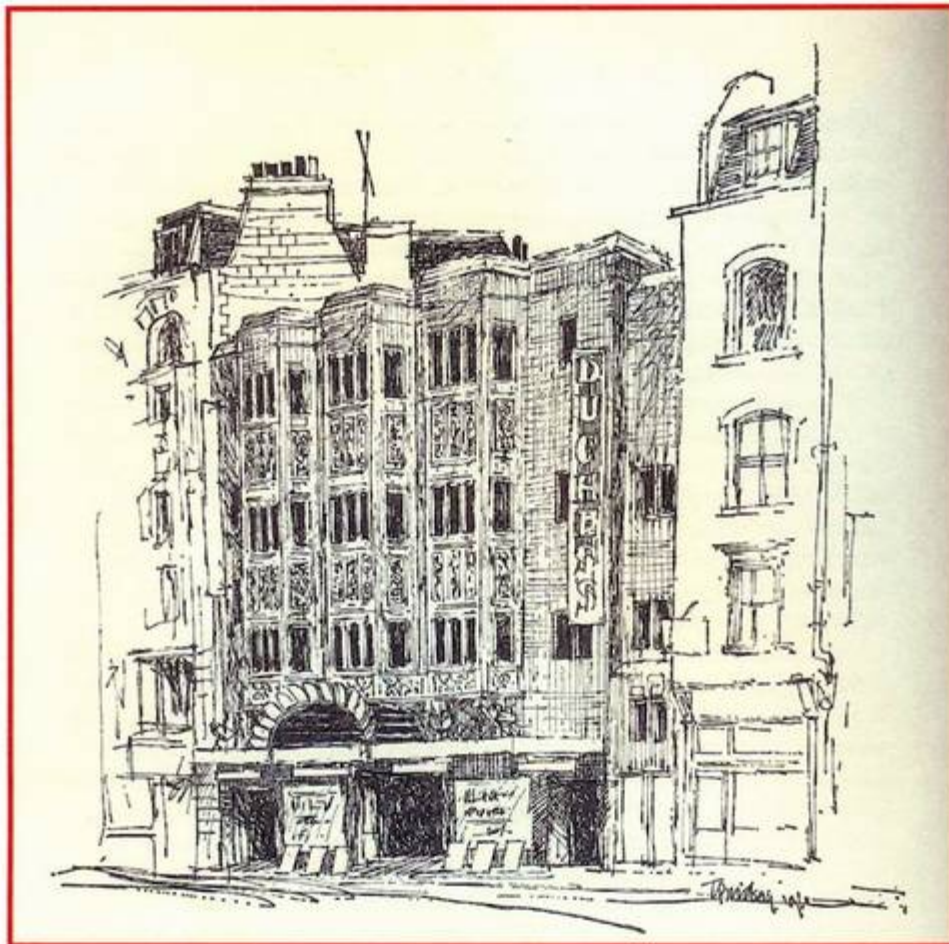


JEFFREYS: CINEMA PROJECTS 1920s & 30s

Part-1

Duchess Theatre, London



Date Built/Opened: 1929

Seating Capacity: 491

Architect: Ewen Barr

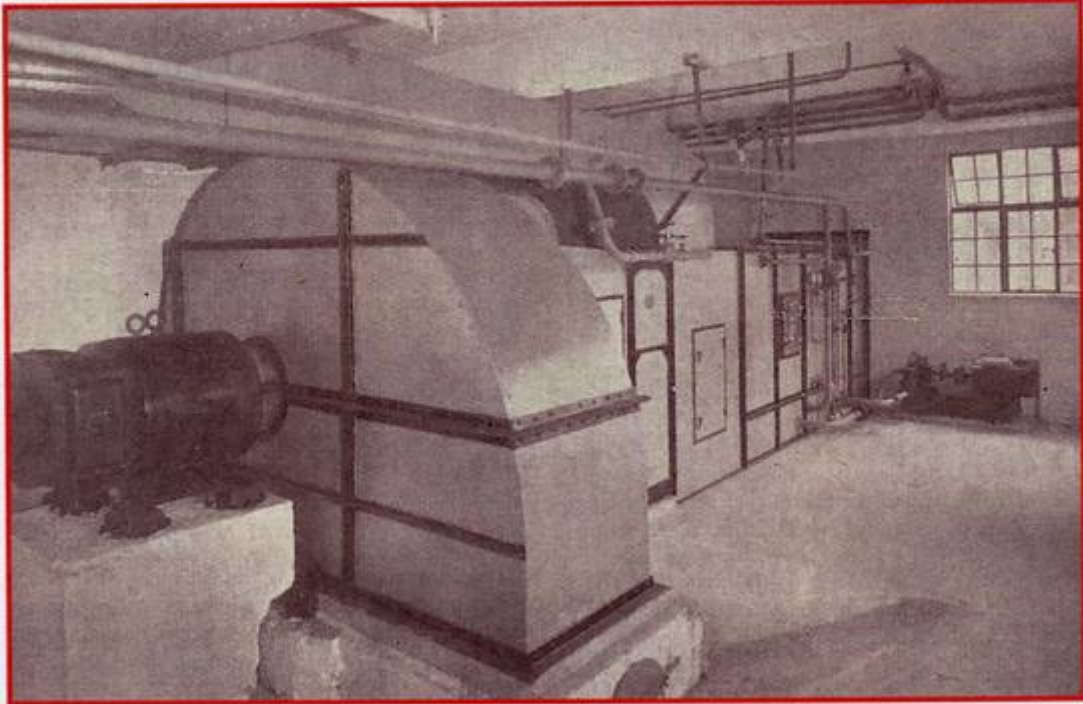
HVAC Engineer: J Jeffreys & Company Ltd

HVAC System: Mechanical ventilation with air washer, not known if refrigeration included

Status: In use

References: The Heating and Ventilating Engineer, January 1931

Duchess Theatre, London



THE PHOENIX THEATRE, LONDON.

THIS new house of entertainment is a striking addition to the ever-growing list of London theatres. Situated in Charing Cross Road, it occupies the site where once stood part of the works of a well-known firm of pickle manufacturers.

The theatre was designed by Sir Giles Gilbert Scott, F.R.I.B.A., Bertie Crewe, and Cecil Masey, F.R.I.B.A., who acted as associated Architects. The most modern theatrical equipment has been installed, and the warming and ventilation plant is of great interest.

The ventilation is effected by the method known as the "downward" system, *i.e.*, fresh air is introduced at ceiling level, and the vitiated air exhausted at floor level. The warming of the theatre is effected by means of a pump circulated hot water radiator system fired by two oil-fired boilers. The whole of the central plant is accommodated at roof level.

Four motor-driven centrifugal fans are employed to ventilate the auditorium, these fans being made by Messrs. Matthews and Yates, Ltd., of Manchester.

The Plenum unit is capable of delivering about 2,200,000-cu. ft. of fresh air per hour to the auditorium, this being equivalent to 2,000-cu. ft. per occupant per hour. The air, after being pre-heated, is passed through a mist-type air washer, where it is thoroughly washed, and by means of which it can be cooled in the summer.

A system of ducts conveys this air to the auditorium, where it enters at high level, *viz.*: at the main ceiling and at the ceilings of the balcony and circle, and a certain amount of air is diverted into the entrance foyer.

Special provision has been made to ensure that the distribution of air within the auditorium



Architects: Sir Gilbert Scott, F.R.I.B.A., Bertie Crewe, and Cecil Masey, F.R.I.B.A.
Warming and Ventilation: J. Jeffreys & Co., Ltd.

is properly proportioned and a reasonably uniform temperature maintained throughout. The extraction of the vitiated air is effected by two motor-driven centrifugal fans situated on the roof also. These fans have a lower duty than the Plenum fan, in order to preserve a pressure within the auditorium to minimise draughts.

The main exhaust fan extracts air by way of mushroom ventilators in the rear portion of the auditorium, under the seats, and gratings in the risers of the balcony and circle steps. This air is collected by a second duct system, and discharged by the fans on to the roof. The remainder of the exhaust air is taken from the stage by a separate fan.

A third extract fan is situated over the proscenium arch. The duty of this fan is to come into operation under special conditions about to be described.

In accordance with London County Council fire precaution requirements, the Plenum fan, and three extract fans already mentioned, have their controls interlocked to ensure that they may come into operation in a prescribed order. The order of operation is as follows:

The fan over the stage must be started before any other can come into operation, and so is always running during occupation. The main extract fan starts when the Plenum fan starts, and is regulated *pro rata* with this fan.

When the fire curtain rises, a switch operated by the curtain stops the main extract fan, and starts the proscenium extract fan in its stead; the result of this arrangement is that any smoke produced from a fire in the auditorium is drawn towards the stage and away from exits, leaving the latter clear.

The whole of this equipment is covered by patents.

The warming of the theatre is effected by the pump accelerated hot water system.

Two sectional cast-iron boilers made by the National Radiator Co., Ltd., and having a total heating capacity of 2,680,000 B.T.U. per hour, are installed in a boiler house on the roof. These boilers are oil fired by the "Parwinac" system. Two Matthews and Yates' blowers supply the air to the burners, and these are interconnected so that either may be used for either or both boilers at will.

The pipe circuits are divided into sections so that separate control can be obtained to different portions of the house, and also to each air heater.

Precautions against failure have been taken by installing the "Mercoïd" thermostatic apparatus, which cuts off the oil in the event of any undue rise in temperature in the boiler or flue, or flame failure. Should fire originate in the boiler house, the melting of a fusible link will shut off the oil to the boilers.

The oil is stored in the basement, and pumped to the daily service tank, from which it is fed by gravitation to the boilers.

Special precautions have been taken to prevent the transmission of sound and vibration from the various machines installed. The ventilating fans and motors and also the boilers, blowers and pumps have all been mounted on special foundations, whilst spring suspension and texpore drives are used for many of the motors.

The boiler house has been specially insulated as a further precaution. Ducts and pipes are insulated where necessary with flexible joints.

The various salons and foyers are ventilated by local electrically driven propellor fans made by Messrs. James Keith and Blackman Company, Ltd.

The theatre temperature is kept under control by means of a number of Negretti and Zambra electric thermostats, situated at suitable points in the auditorium, which indicate these local temperatures in the boiler house. The heating control valves are all in proximity to this indicator, so that immediate adjustments may be made without leaving the plant room.

It will be seen that the main features of this installation are as follows: Quietness in running, flexibility and convenience of control, precautions against failure and fire.

The whole of this equipment has been installed by J. Jeffreys and Company, Ltd., of London.

□

THE HEATING OF ROOMS.

A LECTURE under the above title, forming Lecture II of the Cantor Lecture on "Modern Domestic Scientific Apparatus," was delivered on Monday, December 1st, by Professor Charles R. Darling, F.I.C., F.INST.P., in the Lecture Theatre of the Royal Society of Arts, John Street, Adelphi, W.C.1, who demonstrated his subject by the aid of a number of lantern slides and various types of heating apparatus.

During the course of his remarks, Professor Darling said that in fitting up new houses with heating appliances, it should be borne in mind that the prevention of smoke was an essential factor. At the present moment, in London, five-sixths of the smoke arose from domestic sources and the remaining one-sixth from



Phoenix Theatre. The Auditorium.

Davis Theatre, Croydon



Date Built/Opened: 1928

Seating Capacity: 3725, for a time the greatest in England

Architect: Robert Cromie

HVAC Engineer: J Jeffreys & Company Ltd

HVAC System: Mechanical ventilation, believed with air washer, not known if refrigeration included

Status: Closed May 1959

References: The Heating and Ventilating Engineer, January 1929

Davis Theatre, Croydon



Commodore Theatre, Hammersmith, London



Date Built/Opened: 1929

Seating Capacity: 2884

Architect: George Coles

HVAC Engineer: J Jeffreys & Company Ltd

HVAC System: Mechanical ventilation with air washer, not known if refrigeration included

Status: Demolished

References: The Heating and Ventilating Engineer, January 1931

Commodore Theatre, Hammersmith, London

