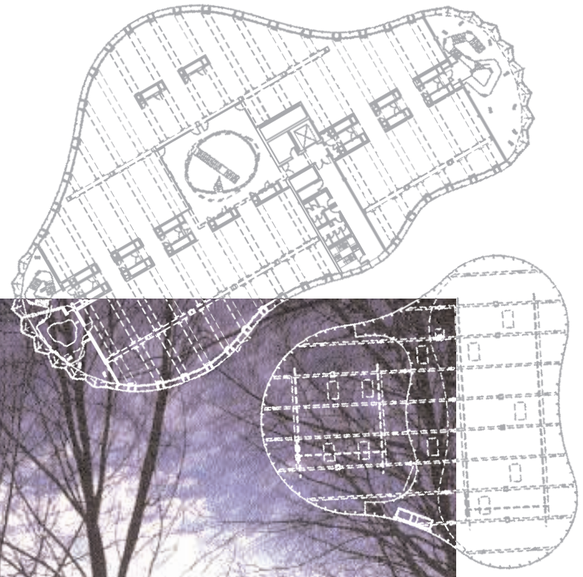
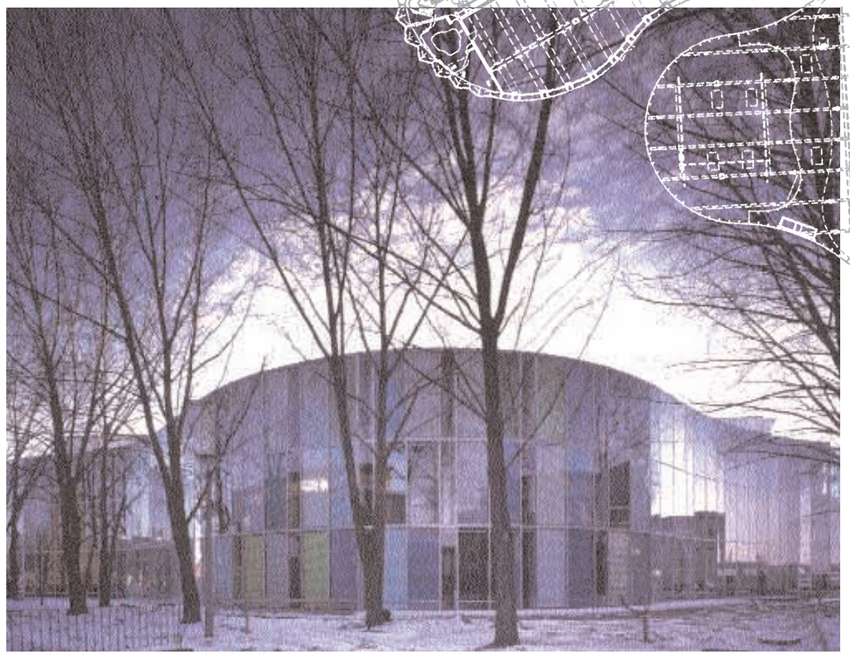


below: View of the workshop building from the street
right: Ground Floor Plan



Environmental Review

Amoeba

The colourful Photonics Centre in Adlershof is an impressive debut project by London partnership Sauerbruch and Hutton – displaying a playful, unconventional approach to bio-climatic building design

Photonics Centre / Adlershof, Berlin
Architect / Sauerbruch and Hutton
Review by Lindsay Johnston
Photography by Bitter & Brecht

above: Pathway between the two blocks. *facing page:* Interior of the workshop hall. Exploded isometric sketch of the wall system.

● The names Sauerbruch and Hutton may not be familiar. Students from the A.A. in London in the mid-80s, Matthias Sauerbruch and Louisa Hutton formed a partnership in 1979 and spent their initial years doing 'alts and ads' around London – and competitions.

'Lotto' has smiled on them and they have secured through competitions a $42 million Optics Research Facility outside Berlin, reviewed in this article; an $80 million high-rise office 'extension' in Berlin; and a $82 million office building for the Department of the Environment in Dessau.

They claim to have learned the 'English philosophical tradition of empiricism' from the Smithsons, for whom Hutton worked, and to have a commitment to ecology and advanced environmental technology. They are quoted as saying, "ecology is just sensible, isn't it?"

Their work is far from austere or burdened by this reason-based manifesto. On the contrary, it is fluent, non-Cartesian, in many instances organic in plan-form, colourful, and downright 'quirky'.

Their first major project to reach realisation is the Photonics Centre in Adlershof, a barren suburb of the former East Berlin near an airfield and in an area previously occupied by aeronautical research facilities – no urban context! The area is being redeveloped as a 'high-tech' industrial park and the Photonics facility is to provide a base for research into optics, optoelectronics and laser technology.

As built, the centre is two amoeba-like buildings – originally intended to be four in their award winning competition entry. The two buildings have different functions and are linked by an underground tunnel. The larger and taller is a three-storey office and laboratory building designed to be let to a number of separate tenants. The smaller is a workshop hall with 7.5m headroom to be let as one unit or sub-divided into two.

The flat roof and serpentine glass wall configuration of the buildings recall the young Foster's Willis Faber Dumas building in Ipswich (1975), but one wonders if the technology is as coolly and rigorously reconciled.

The play with colours, injected into the facades through the use of coloured venetian blinds, is the overwhelming 'grab' of the project, establishing a powerful presence – apparently random colours build to a 'high noon' emphasis of red/orange at one entrance, and descend to a blue/violet emphasis at another.

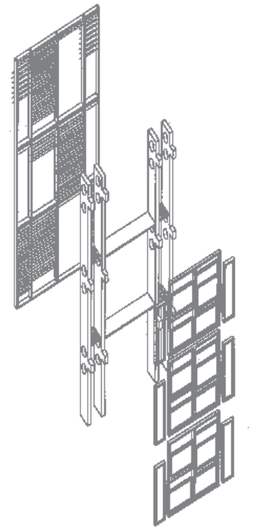
The difficult business of reconciling cellular office spaces into an amoeba-shaped building plan has been well handled. In the larger building, which houses office and laboratory spaces, a central core and east/west corridor divides the building into north and south zones. Vertical services – which include power, communications, compressed air, gas and water and wastes – are run in cupboards and distributed horizontally in inverted u-shaped pre-cast concrete beams. The tenancies are almost column free.

Stair-wells are strategically located at east and west and form exciting three dimensional spaces behind zig-zag external walls which break out of the curved language.

A striking central atrium, which spills light in from the roof to a stairwell and off-set, almost circular, apertures, was apparently an afterthought initiated by the clients. The smaller building is a simpler open space with a rectangular service core cutting into it at basement level leaving the main space above uninterrupted.

From an ESD (ecologically sustainable development) point of view, the main interest in this building is the double ventilated wall in the three-storey office building. The glazed double wall, with a vented interstitial space, is a viable technique for moderating the relationship between inside and outside.

It has been used, for example, in Sheppard Robson's Helicon building in London and in Foster's Commerzbank in Frankfurt. One has to ask, however, why it is equally applied to north and south facades? And, what happens to the people working in the south facing workshop hall building, which has conventional double-glazing and no sun protection? The rigorous logic of this arrangement is difficult to grasp.



Nevertheless, detailed examination of the configuration of this double wall is valuable. The external walls of the building consist of an outer and inner glazed wall with a 700mm 'pufferzone'. Fresh air is introduced through the outer skin single glazed aluminium (Schüco) curtain wall through 30mm slots at the bottom of the glass at each floor level. Hot air from this bufferzone is exhausted, using a natural stack effect, firstly, horizontally through holes in the twin concrete columns within the zone and secondly, vertically up the space between these paired columns and out through open and close glass louvres below eaves level. The inner double glazed wall has vertically sliding sashes which allows the occupants to let fresh air in from the bufferzone or stale air out into the bufferzone.

What is unclear, is who opens the glass louvres at eaves level, especially when the building is let to separate tenancies? Within this bufferzone are located the coloured venetian blinds which give the building its stunning appearance.

Other aspects of 'bioclimatic' design may include utilisation of the thermal mass in the concrete structure, particularly as the structural precast ceilings are exposed – now a fashionable way of exposing thermal mass when the floor slab is likely to be carpeted – and possibly chilled ceiling 'radiators'. The late introduction of the atrium suggests that its use to create stack effect in the centre of the building, to bring fresh air through the working spaces, was not a fundamental strategy. At this stage, there is no information available on how the building is working from an occupants point of view regarding thermal comfort, or in regard to energy consumption.

The rooves of the two buildings are substantially stacked with what looks like M and E equipment and the published cost of the building is $4000 or $6000 per square metre, depending on which way the floor area is measured – not cheap.

Other buildings by Sauerbruch and Hutton promise to have a thorough 'eco' dimension. The impressive GSW tower block acknowledges the difference between north and south and has "one side draped like a fur coat for warmth, and the other a breathing skin facing the sun".

The Dessau building has a plan form reminiscent of Scharoun or Aalto and with a roof like the Fiat factory in Turin by Trucco. It is billed as being highly advanced in terms of environmental technology and it is noted that the environmental consultants include Battle McCarthy, which gives hope that empiricism will be delivered.

Lindsay Johnston is Associate Professor of Architecture at the University of Newcastle.

The play with colours, injected into the facades through the use of coloured venetian blinds, is the overwhelming 'grab' of the project, establishing a powerful presence

Project Summary Photonics Centre **Location** Berlin **Architect** Sauerbruch Hutton Architects, London/Berlin **Project team** Matthias Sauerbruch, Louisa Hutton, Klaus de Winder, Holger Frielingsdorf with Jitse van den Berg, Annikka Meier, Markus Pfandler, Amir Rothkegel, Camilla Wilkinson **Structural engineer** Krebs & Krebs Ingenieure **Environmental engineer** Zibell, Willner & Partner **Building cost** approx. 17.3 million pounds **Size** 10,990 m.sq gross **Construction period** June 1996-March 1998

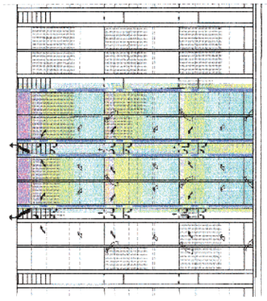
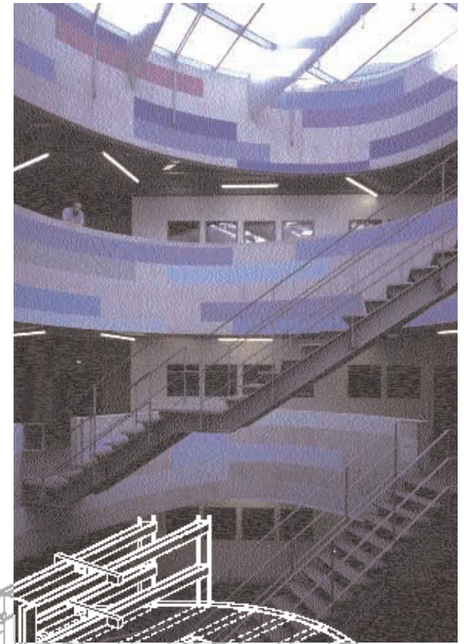
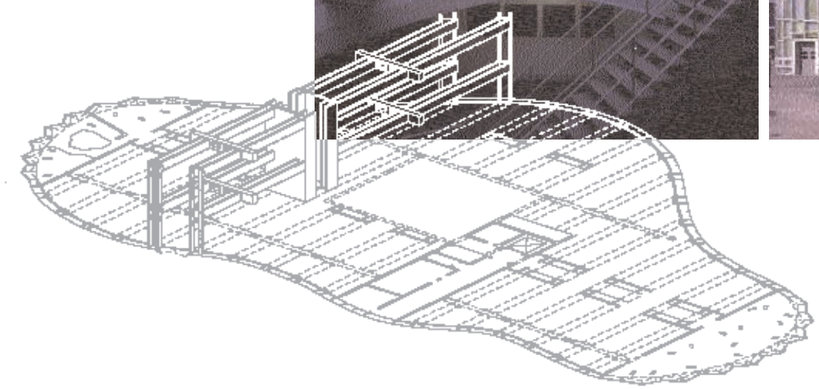


Diagram showing movement of air through the double wall.





facing page: The entrance hall.
above left: The atrium space.
above: A serrated edge provides structural stability in the stairwells where there is no double skinned wall.