

Chiswick Park

by Richard Rogers Partnership

Location: London, England

Latitude/Longitude: N51°19' W 0°10'

HDD, CDD, Annual Precipitation:
HDD 3000, CDD 100,
annual precipitation 24"

Building Type: Mixed-Use

Square footage: 1.4 million sq ft

Stories: 12 buildings, multi-stories

Client: Stanhope plc

Completion: 1999–present

Design Team: Richard Rogers Partnership

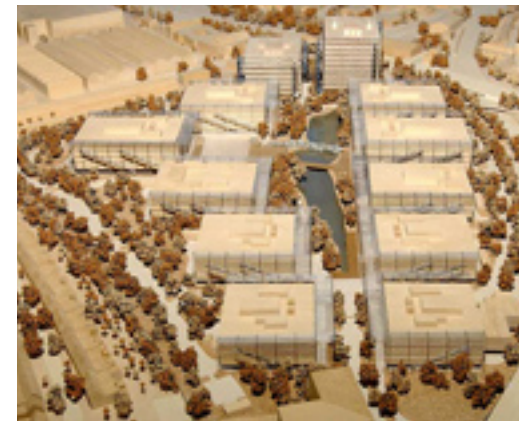
Design team members: Daniel Crane,
Charles Gagnon, Pascale Gibon, Nick
Hancock, Charles Meloy, Richard Paul,
Tosan Popo, Richard Rogers, Neil South-
ard, Andrew Tyley A-1



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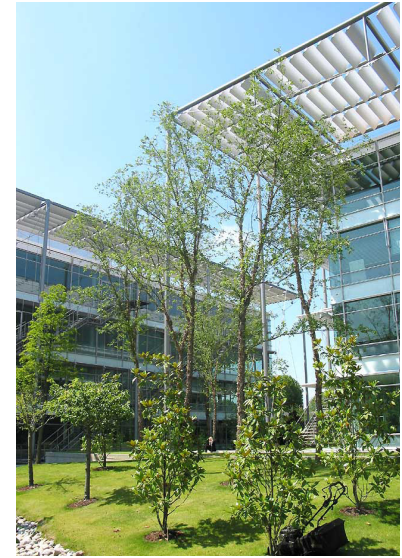
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Background and Context

The general goals for the Chiswick Project were to create a model work environment. Stanhope plc wanted to take this brownfield site of the former bus works and bring life back to the site. It was the goal of the design team as part of the master plan to integrate the landscape with the building design. The heart of the site is formed by a lake. The center provides public space which is calm and inviting to all visitors to the site. The design team is the firm of Richard Rogers Partnership.



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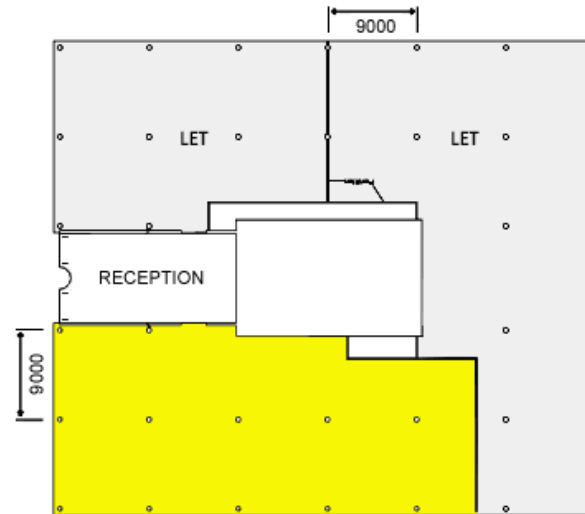
Design Intent

The design intent was for pedestrian priority. When the project is completed the hope is that more than 75% of the workers at the park will come by public transportation. In the design of the master plan the roadways were placed on the outside of the project to allow the center of the park to be a pedestrian-only zone.

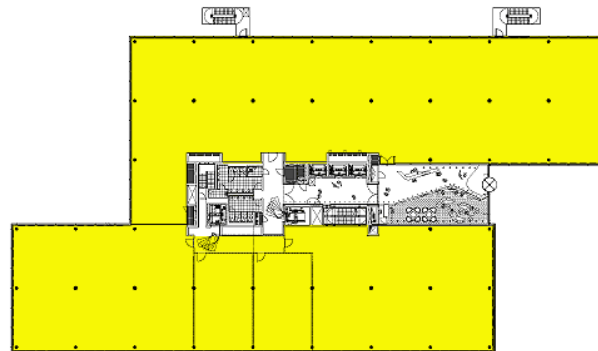
The buildings were designed for the worker. The design called for a separation of served and servant spaces. The core of each building is the servant space, and the outer spaces are the served areas. The glazing was used for two main reasons—for views into the park and for daylighting. With the use of all glazing for the exterior of the building, the use of shading devices became a major design element. These shading devices give the park its distinctive look.

It would seem that the project has not had many problems because I found no reports to say that problems have been found, but just like most building projects, not everything works out as planned.

The energy savings for this project come from the air displacement system. The displacement system keeps the cooling and heat down when compared with traditional systems.



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Key Design Strategies

The design intent was to use a displacement air system with external shading devices to block the sun on the different sides of the buildings. The displacement system works by keeping the incoming air temperature just a few degrees below that of the air at 8 feet and above, this allows for thermal saturation to occur. This process means less outdoor air is necessary to provide the same level of comfort and safety to the people occupying the space. It also means less energy is consumed than if the space were heated/cooled with traditional Mixed Air methods. One of the strong points of this system is its use of natural laws. Before the Industrial Revolution and the advent of mixed air systems, the only way to cool buildings was by locating them where cool air congregated or a breeze could be channeled through the building or to take advantage of stack ventilation (where gravity keeps denser, fresher air near the ground and convection, the rising of heated air, causes hot air to drift away to the ceiling).



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TABLE 1.1 ECONOMIC COMPARISON FOR CASE STUDY LOCATION

Welding Facility 240ft. Length x 210ft. Width x 34ft. Height Design for 40 MIG Welders Twin Cities Location			
Information	Conventional	Air Displacement	Difference
Ventilation CFM Required	135,000	82,629	- 52,371
Annual Fuel MBTU* Consumed	24,376	12,720	- 11,656
Annual Fuel Cost	\$127,457	\$66,511	-\$60,946
Installation Cost	\$160,000	\$175,000	\$15,000
Payback Time...		1/4 years	
Air Conditioning Load (TR) [†]	511 Tons	311 Tons	-200 Tons
		Rotary Exchanger	
Deduct for Energy Recovery		-146 Tons	
Remaining Chiller Load (TR)		165 Tons	

* MBTU indicates millions of British thermal units
[†] TR indicates Tons of Refrigerants



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Displacement air doesn't fight gravity, instead it uses it, providing a cleaner environment and substantial energy savings. The design strategies for the shading and building began to take shape. The structure of the buildings are concrete frame with a steel core and steel bracing. The floors are post-tension concrete

There are multiple types of shading devices: there are fixed and operable shades. These two systems provide shade for 90% of the buildings' surfaces and allow the air displacement system to function properly.



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Further Information

There are other sources for information that can be found on the web. I did not find any books, but I'm sure there are journals and other sources that can be used for more information.

References

<<http://www.enjoy-work.com/chiswick-park>>

<<http://www.environment.com>>

<<http://www.london-city-uk.com/>>

<<http://www.mapquest.com>>

<<http://www.richardrogers.co.uk>>

<<http://www.xetexinc.com>>



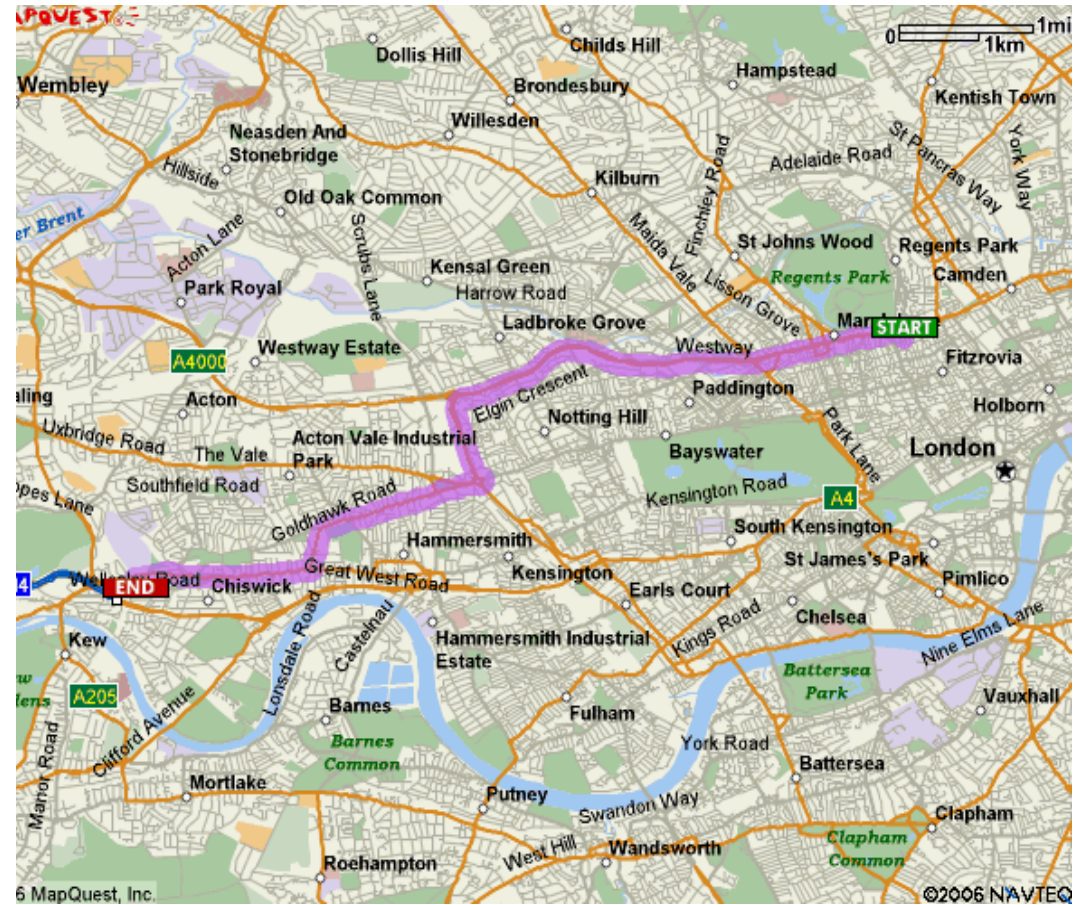
Map and Transport Options

Via The Tube

Take the Circle Line (yellow) from Great Portland Street Station to Edgware Station. Transfer to the District Line (green) to Gunnersbury. You can also disembark at the Chiswick Park Station, but the Gunnersbury Station is closer to Chiswick Park.

By Car:

Take the route shown on the map. This trip is 17 minutes or 7.5 miles from Regent's Park.



Picture Citations

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P-2: <<http://www.richardrogers.co.uk>>

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