Bid Document – Professional Engineering Design Services: Fire Line Replacement

1. Invitation to Bid

The Playhouse Company invites suitably qualified, ECSA-registered professional engineering firms to bid for the design of the replacement of the fire line (wet riser and hose-reel system) at The Playhouse Theatre Building and Head Office, Durban. This bid covers ECSA Stages 2 to 5 only. The successful bidder will be called up again, under a separate instruction, to provide construction monitoring, testing, commissioning and close-out (Stage 6).

Item	Detail
Bid description	Professional Engineering Design Services: Fire Line Replacement – Theatre Building and Head Office
Employer	The Playhouse Company, Anton Lembede (formerly Smith) Street, opposite the City Hall, Durban, KwaZulu-Natal

2. Background and Project Overview

Existing system. A wet riser fed from the roof water tank and pump supplies hose reels and fire-fighting points from roof to basement. The line has never been replaced since original installation. It transitions between stainless steel, galvanised steel and copper.

Failure mechanisms. Galvanic corrosion at mixed-metal joints and erosion-corrosion at bends and reducers have thinned pipe walls. Scaling has cut hydraulic capacity below SANS 10400-W and NFPA 14 requirements. The system is non-compliant and exposes occupants and the Employer to life-safety and liability risk.

3. Scope of Appointment

This bid appoints the engineer for design only: ECSA Stages 2 to 5, ending with a recommended contractor appointment. Construction monitoring, testing, commissioning and close-out (Stage 6) are not part of this bid's price or contract.

Future call-up for Stage 6. The intention is that the successful bidder, as the designer of record, will be called up again to oversee the construction phase. That call-up will be issued as a separate written appointment once construction funding is confirmed and the works contractor is appointed. It will be subject to:

1. Satisfactory performance during Stages 2 to 5.
2. Availability of funding from DSAC for the construction phase.
3. The Employer's Supply Chain Management prescripts in force at the time.
4. A fee agreed in line with the ECSA Guideline Scope of Services and Tariff of Fees, using the rates and basis stated by the bidder in Form C2 of this bid.

The Employer is not obliged to issue the Stage 6 call-up, and no claim may arise if it does not. If the call-up is not issued, the engineer must still hand over all design documents so that another registered engineer can take responsibility for construction.

Both buildings are in scope. One engineer will be appointed to design the fire line replacement for both the Theatre Building and the Head Office. Each building gets its own complete set of drawings, specifications and Bill of Quantities, so that each can be tendered and built as a separate phase as DSAC funding allows.

Part	Building	Services in this bid	Stage 6 (future call-up)
A	Theatre Building	Stages 2–5: concept, design development, detailed design with full drawings, specifications, BOQ, tender documents and procurement support	Construction monitoring, witness testing, Certificate of Compliance, as-builts and O&M manuals
B	Head Office	Site survey and condition assessment of the existing fire line, then Stages 2–5 as for Part A, with its own drawings, specifications and BOQ	As for Part A

4. Detailed Scope of Design Services

The engineer must design a complete, code-compliant replacement of the 75 mm main fire line and all branches, from the roof water-tank outlet to every terminal point and produce documents ready to go to tender.

4.1 Extent of the system to be designed

- Full replacement of the 75 mm main fire line and associated branches, roof-tank outlet to all terminal points. The Stage 1 report names basement to 6th floor in its recommendations but records defects on the 8th floor; the engineer must confirm the full vertical extent on site.
- Removal and safe disposal of existing piping, fittings, supports and insulation, and decommissioning of redundant sections.
- Replacement of the two damaged roof valves and the leaking pump–tank joint valve.
- Proper decommissioning of the blocked 5th-floor pipe and extension of the undersized hose-reel rail.
- New supports, flanges, isolation valves and pressure-reducing/relief valves as required by SANS 10400.
- Elimination of all mixed-metal joints (stainless/galvanised/copper), with dielectric isolation where a transition cannot be avoided.
- Integration with existing hose reels and fire-fighting equipment.
- Builder's work: chasing, making good and fire-stopping of penetrations, sympathetic to the heritage status of the building.
- The same scope for the Head Office fire line, from its water supply to every terminal point. Because it has not been assessed, the engineer must first survey it, carry out leak detection and a condition assessment, and confirm the extent of replacement with the Employer before Stage 2.

4.2 Stage 2 – Concept and feasibility

- Confirm design criteria: flow rates, residual pressures, zoning and hydraulic performance against SANS 10400-W and NFPA 14 principles.
- Verify roof tank capacity, pump duty and existing pressures on site.
- Evaluate material options and recommend the final specification (the Stage 1 report proposes Schedule 40 or 10, grade 304/316 stainless steel with compatible fittings).
- Assess temporary fire-protection measures and fire-watch during shutdowns.
- Recommend a phasing strategy (floor-by-floor isolation) that keeps the venue operating.
- Update the cost estimate.
- Deliverable: Concept and Feasibility Report.

4.3 Stage 3 – Design development

- Develop the engineering design of the complete system with hydraulic calculations.
- Produce schematic diagrams, riser diagrams and coordination drawings.
- Coordinate with other building services and the heritage authority where required.
- Deliverable: Design Development Report, hydraulic calculations and drawings, for Employer approval.

4.4 Stage 4 – Detailed design and working drawings

- Produce construction-issue drawings: layouts, sections, details, supports, penetrations and fire-stopping.
- Specify all components, valves and fittings.
- Specify painting and identification to SANS 10140-1: Fire Red (RAL 3000 or equivalent) finish system suitable for stainless steel, and "FIRE LINE" labels at no more than 3 m intervals and at every floor.
- Specify testing and commissioning: hydrostatic pressure test at no less than 1.5 times working pressure, flushing, disinfection and commissioning.
- Deliverable: Full set of construction-issue drawings and technical specifications.

4.5 Stage 5 – Documentation and procurement

- Prepare complete works tender documentation for each building: detailed specifications, a fully measured Bill of Quantities, pricing schedule, and contract conditions (JBCC, GCC or as agreed with the Employer).
- Prepare a priced pre-tender estimate (engineer's estimate of the BOQ) for each building.
- Support the Employer's procurement: attend the Bid Specification Committee, run the contractor site briefing, answer clarifications and issue addenda.
- Evaluate contractor bids for technical compliance and functionality, and submit a written recommendation for appointment to the Bid Evaluation Committee.
- Require that the works contractor is a registered fire-protection installer (for example SAQCC Fire / IOPSA registered).
- Deliverable: Tender-ready document set per building, pre-tender estimates, and bid evaluation reports.

4.6 Standards and legislation

The design must comply with, at minimum:

- National Building Regulations and Building Standards Act, 1977, and SANS 10400 (Part W – Fire installation; Part T – Fire protection)
- SANS 10252-1 (Water supply installations for buildings)
- SANS 10140-1 (Identification of pipes and pipelines)
- NFPA 14 principles for standpipe and hose systems
- Occupational Health and Safety Act, 1993, and the Construction Regulations, 2014
- National Heritage Resources Act, 1999 (the building is a listed monument)
- eThekwini Municipality fire and water by-laws

4.7 General obligations

- Attend site and progress meetings with the Maintenance Manager every two weeks.
- Submit a monthly progress report.
- Hand over all drawings in PDF and native CAD format, and all reports in editable format. Copyright in the documents is licensed to the Employer for this project.
- Remain independent of any contractor or supplier that may bid for the works.

4.8 Minimum drawings and BOQ deliverables (each building)

The engineer must deliver the following for the Theatre Building and, separately, for the Head Office. Drawings must be signed by the lead engineer and issued in PDF and native CAD format.

#	Deliverable	Content
1	Existing-installation survey drawings	Measured layout of the existing fire line, valves, hose reels and defects, per floor
2	Demolition and decommissioning drawings	Piping, fittings and supports to be removed; redundant sections to be capped or isolated
3	Fire-line schematic	Water supply from roof tank and pump to every terminal point, with valves, zones and pressures
4	Riser diagram	Vertical riser through all levels, with floor connections, isolation and pressure-reducing valves
5	Floor layout drawings	New piping routes on every floor, roof and basement, with pipe sizes and hose-reel positions
6	Roof tank and pump connection details	Tank outlet, pump connection, new valves and dielectric isolation
7	Sections and installation details	Supports and hangers, flanged/welded joints, shaft and wall penetrations, fire-stopping
8	Hose-reel and terminal-point details	Connections to existing hose reels, rail extensions, landing valves
9	Painting and identification schedule	Fire Red finish system and "FIRE LINE" labelling to SANS 10140-1
10	Hydraulic calculations	Flow and pressure at the most remote outlet, friction losses, pump and tank adequacy
11	Technical specifications	Materials, valves, fittings, workmanship, testing and commissioning
12	Bill of Quantities	Fully measured BOQ: preliminaries and general, demolition, piping, valves, supports, builder's work, painting, testing and commissioning, provisional sums and contingencies
13	Engineer's pre-tender estimate	Priced copy of the BOQ at current market rates

The BOQ must be measured from the construction-issue drawings, and every BOQ item must be traceable to a drawing or specification clause.

5. Programme and Deliverables Schedule

The engineer must start Stage 2 within two weeks of the appointment letter and deliver tender-ready document sets for both buildings within (14) weeks. Bidders must submit their own programme with the bid; the durations below are the Employer's targets and may be refined at the inception meeting.

Milestone	Target (weeks after appointment)	Deliverable	Approval by
Inception meeting and site verification (both buildings)	Week 2	Inception report and detailed programme	Facilities Manager
Head Office survey and condition assessment	Week 4	Head Office condition assessment report and survey drawings	Facilities Manager
Stage 2 – Concept and feasibility (both buildings)	Week 6	Concept and Feasibility Report	Facilities Manager
Stage 3 – Design development (both buildings)	Week 9	Design Development Report, hydraulic calculations, schematics and riser diagrams	Facilities Manager
Stage 4 – Detailed design (both buildings)	Week 12	Construction-issue drawings and specifications per building	Facilities Manager
Stage 5 – BOQs and tender documents (both buildings)	Week 14	BOQ, pre-tender estimate and tender-ready document set per building	Bid Specification Committee
Stage 5 – Contractor procurement	Per Employer's SCM timetable, per phase	Bid evaluation report and recommendation	Bid Evaluation Committee

6. Bidder Requirements and Evaluation

Bids are evaluated in three gates: mandatory compliance, then functionality (minimum 70 of 100 points), then price and specific goals on the 80/20 preference point system.

6.1 Gate 1 – Mandatory requirements

A bid that fails any of these will be disqualified.

#	Requirement	Proof to submit
1	Attendance of the compulsory site briefing	Signed attendance register (checked by the Employer)
2	Lead engineer registered with ECSA as Pr.Eng. or Pr.Tech.Eng. in the mechanical / fire-protection discipline	Certified copy of current ECSA registration certificate
3	Registration on the National Treasury Central Supplier Database	CSD summary report (MAAA number)
4	Tax compliant	Valid SARS Tax Compliance Status PIN
5	Completed and signed standard bid documents	SBD 1, SBD 3.3, SBD 4, SBD 6.1
6	Completed pricing schedule	Form C1 (Part A and Part B) and Form C2 (Stage 6 rates)

6.2 Gate 2 – Functionality (100 points; minimum 70 to proceed)

Criterion	What is scored	Points
Experience of the firm	Fire-installation or wet-riser design projects in multi-storey buildings completed in the last 10 years, with reference letters. 5+ projects = 25; 3–4 = 15; 1–2 = 8; none = 0	25
Experience of the lead engineer	Years since professional registration with fire-installation design experience (CV). 10+ years = 25; 5–9 = 15; under 5 = 8	25
Key support staff	Qualified, registered candidate engineer or technologist and CAD draughtsperson (CVs). Both = 10; one = 5	10
Approach and methodology	Understanding of the Stage 1 findings; design approach; phasing and temporary fire protection in an operating theatre venue; heritage sensitivity; quality control	30
Programme	Realistic programme that meets or improves on Section 5	10
Total		**100**

Reference letters must be on the client's letterhead, signed, and state the project, value, dates and services provided. The Employer may contact referees.

6.3 Gate 3 – Price and specific goals (80/20)

Bidders who pass functionality are scored in terms of the Preferential Procurement Policy Framework Act, 2000, and its 2022 Regulations, on the 80/20 system:

- **Price: 80 points**, scored on the total of Form C1 (Part A plus Part B), including VAT.
- **Specific goals: 20 points**, allocated in line with The Playhouse Company's Preferential Procurement Policy, for example ownership by historically disadvantaged individuals, women, youth or persons with disabilities. Proof is claimed on SBD 6.1.

The bid with the highest total score will normally be recommended for award. The Employer may negotiate a market-related price with the preferred bidder.

7. Pricing Schedule and Returnable Documents

Bidders price the design services (Stages 2–5) as fixed lump sums per stage. Prices must include all disbursements (travel, printing, surveys, site visits) unless shown otherwise and must be in South African Rand.

Form C1 – Pricing schedule: design services (scored)

Part A – Theatre Building

Item	Description	Lump sum (R, excl. VAT)
1	Inception and site verification	
2	Stage 2 – Concept and feasibility	
3	Stage 3 – Design development	
4	Stage 4 – Detailed design and working drawings	
5	Stage 5 – Documentation and procurement	
	Subtotal Part A	

Part B – Head Office

Item	Description	Lump sum (R, excl. VAT)
1	Site survey, leak detection and condition assessment of the existing fire line, with report	
2	Stages 2 to 5, including all drawings, specifications and BOQ, as for Part A	
	Subtotal Part B	

Summary	Amount (R)
Subtotal Part A + Part B	
VAT at 15%	
Total bid price (carried to SBD 1 and used for scoring)	

Form C2 – Stage 6 rates for future call-up (not scored)

These rates fix the basis for negotiating the Stage 6 call-up. They do not form part of this bid's contract price.

Item	Description	Basis	Rate
C1	Construction monitoring, site inspections and site meetings	% of final construction value, or R per visit	
C2	Witnessing hydrostatic test, flushing and commissioning	Lump sum per building	

Item	Description	Basis	Rate
C3	Certificate of Compliance	Lump sum per building	
C4	As-built drawings, O&M manuals and handover file	Lump sum per building	
C5	Hourly rate, lead engineer (Pr.Eng./Pr.Tech.Eng.)	R per hour	
C6	Hourly rate, support engineer / technologist	R per hour	

Rates in Form C2 will be escalated by CPI from the bid closing date to the date of the call-up.

Returnable documents checklist

- ☐ SBD 1 – Invitation to bid
- ☐ SBD 3.3 – Pricing schedule (professional services)
- ☐ SBD 4 – Bidder's disclosure
- ☐ SBD 6.1 – Preference points claim
- ☐ D1 – Company profile and organogram
- ☐ D2 – CVs of the lead engineer and key staff, with certified ECSA certificates
- ☐ D3 – Declaration of independence from contractors and suppliers
- ☐ D4 – Schedule of similar projects with reference letters
- ☐ CSD report and SARS tax compliance PIN
- ☐ Certificate of attendance of the compulsory site briefing
- ☐ Company registration documents (CIPC) and certified ID copies of directors