HI-TECH BUILDINGS PART FOUR

BRITISH LIBRARY LONDON 1998
ASHRAE NEW GLOBAL HQ GEORGIA 2021
PORTCULLIS HOUSE LONDON 2001

BRIAN ROBERTS
PORTCULLIS HOUSE LONDON

BRITISH LIBRARY
LOCATION Euston Road, London
ARCHITECT Colin St John Wilson & Mary Jane Long
ENGINEER Ove Arup
HVAC CONTRACTOR Haden-Young
LISTED Grade I

ASHRAE GLOBAL HEADQUARTERS
LOCATION Peachtree Plaza, Nr. Atlanta, Georgia
Compiled from ASHRAE website by Brian Roberts, Life Member ASHRAE

PORTCULLIS LONDON
LOCATION Bridge Street, London
TYPE Parliamentary Offices/Conference Facilities
ARCHITECT Michael Hopkins & Partners
ENGINEER Ove Arup and Partners
SERVICES ENGINEER Arup Associates
HVAC CONTRACTOR Crown House
LISTED Grade I
BRITISH LIBRARY
"ASHRAE's first-of-its-kind headquarters building was designed as a living showcase of what's possible through technology integration to increase efficiency, protect people, and enhance the occupant experience."

Examples of technical features include:

Radiant ceiling panel system for heating and cooling and dedicated outdoor air system for ventilation and enthalpy heat recovery.
Overhead fresh air distribution system augmented with reversible ceiling fans in the open office areas and displacement distribution in the learning centre.
Six water-source heat pumps.
Demand control ventilation.
Modelling Energy Use Intensity.
On-site electric vehicle charging stations.
Roof-top and ground mounted photovoltaic energy systems.
Useful daylight illuminance (>300 lux).
Window Wall Ratio 79.9%. 
ASHRAE NEW GLOBAL HQ

New Global Headquarters
180 Technology Parkway, Peachtree Corners, GA 30092
ASHRAE NEW GLOBAL HQ
Innovative mechanical systems visible through open ceiling.
ASHRAE’s recently installed photovoltaic (PV) system.
PORTCULLIS HOUSE
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New 23,000m² of MPs offices and Committee room accommodation constructed in the air-rights over new station serving three Tube lines. Designed for almost entirely off-site manufacturing. The building fabric thermal capacity is used to control indoor climate. Night ventilation natural cooling. Highly integrated services, structure and architecture. Ventilated facade with full heat recovery. Direct aquifer cooling source without chillers. Low energy use services systems.

Collaborators: Hopkins Architects, Parliamentary Works Directorate

Image ©Hopkins
PORTCULLIS HOUSE

Groundwater Cooling

Wellhead Buffer Tank → Variable Speed Pumps → Greywater Tank

12.5°C → 16°C → 14.5°C → 20.5°C

Plate Heat Exchanger

2 no. 120m Boreholes into Chalk Lower Aquifer

Displacement Ventilation

22±2°C

River Thames

Greywater System
REFERENCES AND FURTHER READING

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1978 Engineering into the Eighties (Brian Roberts), Drake & Scull.

1999 Pioneering British High-Tech: Architecture:
   Articles on both featured buildings were originally published in Architecture in Detail, 1993& 1994.

2014 100 Buildings 100 Years, Susannah Charlton with Elain Hardwood (Eds),


BRIAN ROBERTS, Budleigh Salterton, 2022