

Canary Wharf Case Study

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Architecture 504 England

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Interactive Site Map - (www.canarywharf.com)

Canary Wharf Siteplan

CANARY WHARF
LONDON

1. Project Basics

Location: Canary Wharf, London
England

Latitude: 54°30' N, 0°1' W

HDD, CDD, annual precipitation: 3422,
213, >24"

Building Type: High-Rise Office, Retail,
and two Rail Stations

Square Footage; Stories: 15,700,000
sq. ft.; 12–50 stories

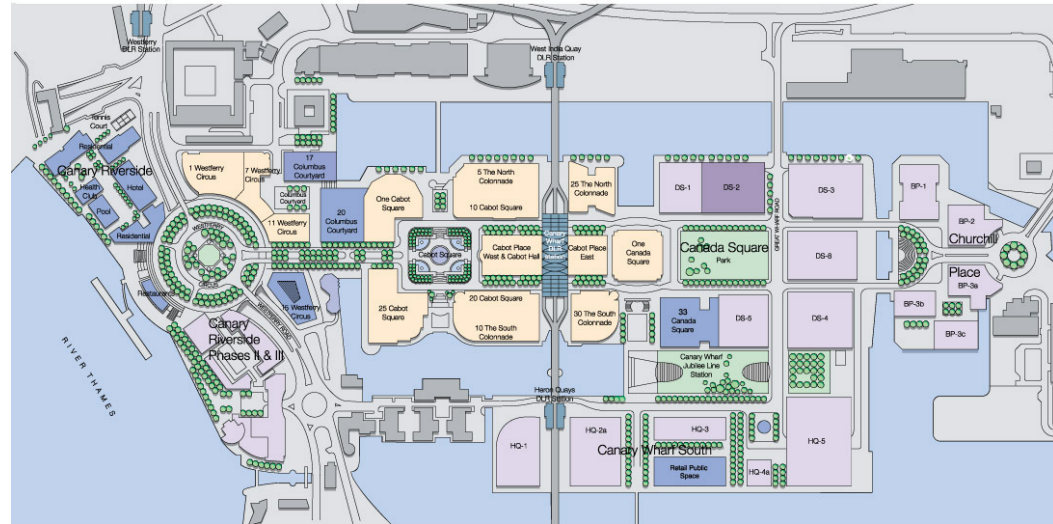
Completion Date: 1986–present
Currently 25 buildings are
completed.

Client: Many Worldwide Financial
Companies

Design Team: Canary Wharf Group,
Foster and Partners, Pei Cobb Freed and
Partners, Pelli Clark Pelli Architects,
Skidmore Owings & Merrill, Troughton
McAslan/Adamson Associates, Kohn
Pederson Fox, HOK International, ARUP,
William Alsop, Chapman Taylor

2. Background and Context

The London docks were once one of the largest and most important ports in the world, employing hundreds of thousands of workers. During the 1960s shipping companies moved to larger, more efficient ports, and by 1981, 8.5 square miles was unused. An



Existing Under construction Committed Future Phases
(www.canarywharf.com)

unsuccessful attempt at economic revitalization was made during the late 1980s. Then in 1995, the Canary Wharf Group was formed with the goal of creating first-class office space in London.

Canary Wharf Group focused on design, construction, leasing, and management of Grade A office space, and high-quality retail and leisure (CWG Environmental & Social Report 2003–2004). Among the top priorities of this group was to make an

environmental impact through the use of systems within their building and site and procedures for all their incoming tenants.

At this time there are 25 buildings in Canary Wharf proper spread over 86 acres; this does not include the Canary Wharf Riverside Phases. In



Site in London (www.googleearth.com)

Cabot Square, N&S Colonnades



1 Cabot Square - Pei Cobb Freed & Partners. (www.pcfandp.com)



5 The North Colonnade/10 Cabot Square
Skidmore Owings & Merrill. (www.canarywharf.com)



25 The North Colonnade - Troughton
McAslan. (www.canarywharf.com)



Cabot Square (www.canarywharf.com)



Cabot Place - Various
Architects (www.canarywharf.com)



25 Cabot Square Skidmore
Owings & Merrill. (www.canarywharf.com)



20 Cabot Square Kohn Pedersen Fox
(www.canarywharf.com)



30 The South Colonnade - Kohn
Pedersen Fox (www.canarywharf.com)

Canada Square



5 Canada Square - Foster and Partners
(www.canarywharf.com)



8 Canada Square - Foster and Partners
(www.canarywharf.com)



15 Canada Square - HOK International
(www.canarywharf.com)



1 Canada Square - Cesar Pelli
(www.pcparch.com)



Canada Square (www.canarywharf.com)



Canada Place - Chapman Taylor
(www.canarywharf.com)



33 Canada Square - Foster and Partners
(www.canarywharf.com)



25 Canada Square - Cesar Pelli
(www.canarywharf.com)



20 Canada Square - Skidmore, Owings & Merrill
(www.canarywharf.com)

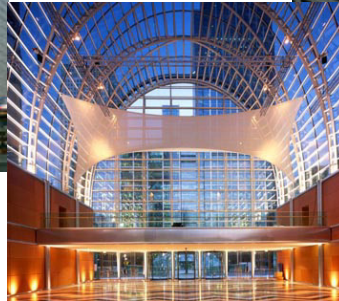
Bank & Upper Bank



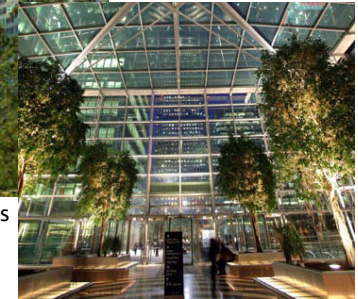
20 Bank Street - Skidmore, Owings & Merrill
(www.canarywharf.com)



40 Bank Street - Cesar Pelli & Associates
(www.canarywharf.com)



West Wintergarden - Cesar Pelli & Associates
(www.canarywharf.com)



East Wintergarden - Cesar Pelli & Associates
(www.canarywharf.com)



25 Bank Street - Cesar Pelli & Associates
(www.canarywharf.com)



50 Bank Street - Cesar Pelli & Associates
(www.canarywharf.com)

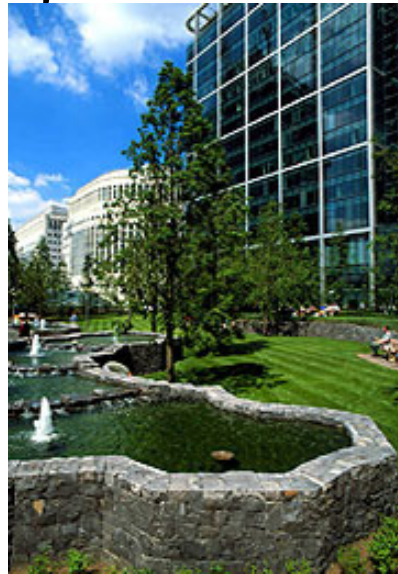


10 Upper Bank Street - Kohn Pedersen Fox
(www.canarywharf.com)

Churchill Place, Parks and Rail



1 Churchill Place - HOK International
(www.hok.com)



Canada Square - (www.canarywharf.com)



Canary Wharf Docklands Light Rail Station - (www.ucl.ac.uk)



Canary Wharf Jubilee Line Station - Will Alsop (www.trainweb.org)

addition to buildings, the site houses the DLR station, the Jubilee Line Station, and multiple parks. Most buildings are high-rise offices ranging from 12–50 stories in height. Of these, the dominant Canada One tower, designed by Cesar Pelli and Associates at 50 stories, towers over the city of London. These buildings form the core of a new financial district that now houses many of the world’s largest financial companies.

The site is home to buildings from some of the world’s best-known building firms. Many have green building features, but the bulk is typical urban high-rise buildings, with steel skeletons and curtain wall glazing. The impact that Canary Wharf has had on the green building movement is in their master site design and in their on-going environmental management. The attention to transportation, views, green spaces, and civic connections has made this a favorite place for many of the 70,000 people who work on this little island.

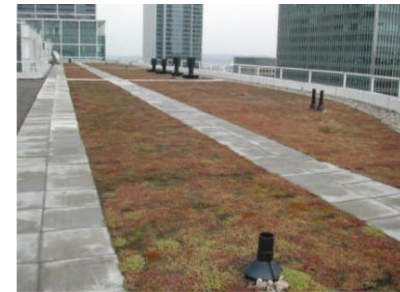
What separates this development from many others around the world is the ethical standpoint of the designers. It is a primary objective of the CWG to inform the tenants, shareholders, and

community at-large about their goals, performance, and compliance with environmental policies. These policies reflect their commitment to environmental and social issues. Their compliance with these policies has placed them at the head of their sector, and earned them the City of London’s “Livable City 2003” award.

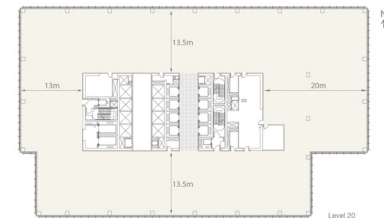
The CWG has permitted and constructed over 15.7 million square feet of office and retail space at Canary Wharf. The construction of sleek glass high-rise buildings was intended to move and consolidate the city’s financial district into one high-tech zone. This has been a very successful venture for CWG even though the economic hurdle of such a massive development has yet to be cleared. The London Office Database places occupancy at approximately 90% and economic viability as still at-risk (EGI/2004). Key tenants, like Credit Suisse, will be leaving soon, giving CWG even more space to lease.

3. Design Intent and Validation

The Canary Wharf Group intended to resurrect a defunct brownfield on the Isle of Dogs in London. These 8.5 square miles of abandoned docklands posed a huge



Green roof laboratory
(www.greenroofs.com)



A typical floorplan for many of the high-rise buildings - core, shell, and few interior columns.
(www.canarywharf.com)



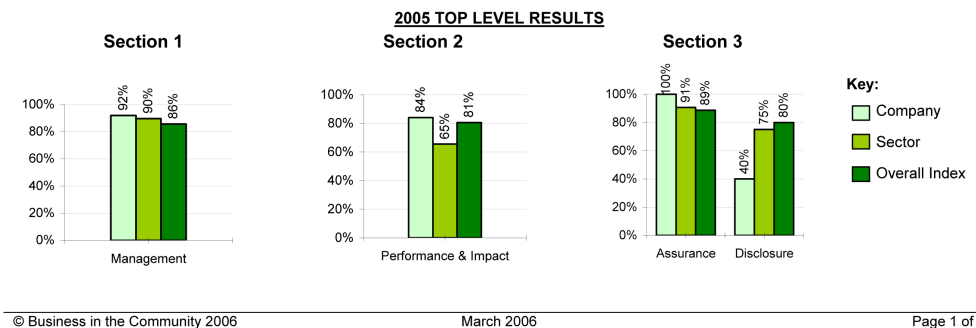
High tech shading at 5 Canada Square - Skidmore Owings & Merrill
(www.som.com)

financial risk for the investors, but as many of the properties were under reorganization (a British version of bankruptcy), certain risks were mitigated. However, the need for a new centralized financial district with adequate office space drove the creation of this new development and its surrounding infrastructure. The development of traditional high-rise structures was coupled with intense facility management technology and a pronounced desire to create a sustainable urban space. The guiding theme for this environmental approach was “planning, creating, sustaining” (Environmental and Social Report 2003-2004). To this end CWG worked with engineers, architects, facility managers, and consultants from around the globe to create the perfect blend of green, high tech, and Wall Street.

4. Key Design Strategies

Building Design and Construction

Using specific design and construction management techniques, CWG made great efforts to minimize both short- and long-term environmental impacts from the construction of these buildings. Their goal was to achieve a



BREEAM “Very Good” or “Excellent” with tenant assistance. In particular, the architects relied on water-reduction strategies, renewable energy resources, passive solar, green roofs, and high-tech lighting management programs, which save energy by dimming the lights within the buildings on the estate as the sun enters into specific regions inside. This also cuts down on heat production of the light fixtures themselves, saving energy both in light production and building cooling.

Estate Management

This is by far the most aggressive environmental aspect of Canary Wharf. CWG leases space to tenants and offers their service to provide environmental training and reporting. Nearly half the tenants use this feature, giving great control and influence to CWG. This control is levied at three main estate management areas each with specific goals and agendas.

Construction Activities

During new construction and tenant build outs, CWG manages...

Noise: nuisance

Waste: waste transport, land use, methane pollution, quantity

Building Design: energy consumption, water consumption, wastewater quantity, material use, and aesthetics

Spillages and Discharges: dock pollution, land, and drains; wildlife

health and safety

Material Procurement: resources and effects from manufacture

Material Transport: CO2 emissions.

Use of Energy: efficient use of energy by construction staff. In particular

CWG has a Key Performance benchmark that is helping other developers determine what energy performance can be expected from high-rise office space.

Use of Water: Purification energy, and chemical use.

Extraction of Water: Effect on aquifer.

Office Activities:

Similar to construction activities with the addition of Staff Commuting Monitoring.

Estate Activities:

Purchases of materials and services: effective environmental supply chain.

Biodiversity of the Estate: influence and impact through enhancement of environmental specifications and design.

Pollution of dock, drains and surrounding land: preventing pollution

Response to environmental incident:

Energy Consumption in infrastructure and building services:

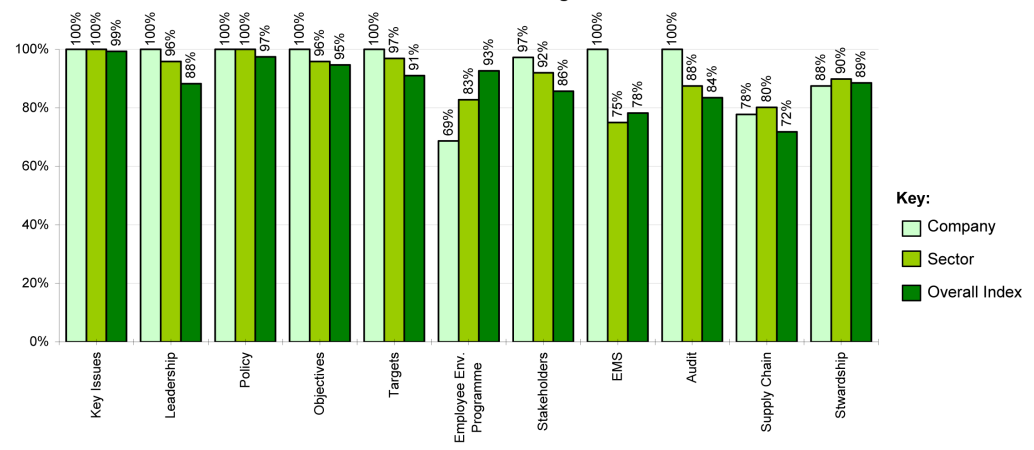
Infrastructure and Retail Waste: waste

CANARY WHARF GROUP – SIGNIFICANT ENVIRONMENTAL ASPECTS 2004-5

CONSTRUCTION ACTIVITIES

ASPECT	#	IMPACTS	POLICY	OBJECTIVE	TARGETS 2004/5	PROCEDURES	MONITORING	STATUTORY REQUIREMENTS
Noise	A	Nuisance	“minimum possible disruption and disturbance to the local environment and the community” “complying with all relevant environmental legislation”	Minimise impact of construction activities on the surrounding area.	No target, pending the start of a major new project.	Section 61 agreement with LBTH. PP-16. EM-07.	Measurement by Casella Stanger. Results and complaints monitored by Logistics Dept. CCS.	Environmental Protection Act 1990 (Part III), Noise and Statutory Nuisance Act 1993, the Noise Act 1996 Control of Pollution Act 1974 (Sections 60 and 61) LBTH Code of Construction Practice
Waste	A	Waste of material. Transport. Land use. Methane. Pollution.	“the efficient use of materials and the re-use and recycling of waste, wherever possible, in the construction of properties” “complying with all relevant environmental legislation”	To reduce construction site waste, by reusing and recycling.	No target, pending the start of a major new project.	EMS-02 PP-19	Data supplied by Bywaters. Monitored by CWCL ESM. CCS	Environmental Protection Act 1990 Controlled Waste Regulations 1992 etc Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991 etc Environmental Protection (Duty of Care) Regulations 1991 etc Special Waste Regulations 1996 etc Waste Management Licensing Regulations 1994 etc
Building design	A	Energy consumption. Water consumption. Waste water quantity. Materials use. Aesthetics.	“the efficient use of energy, water and materials in the design of properties” “promote sustainable sourcing of products and materials” “Seeking to influence the environmental impact of the development, and surrounding land and waterscapes, through enhancement of environmental specification and design.”	To continue to develop new buildings in line with BREEAM requirements. Reduce consumption of mains water Use renewable energy sources	To achieve a BREEAM rating of ‘Very Good’ (or ‘Excellent’ with tenant assistance) on all new office buildings.	PP-19 BREEAM Prohibited materials list.	BREEAM assessments.	The Building Regulations 2000 as amended by the Building (Amendment) Regulations 2001 (SI 2001/3335) (BREEAM best practice targets) Directive EC 2002/91 on the Energy Performance of Buildings
Spillages and discharges	A	Pollution of dock, land, drains. Affect on wildlife. Health & Safety.	“preventing pollution” “complying with all relevant environmental legislation”	Minimise risk from spillages on construction sites.	Develop environmental training courses for targeted groups where a need has been identified. (Spillage training.)	PP-19 EM-07	All incidents recorded. CCS	Control of Pollution (Oil Storage) (England) Regulations 2001. Water Resources Act 1991 LBTH Code of Construction Practice
Materials procurement	A	Resource (eg timber) Effects of Manufacture.	“effective environmental supply chain management and promote sustainable sourcing of products and materials.”	Implement an Environmental Supply Chain Management Programme	As above. (Package Manager training.)	EM-10 EMS-02 PP-19	SCM Questionnaires monitored by CWCL ESM. Follow-up meetings	-

Section 1 - Environmental Management



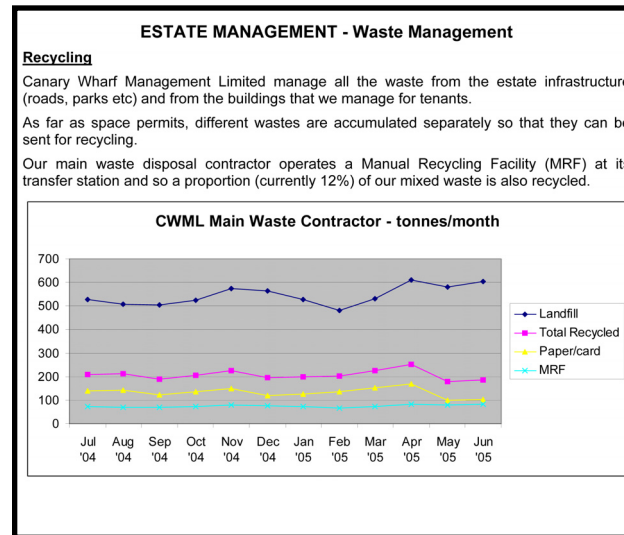
creation and transportation
 Water consumption in infrastructure and building services: efficient use of water and purification chemicals.
 Tenants & Shoppers commuting: integrating environmental and social issues into the business strategy.
 Tenants Energy, Water Use:
 Tenants Waste: including recycling.

Transportation

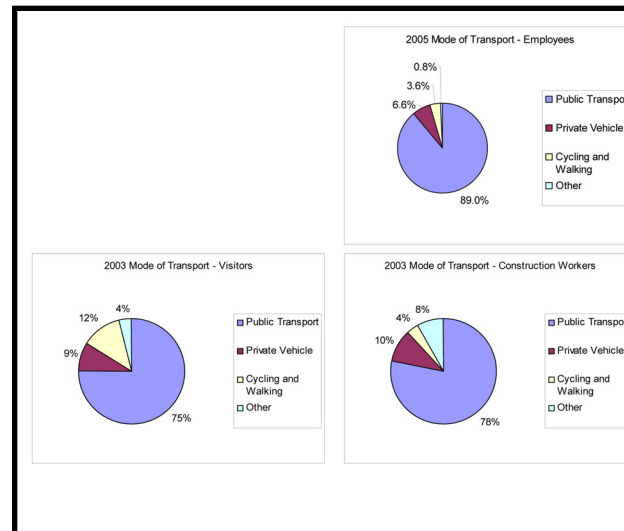
CWG is continually monitoring the use of personal vehicles or public transportation of its own staff, the tenants, and retail users. The development includes multiple redundant public transportation methods, and a minimum of parking to encourage users to commute in a sustainable fashion.

Community

CWG has a firm commitment to the neighboring communities. There are multiple strategies to link this area with the surroundings. Of note, a joint community based employment initiative, research and education funding, community involvement such as Green Canary Day, and finally encouraging its staff to participate in public and private groups focusing on



Waste & Recycling
www.canarywharfenvironmentalandsocial.com



Modes of Transportation
www.canarywharfenvironmentalandsocial.com

social and economic issues.

Biodiversity

CWG's Business Biodiversity Action Plan integrates a nearby hamlets' Action Plan into the fabric of Canary Wharf. By linking existing tree, shrub and plant species, larger wildlife habitats are developing. Also increased education of specific species habitats within the green roof space has yielded very useful biodiversity data. Setting specific benchmarks and reporting on CWG's performance to the community keeps communication about biodiversity and wildlife transparent. The Phones for Trees recycling plan is one unusual way to encourage employees on Canary Wharf to

7. References

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
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Getting There and Back Again

Journey Planner

3. Route details

Journey summary					
Departing: Tuesday 30 May 2006 at 10:00.					
From: Great Portland Street					
To: Tower Hamlets (London), Canary Wharf (E14 5AB)					
Restrictions:					
Route 2					
Time	Details	Information			
10:02 	start Great Portland Street Take the Hammersmith & City Line towards Hammersmith (H&C Line) or Circle Line towards Baker Street	<table border="1"> <tr><td>start map</td></tr> <tr><td>end map</td></tr> <tr><td>area map</td></tr> </table> Av journey time: 2 mins Zone(s): 1 	start map	end map	area map
start map					
end map					
area map					
10:04					
10:07 	Baker Street Take the Jubilee Line towards Stratford or Jubilee Line towards West Ham	<table border="1"> <tr><td>start map</td></tr> <tr><td>end map</td></tr> <tr><td>area map</td></tr> </table> Av journey time: 20 mins Zone(s): 1, 2	start map	end map	area map
start map					
end map					
area map					
10:27					
	Canary Wharf Walk to Canary Wharf (E14 5AB)	<table border="1"> <tr><td>start map</td></tr> <tr><td>end map</td></tr> <tr><td>area map</td></tr> </table> Transfer time: 7 mins 	start map	end map	area map
start map					
end map					
area map					
10:34 end	Canary Wharf (E14 5AB)				
Maximum journey time: 00:32					
Interchanges: 1					
Not what you expected? Click here for information on planned service disruptions					