

# BATTLE McCARTHY ©

Consulting Engineers & Landscape Architects



## PROJECT:

Sadler's Wells Theatre, London

## CLIENT:

Sadler's Wells Trust

## ARCHITECTS:

RHWL

## BM SERVICES:

Building Services (MEP) Engineering

## VALUE:

£30million

## DESIGN BRIEF

To provide building services engineering for the new theatre and respond to the Sadler's Wells Trust desire to minimise the building's reliance on refrigeration, heating and electricity.

The building replaced a former listed theatre of limited merits, and is cited by English Heritage as a case study for the successful insertion of a new building into the historic fabric of London.

Sadler's Wells is the first major Arts Council funded lottery project to be completed. The auditorium provides a provocative total theatre space, capable of continual change through the use of light and electronic image projection.

The main foyer can house exhibitions and meetings by day while the existing Lilian Baylis Theatre foyer becomes a meeting place for audience, performers and teachers.

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## DESIGN INITIATIVES/ACTIONS UNDERTAKEN

As the name Sadler's Well implies, water plays a key role in the successful performance of the theatre. A 200 m well taps into the abundant water supplies in the chalk layers below, drawing water for drinking and for cooling which is then recycled through the WCs.

This system, although traditionally used in the early part of the century, is rarely used in modern buildings, and Sadler's Wells is one of the first green buildings to tap in to this sustainable resource.

Careful design of the auditorium has ensured that air may be supplied at 16-18 °C from high-level diffusers to achieve an average auditorium room temperature of 23-25 °C .

This temperature is allowed to rise slightly higher in summer to cater for the lighter clothing the audience is expected to wear. During winter, when heavier clothes are worn, the lower external temperatures are used to achieve a slightly lower average auditorium temperature of 22-24 °C .

The borehole water cooling system has meant that in place of the traditional noisy chillers, a simple pump set is used, thereby reducing space and capital costs (approx £30,000), which also considerably reduces running costs.

In winter, the air-handling units are designed to allow full air re-circulation and heat recovery, thus reducing the heating load of the building to an absolute minimum.

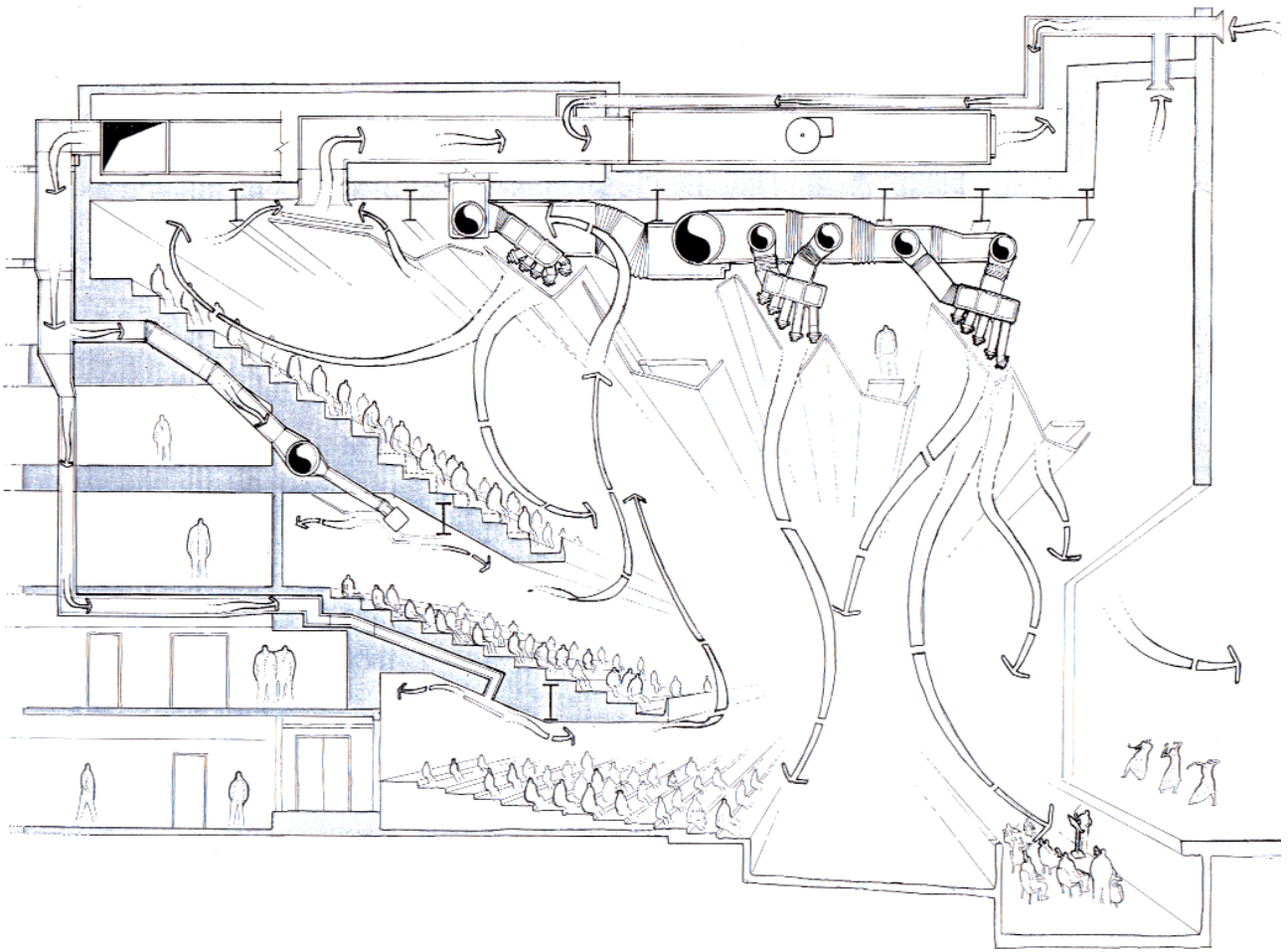
The foyer space is principally daylight with large glazed areas. The glazing faces south-east and south-west and allows passive solar heating, while a solar-reactive heating system ensures that maximum advantage is taken of the 'free' heat.

During summer, automatic opening windows and a stack-driven ventilation system prevent overheating. The summer heat gain is also controlled by the fortuitous planting of a number of deciduous plane trees.

## AWARDS

Civic Trust Award

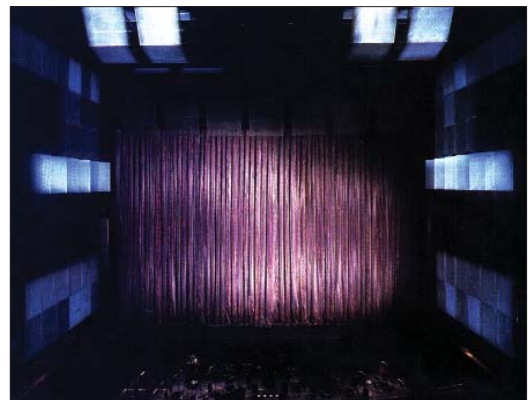
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Auditorium Ventilation Schematic



Interior views of the Foyer



Auditorium model and as completed