ENVIRONMENT SERVICES DIRECTORATE

3 YEAR PRIORITISED MAINTENANCE REPORT FOR

PALACE THEATRE
PALACE AVENUE
PAIGNTON

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PALACE THEATRE
3 YEAR MAINTENACE / IMPROVEMENT PLAN

C O N T E N T S

1.0 Introduction

The report is based on the Client Brief produce in December 2004. The format of the following report mirrors the headings in the client brief.
The maintenance report should be read in conjunction with the Condition Survey Report which reflects the total extent of works required to keep the building in a good condition.

The works described will ensure that the building can be kept open for the next 3 to 5 years at a reasonable cost, and provide an increased level of comfort and accessibility to the users of the theatre.

All costs are based on the Cost Index of October 2004, with allowances for statutory fees for planning and building regulations where applicable, and professional fees at 12%. Appendix 1 has allowances for inflation for October 2005 and October 2006.

2.0 Maintenance Report

Disabled Access

Scheme 1 Single ramp to front of building built of rendered concrete block and concrete ramp. Raise roof over entrance door to accommodate new doors, .

+ cheapest option
more acceptable to Building Control
less impact on paved area
more acceptable to Planning

- no access to booking office
blocks access to public toilets

Budget:	£30,000
Statutory Fees	£560
Professional fees	£3,600
Total Cost	**£34,160**

Scheme 2 Dogleg ramp to front of building built of rendered concrete block and concrete ramp. . Raise roof over entrance door to accommodate new doors,

+ keeps access to toilets clear

- less acceptable to Planning
less acceptable to Building Control
less acceptable for wheelchair users
no access to booking office
bog impact onto the paved area

Budget:	£35,000
Statutory Fees	£600
Professional fees	£4,200
Total Cost	**£39,800**

Scheme 3 New doorway and access ramp to rear car park built from steel frame to span footpath, with concrete beam and block ramp. Steel handrails and balustrades. Demolish store and Old Mortuary, and provide car parking with a free draining base course.

\+ provides additional fire exit
provides a disabled car parking space
does not impinge on front elevation
preferred by Planning and Building Control

\- disabled access to rear of property
monitoring of entrance door and allow entry
no access to booking office
more expensive as doorway to be made, and bridge ramp required

Budget:	£40,000
Statutory Fees	£650
Professional fees	£4,800
Total Cost	**£45,450**

Scheme 4 Convert toilets to booking office, with toilet and storage, and form opening into theatre with platform lift.

\+ provides access to booking office
reduces heating costs as booking office can be self contained
maintains existing fire exit
achieves long term goals
does impinge on front elevation
no planning permission required
allows for extending the bar/waiting area to bar.

\- most costly

Budget:	£70,000
Statutory Fees	£ 960
Professional fees	£ 8,400
Total Cost	**£79,360**

Fire Detection System

Only a system that complies with BS 5839 should be installed in the theatre. This includes for delayed activation, and overriding public address announcements. It also includes detection in the badminton hall as it is attached to the building.

Budget:	£26,000
Professional Fees	£ 3,120
Total Cost	**£29,120**

Electrical Wiring

The theatre was tested in February 2005 in conjunction with the licensing tests. A test report has been prepared and the result is the electrical installation is satisfactory. Minor works are required as a result of the inspection.
Note: Stage lighting, movable equipment and portable appliances have not been tested.

Budget:	£ 3,000
Professional Fees	£ 360
Total Cost	**£ 3,360**

Building Fabric Repairs: Based on 3-5 year expected life.

Priority One

Strip out lead flashing to parapet gutter to front of building and replace with new lead including repairs to stonework and roof structure.

Budget: £25,000

Strip and re-roof ladies toilet block and slate roof to link corridor.

Budget: £12,000

Repair, re-point and stabilize stonework to all elevations of theatre, (excluding Badminton Hall)

Budget: £50,000

Repair manholes and improve drainage to prevent flooding of basement.

Budget: £15,000

Removal of asbestos to void under stage

Budget: £5000

Total	£107,000
Professional Fees	£ 12,840
Total Priority 1	**£119,840**

Priority Two

Replace floor covering to auditorium

Budget:	£10,000

Repair and re-point boundary walls

Budget:	£3,000
Total	£13,000
Professional Fees	£ 1,560
Total Priority 2	**£14,560**

Longer Term

The roof to the auditorium is in need of re-slating and should also be considered in the medium term. It is nail sick and liable to lose slates during a high wind. These can be replaced under day to day maintenance in the short term. The majority of the slates could be re-used.

Budget:	£80,000
Professional Fees	£ 9,600
Total Reroofing	**£89,600**

Complete external redecoration required 2007

Budget:	£15,000
Professional Fees	£ 1,800
Total Redecoration	**£16,800**

Internal redecoration of auditorium

Budget	£12,000
Professional Fees	£1,440
Total Redecoration	**£13,500**

No allowance has been made for redecoration or repairs to other internal.areas

Enhancements to Theatre

Retractable Seating To provide a retractable seating system will reduce the seating capacity to 330 which may not be sustainable.

Budget:	
Seating:	£66,000
Floor strengthening	£20,000
Asbestos Removal :	£15,000
New Basement Ceiling	£3,600
Contingency	£10,500
Total Budget:	£115,100
Professional Fees	£13,800
Total Retractable Seating	**£128,900**

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Fixed Tier To provide fixed tier seating on purpose made framework to link to existing balcony, including strengthening floor structure to provide 370 seats

Budget:	
Seats:	£44,500
Flooring:	£12,000
Floor strengthening	£20,000
Asbestos Removal :	£15,000
New Basement Ceiling	£3,600
Contingency	£10,460
Total Budget:	£105,000
Professional Fees	£12,600
Total Fixed Tier	**£117,600**

Awaiting further details from Audience Systems

Increase Bar Area

This can only be successfully carried out if the tiered seating arrangement is adopted. An additional fire exit may be required at the front of the auditorium (see scheme 3 above).
Remove partition and extend bar area under tiered seating.

Budget:	£45,000
Professional Fees	£ 5,400
Total Enlarge Bar	**£50,400**

The bar waiting area could be extended into the waiting lobby, subject to the re-locating of the booking office.

Budget:	£10,000
Professional Fees	£ 1,200
Total Extend Bar	**£11,200**

Heating/Cooling

Survey undertaken by Colin A Gilderthorp 31st January 2005

ASSESSING THE CONDITION OF THE EXISTING MECHANICAL SERVICES

AND PROPOSALS FOR

MAINTAINING A HEALTHY & COMFORTABLE INDOOR ENVIRONMENT

REPORT

The brief for this report is to review and comment upon: -

1. Life expectancy.
2. Current operational arrangement.
3. Improvement strategy;
    i. Efficiency
    ii. Controls
    iii. Budget costings.

The report is also required to include reference to the existing ventilation within the Auditorium and means of improvement with an indication of costings etc.

Existing Heating Installation

Boiler Plant

The Boiler Plant Room is located in the Basement below the Auditorium.
The Boiler Plant consists of 2 No. Hamworthy UR 250 gas fired atmospheric boilers approximately 15years old both in reasonable condition and adequate for the purpose, although by present standards have poor efficiency ratings. As spare parts are readily available they should operate satisfactorily for another 5- 10 years.

Distribution

The heating distribution is achieved by a single pipe system that includes a pressurisation set and circulation is assisted by a single twinhead single speed pump, which serves four separate circuits, all of which are permanently open.

A) Lobby and Landing.
B) Upper Auditorium and Bar.
C) Auditorium Stage and Changing Rooms.
D) Badminton Hall.

Flue

The flue does not perform adequately there is a long horizontal section before entering the stone constructed chimney terminating with a terracotta pot. Problems are experienced on the initial start up from cold.
The thermal properties of the cast iron section of horizontal flue pipe (although it is lagged) are insufficient to prevent the transfer of heat. The consequent buoyant flue gases escape from the draught hoods. This is a very dangerous condition and should be remedied without delay.

Controls

The controls are basic and quite unsuitable for the operational requirements of the building. These controls are very inefficient causing substantial wastage of energy and considerable discomfort to the occupants and users of the building. Although there is a control cubicle it only houses a weather compensated temperature controller, contactors, switches etc.
The time switch control is mounted externally and the settings were: -
ON: 07:00 hrs OFF: 11:00 hrs
i.e. 4 hours operation time every day (The day omit facility was not being used.)

Combustion Fresh Air

Although there is an adequate supply of fresh air there is no dedicated low level vent as required.

Gas

The gas meter is located in the Palace Avenue entrance to the basement.
The gas within the plant does not have any fire emergency shut off devices or Fire Alarm interlock as required by Health and Safety legislation.

Heating Improvements

Heating Distribution and Controls

The first considerations must be the comfort of the occupants and the conservation of energy. This will be achieved by the closer control of the distribution system. i.e. limiting the areas to be heated between background heating (fabric protection) and occupation heat requirement; by time control, weather compensation and optimiser control.
The existing 4 No. circuits do provide a basic zoning facility, which could be vastly improved by creating a pumped primary heating circuit and separately pumping the 4 No. Secondary circuits with individual weather compensation and room temperature influence control.
The Badminton Hall circuit should remain as a constant temperature circuit based on the assumption, that the Hall would be used intermittently for short periods. Therefore the best method of heating would be a two pipe LPHW distribution system with Fan Convectors, as provides a reduced heat up period from a background temperature of 10º C to an occupancy temperature of say 16º C to a couple of hours.
The problem with this type of building is that the majority of the space is unoccupied for long periods with the exception of the Box Office and office areas, which are occupied during normal office hours and evenings of performances. This could be easily remedied by incorporating an additional C.T. circuit to provide individual heating to the Box Office via a thermostatically controlled radiator and replacing the “on-peak” electric over door heaters in the foyer with LPHW over-door convector heaters. (Note electricity should not be used as a primary hearing source)

These proposals would provide an improvement to the level of temperature control within each of the various zones. This would then achieve the desired occupancy temperature for areas in use whilst the other areas remaining at the set back temperature thus avoiding overheating and consequent fuel wastage.

The method of control would require to be upgraded considerably and is best achieved using an integrated control system. The energy savings would more than justify this expenditure, and would pay back within two heating seasons.

Boiler Flue Pipe

The existing horizontal cast iron flue is not acceptable. In order to increase the flue gas velocity. It is recommend that the flue is replaced from the stainless steel header with a stainless steel twin walled insulated flue, line the chimney and terminate with a top stub.

Costs associated with the proposed heating improvements
(Budget Prices only)

1.	Upgrade the ventilation to the boiler plant room to comply with the requirements for combustion fresh air.	£ 1,000
2.	Modify the pipework arrangement to incorporate pumps and control valves etc.	£15,000
3.	Emergency gas shut off device	£ 1,000
4.	Replace the thermal Insulation	£ 1,000
5.	New Control system and associated wiring	£ 7,500
6.	Flue Upgrade	£ 2,500
7.	Installation of new heating circuit to Box Office and new terminal units	£ 2,000
8.	Badminton Hall and Play room upgrade the heating	£10,000
9	Contingency @ 10%	£ 3,900
	Total	£42,900
	Professional Fees	£ 5,148
	Total Heating Improvements	£48,048

Please Note

The proposals above are based on the assumption that the building will continue to be used as a theatre. If extensive alternations are envisaged in the future greatly upgrading the structure, the heating system may also require to be extensively enhanced with new pipework and new terminal units and thus in turn requiring more sophisticated control techniques to be adopted. This report does not include any further costed proposals.

Ventilation Improvements

Auditorium

The auditorium is approximately 8.2 metres high to the apex, 17 metres long and 11.5 metres wide. The balcony is 5.0 metres high, 6.5 metres long and11.5 metres wide.
The ventilation system should be capable of providing 8 litres of fresh air per person per second (i.e. 2.4 m^3/s) and considering the volume of the auditorium which is approximately 1950 m^3 the air change rate at this level would be 4.5 per hour.

By introducing mechanical means of air movement there are various disadvantages to consider.

a) The transmission of noise.
b) The initial cost of installation
c) Structural problems with the weight of the plant.
d) The physical size of the plant and distribution ductwork.
e) The operational, maintenance and running costs.
f) Listed building consent.

As the requirement is to **improve** the comfort conditions for the audience it might be desirable to consider benefits of upgrading the existing natural circulation of air. By providing a "controlled" flow of fresh air with the support of a simple mechanical means to boost the rate of airflow when necessary and thus eliminating some of the disadvantages listed above.
The flow of air needs to be from low level to high level, this would require a means of introducing air into the basement (area below the auditorium), through floor grilles and out through the roof.
This could be achieved by utilising the existing ridge ventilator with improved ducting to ceiling grilles.
The system would have two simple operating modes: -
Summer: To provide free cooling to the space, with the booster fan activated if the CO2 temperature rose above a pre-set maximum.
Winter: To maintain air quality. The booster fan would be activated if CO2 levels built up to an unsatisfactory air quality. With motorised dampers incorporated into the system to prevent excessive ventilation.
(Reference data: SWEG REPORT 79 St. James Church, Jersey – Conversion to a naturally Ventilated Theatre J A Crabb July 1997)

Costs associated with the proposed Ventilation improvements
(Budget Prices only)

Option one — The ventilation installation utilising an air handling unit serving a low velocity supply and extract ductwork distribution system, complete with all grilles, louvres, control dampers, filters, silencers, fire dampers etc.
The system to provide controlled volumes of fresh air to maintain temperature levels and air quality within the parameters available using free cooling from outside ambient air. Tempering the supply to eliminate cold draughts in cold conditions with a heater battery.
The budget price is based on floor area using SPONS Mechanical and Electrical Services Price Book and would very much be subject to wide variation depending upon design restraints.
In consideration of the brief criteria this is not a recommended option £100,000

Professional Fees	£ 12,000
Total for Mechanical Ventilation	**£112,000**

Option two. Controlled natural ventilation system generally described above. Subject to detailed design and modelling of the airflow. £25,000

Professional Fees	£ 3,000
Total for Natural Ventilation	**£28,000**

Other Works

Ladies Toilet — Upgrading of basement ladies toilets to include new toilets, cubicles and floor coverings, and wall tiling.

Budget:	£45,000
Professional Fees	£ 5,400
Total to Upgrade	**£50,400**

Box Office — See DDA Scheme 4