expected to provide updates and revisions to the budget (or provide support in line with their respective discipline) in parallel to design development throughout the course of the project i.e., as part of ALL individual FIDPM Stage reports. ACSA will require the costs to be presented in a format that will aid decision making where separate BOQ's will be required for different zones and or levels for the proposed development.
- The demolition of the existing infrastructure is a key aspect of the Project. All aspects of the ACSA impairment and retirement procedure is to be included in the scope of the project and is deemed to be a part of the consultant team scope of works. The scope includes the requirement of identifying the assets that are to be demolished and identified for write off. High value assets that are to be disposed are to be identified and included in the BOQ for the Demolition Contractor. The consultant team will play a key role in ensuring the collection of a recoverable amount for an asset's fair value less costs of disposal and its value in use.
- Sustainability and Green building design considerations to be included as part of the Mechanical Engineering design scope.
- Design Development (Optioneering).

- In the event of additional Scope: Preparation of Documentation for consideration of scope change / use of Contingency if applicable.
- Strategic Bulk Services Integration and Planning – including the consolidation and replacement of all existing infrastructure as necessary to ensure replacement of plant and equipment that is deemed to be at end of life i.e. centralization of plant and equipment.
- Engineering Elements Estimates.
- Show full life cycle cost benefit analysis of the designs & installation at operations and maintenance stages.
- ACSA & 3<sup>rd</sup> Party 'Tenant' Fit outs and coordination, where applicable.
- Maintenance Engineering SLA's
  - Identify all maintenance services required for the infrastructure (for example building services, etc.)
  - Assess if the new infrastructure can be absorbed into current contracts with minor modification
  - Assess the feasibility and impact on operation of establishing new contract to service new scope (multiple service contract servicing various areas of airport)
- Preparing detailed Operation & Maintenance manuals.
- Liaise and coordinate all mechanical engineering elements related to designs and installation work undertaken by OEM Service Providers on the project.
- Participation in all Project Stakeholders meeting (Internal and external) towards initiation, execution and conclusion of the Operational readiness and Transfer (ORAT) process.

### **3. Key Personnel**

Should it become necessary to replace any of the key personnel listed during this contract, they may only be replaced by individuals with similar or better qualifications and experience, who satisfies the minimum requirements and can be replaced only with prior written approval of the Employer. While the bid requirements are for one visible / Lead resource, we expect that the Lead resource will be supported by a full team, as per the tenderers Project Resource Organogram, to make sure that project objectives are met and timely delivery is not compromised.

### **4. Use of reasonable skill and care**

- The service provider is required to provide all aspects of the service with all reasonable care, diligence and skill in accordance with generally accepted professional techniques and to ensure that all legal requirements are met, and that all legal processes are adhered to.
- The Bidders' attention is drawn to the fact that the proposed infrastructure is to be built at an operational airport with substantial aspects of the work to be done on the Airside. Safety of persons and property is of paramount importance, closely followed by the minimization of disruption and inconvenience to passengers. The service provided is to adhere to ACSA Occupational Health and Safety and AVSEC always. No leniency will be granted for breach of policy.
- Access to all Airport Departure and Arrival areas to always remain free of obstruction.

**5. Co-operation with other service providers**

- In addition to the appointment of professionals, ACSA may also appoint other consultants for delivery of the project.
- The service provider will be required to Liaise with other appointed professional service providers on design, time control and budgetary aspects of the project and reporting on progress and selection of various materials and components on the project.

**6. Applicable Standards**

- The service provider shall ensure cognisance of, and adherence to all applicable national standards and codes, quality standards, design standards, statutory and audit compliance are taken into consideration in the execution of its work in the design and compilation of specifications for this project.
- Projects will be managed in accordance with the ACSA Project Management Manual, Procedures, Policies and Processes and other relevant governance prescripts.
- All CAD data must adhere to the standards and requirements set out in the ACSA CAD Standard Reference Manual.
- Timeous submission is required of all necessary plans and drawings to the relevant Authorities and expedite the necessary approvals and permission to proceed, including any negotiations in this regard.

**7. Access to site**

- Access to public areas is not restricted, however, personal airport access permits are required (with background criminal checks verification) for access to restricted areas. The service provider will be required to apply for such personal access permits prior to commencement of project.
- All resources must wear a personal access permit at all times when on site, including personal protective and visibility clothing.
- All resources are required to return expired permits or valid permits to ACSA at the completion of the project or termination of service or change of resources. Failure to maintain a record of the issue of permits and return of permit will lead to the implementation of penalties / and or fines at the discretion of ACSA.

**8. Format of communications**

- All communications must be in writing by means of letters and e-mails only. Design documentation, drawings, etc. must be in hard copy and electronic format.
- All consultants are to ensure that the flow of information is done on ACSA Approved Platforms i.e. Microsoft Projects, Office 365 etc. All information storage is to be limited to approved file hosting services/ cloud storage solutions such as One Drive, Microsoft Teams and Microsoft 365.
- All information relating to design and documentation created is the sole proprietorship of ACSA.
- All information/ documentation/ reports/ layouts etc. are to be made available in ANY format prescribed by ACSA including editable formats such as CAD (inclusive of AutoCAD and Revit).
  - No file names are to be longer than 25 characters incl. of spaces and hyphens.
  - File names cannot contain the following characters: & " ? < > # {} % ~ / \.

- All final reports must be supplemented with a MS PowerPoint presentation summarizing the main components of each report.

## **9. Management Meetings**

The proposed development represents a major development that is complex and with a large stakeholder base, both within ACSA and externally.

Attendance by all Professional Consultants is required for regular project meetings, including (but not limited to) progress, design, technical coordination, cost review, risk review, project board and project management meetings, stakeholders' meetings which will be scheduled during the life of the project.

All reports relevant to the project, including but not limited to the design reports, monthly progress reports, ad-hoc reports and close out report will be submitted on set project calendar dates or as and when required by the Employer.

It is envisaged that for the duration of the project, the following meetings and attendance (but not limited to) will be required:

- Management Meetings: During the initial stages of this project (Planning, Studies, Investigations and Assessments; Inception; Concept and Viability and Design Development) the service provider may be expected to attend fortnightly Project Board management meetings and progress meetings with the Employer.
- Project Board Meetings.
- Design Development Meetings.
- Cost and Risk Review Meetings.
- Project and Airport Stakeholder meetings (Monthly and adhoc).
- ACSA Cross Functional Team Meetings.
- The service provider shall be required to attend design development and technical review meetings with the design team and designated Cross Functional representatives of the Employer. These meetings will be structured to gain final approval of the Employer for all design aspects of the project, leading to sign off of all stage gate reports.
- Site / Technical Meetings.
- Adhoc meetings between specific professional consultants and relevant ACSA personnel to facilitate design coordination, design standards, design specification and input & approvals thereof.
- During the Contract Administration and Inspection stage of this project, the service provider shall attend all site meetings with the Employer and contractor present.
- Ad-hoc Meetings: The service provide will be expected to attend ad hoc meetings from time to time, with the Employer, Stakeholder Groups, affected 3rd Party Stakeholders (Local Airport users such as Airlines, Ground Handlers, Retailers, Government Agencies), Airline Industry Committee Working and Steering committees or service or other authorities, to address specific issues as and when the need arises.
- General: The service provider shall be represented at all meetings by the lead-built environment professional or a senior member of staff (with the approval of the ACSA PM).

**10. Copyright**

Copyright pertaining to all drawings and documentation for the project must be ceded to ACSA at the completion of each Stage once the Consultant has been fully paid for the completed Stages. Electronic (CAD, PowerPoint and PDF) copies and hard copies shall be issued for all completed stages, including optioneering drawings / designs / documents.

**11. Non-disclosure**

All information including design information, annexures and other supporting documentation regarding these projects may not be shared with 3rd parties without written consent of ACSA Procurement and ACSA Legal. All parties and companies involved in this project will be required to sign a non-disclosure agreement at appointment. As part of internal information dissemination, additional non-disclosures from relevant ACSA Divisions shall be signed off by Consultants during execution of the project.

**12. Professional indemnity and public liability insurance**

- A Service Provider awarded services for a project value of more than R50 million (Excl. Vat) should produce a valid Professional Indemnity cover not less than R10 million.
- For projects below R150 million, the professional service providers must source Public Liability cover for a limit of:
  - Not less than R75 000 (seventy-five thousand rands) for each and every claim, for damage to third-party property
  - Not less than R75 000 (seventy-five thousand rands) for each and every claim, for removal of lateral support, where applicable.
- For projects on the airside, the service provider must source a valid Aviation Liability insurance for a limit not less than USD250 000 (Two hundred and fifty thousand US dollars).
- Additional Insurance and Profession Indemnity cover in line with ACSA's Requirements will be requested as and when the bidders are allocated scope of works for pricing of specific projects after they have been appointed.

**13. As-Built documentation**

All Consultants appointed for the panel will be required to submit As-Built documents for all projects that get appointed for. At submission of such documents to the Client (s), Consultant will be required to provide written and signed off confirmation that the As-Built drawing information submitted to the Client is a true reflection of what is built on site for the particular project.

**14. Contract Termination**

The form of contract and associated contract data, Professional Council's Recommended Fee Guidelines, Standard Scope of Works are all relevant and will form the basis of appointment and contractual management. In the event of any conflict or inconsistency between the terms and conditions of this contract and any other documents, including but not limited to the tender document, specifications, exhibits, or attachments, the following clarifications shall take precedence over any contradictions, amendments, or provisions found elsewhere:

The proposed development requirement is directly dependent on:

- Aviation Demand and User Need
- An approved Business Case with an anticipated return on investment.
- The receipt of an investment decision by the ACSA Mandated Authority, Executive Sponsor / and or Executive committee.

In the event of the project implementation is no longer being required or the non-receipt of the investment decision by ACSA, ACSA reserves the right to suspend and or terminate the works and associated appointments at the conclusion of any of the FIDPM Stages. The payment of Termination Fees will be strictly limited to 10% of the remaining stages of the project.

In the event of termination, the 'construction value' used for the determination of termination fees, will be exclusive of escalation and (unapproved/ unallocated) contingencies.

## **15. Planning & Programming**

A program for delivery of the project is required and must be updated at intervals not exceeding 4 weeks. The service provider must also provide input for the other programs as required.

High level estimated duration to achieve completion of each milestone the project are as follows (Refer to scope of work for estimated activity duration from the project):

<b>Activity</b>	<b>Target Completion date</b>	<b>Notes</b>
Appointment of Consultants	November 2024	Estimated, subject to tender responsiveness and procurement processes.
Project Familiarisation (Review previously completed and approved Stage 1 & 2 reports)	December 2024	Previous Stage 1, 2 & 3 documents familiarisation
FIDPM Stage 3	April 2025	Detail design development (Stage 3)
Employers Investment Decision Approval	June 2025	Process for Employer to apply for Investment Capex
FIDPM Stage 4 Documentation	July 2025	
ACSA Procurement of Main Contractor/s, Appointment & Adjudication and Award Processes	March 2026	Tender documentation & Main Contractor procurement process
FIDPM Stage 5	July 2028	Includes Enablement Works / Decanting, and Phasing of Works to allow for Sectional Completion
FIDPM Stage 6 and ORAT	September 2028	ORAT & Handover documentation
FIDPM Stage 7	August 2029	12 months defects liability period, Final Completion and Close out Report

The above dates are high level and indicative but can be used to inform assumptions of the tenderers proposed work plan / programme / schedule AND project approach / methodology.

Professional Consultants are to be mindful of the FIDPM requirements for Stage 7 (Close out) pertaining to issuing of Final Completion Certificate. Importantly, ACSA has made it a standard contract requirement that the Defect Liability period is 12 months after Practical Completion, leading to issuing of Final Completion certificate. Therefore, the final retention amount and the final professional fees will be paid subsequent to certification of final completion after 12 months from date of Practical Completion.

It will be required at Stage 3 that professional Consultants produce a work plan that seeks to achieve optimised delivery of the design development to achieve programme optimisation, including construction phasing that will improve construction duration and does not result in acceleration costs.