

Interactive Site Map - (www.canarywharf.com)

#### **Canary Wharf Siteplan**

CANARY WHARF

#### 1. Project Basics

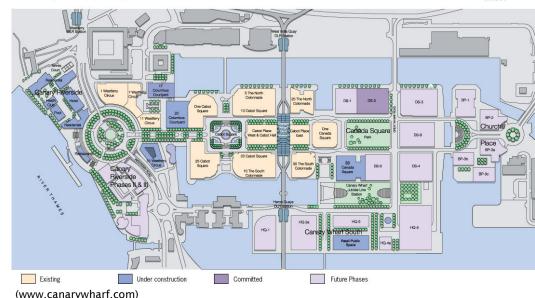
Location: Canary Wharf, London England

- **Lattitude:** 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



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.

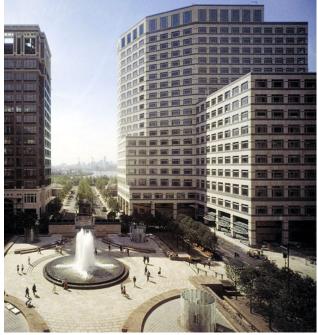
Canary Wharf Group focused on design, construction, leasing, and management of Grade A office space, and high-quality retail and leisure (CWG Environmental & Social Report 2003–2004). Among the top priorities of this group was to make an environmental impact through the use of systems within their building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



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



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



Cabot Square (www.canarywharf.com)



20 Cabot Squre Kohn Pederesen Fox (www.canarywharf.com)



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



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



30 The South Colonade - Kohn Pederesen Fox (www.canarywharf.com)

## Canada Square



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



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



Canada Square (www.canarywharf.com)



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



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



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



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



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



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

# Bank & Upper Bank



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



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

40 Bank Street - 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 design 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.

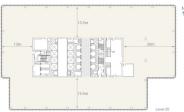
The CWG has permitted and constructed over 15.7 million square feet of office and retail space at Canary Wharf. The construction of sleek glass high-rise buildings was intended to move and consolidate the city's financial district into one high-tech zone. This has been a very successful venture for CWG 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 labratory (www.greenroofs.com)



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



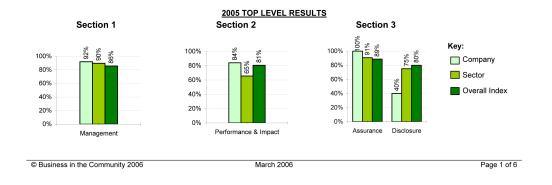
High tech shading at 5 Canada Square - Skidmore Owings & Merrill (www.som.com)

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 shortand 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 hightech 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.

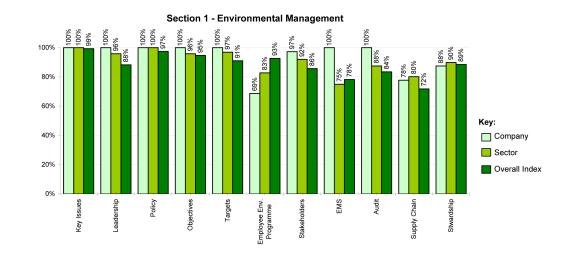
Pollution of dock, drains and surrounding land: preventing pollution Response to environmental incident: Energy Consumption in infrastructure and building services:

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	А	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	А	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 (\$12001/3335) (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	А	Resource (eg timber) Effects of Manufacture.	"effective environmental supply chain management and promote sustainable sourcing of products and materials."	limplement 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	-



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

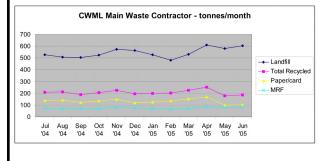


#### **Recycling**

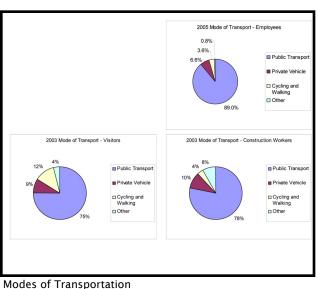
Canary Wharf Management Limited manage all the waste from the estate infrastructure (roads, parks etc) and from the buildings that we manage for tenants.

As far as space permits, different wastes are accumulated separately so that they can be sent for recycling.

Our main waste disposal contractor operates a Manual Recycling Facility (MRF) at its transfer station and so a proportion (currently 12%) of our mixed waste is also recycled.



#### Waste & Recycling (www.canarywharfenvironmentalandsocial.com)

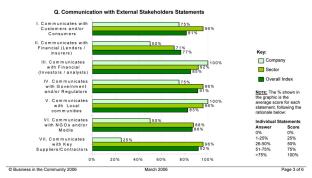


#### (www.canarywharfenvironmentalandsocial.com)

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



2004 – 2005 OBJECTIVES AND TARGETS					
Objective		Target			
POLICIES AND MANAGEMENT SYSTEM					
To develop environmental management		Carry out regular environmental inspections to cover all areas and activities in CWG.			
practices for CWG in line with internationally recognised standards.		Attain and maintain external certification against ISO14001 (carried over from last Year).			
COMMUNITY					
		Hold an expanded third Green Canary Day, using new parts of the Estate, by the end of 2004.			
To increase the environmental and social		Hold a fourth, transport themed, Green Canary Day, in conjunction with external organisers, by the end of 2005.			
awareness of tenants and visitors to Canary Wharf.		Invite feedback from Interested Parties on CWG's management of Significant Environmental Aspects (carried over from last Year).			
		Complete the development of the CWG Environmental web site.			
EMPLOYEES	-				
Increase environmental awareness for all staff, and appropriate tenants.		Develop environmental training courses for targeted groups where a need has been identified			

properly dispose of their old cell phones.

## 5. Performance Studies

Casella Stanger a UK based environmental consulting company verifies all data submitted within the Environmental and Social report. In addition to verification, Casella Stanger also observes and advises CWG in regard to compliance and performance.

CWG plc studies and reports on transportation related issues for staff and employees of the companies who utilize their management.

Business in the Community Environmental Index reports on confidential feedback. These results

#### Verification

OBJECTIVES OF VERIFICATION Canary Wharf Group plc (CWG) set itself its fourth series of		Observation : The target wording for some of the target was general in nature and some aspects of performance
environmental performance targets for the year July 2003 June 2004. This external verification statement provides	to PERFORMANCE IN 2003/04	not be quantified.
June 2004. This external verification statement provides reassurance to CWG's stakeholders that performance again		Recommendation 4 : CWG should improve target
these targets, as presented in this Environmental and Soci		setting processes to ensure that all targets are SMART
Report, has been audited and validated by an independen		(Specific, Measurable, Achievable, Realistic and Time-Bo
third party.	· We are satisfied that CWG has provided a complete and	and that performance can be quantified where possible
The process we have used in this verification exercise is ba	accurate reflection of progress against target achievem	Casella Stanger was pleased to observe
on current best practice, such as that detailed in the Globa	<ul> <li>2004 was a period of significant change at CWG and</li> </ul>	wide range of social and environmental initiatives impl
on current best practice, such as that detailed in the Globs Reporting Initiative (GRI), the Accountability Standard AA1	Casella Stanger was impressed by CWG's continuing	across CWG. However, formalised strategies and action
and the Association of British Insurers (ABI).	period. However, this has affected many of the strategi	tool of the second trends the second trends in performance could in Calways be tracked. This is particularly pertinent to CWG
RESPONSIBILITY OF THE VERIFIER	targets and has subsequently had an impact upon targ	Plocial initiatives, where a wide range of activities are cu
CASELLA STANGER	scores.	underway, but where no formal action plan or strategy
The verifier's obligation is to stakeholders and readers of this report.	We were particularly impressed by the following feature	place to catalogue and track activities.
this report.	CWG's environment programme:	Recommendation 5 : CWG should further formalise
The verifier exclusively is responsible for the contents of th	e* CWG's progress towards a formal EMS (ISO 14001),	initiatives by developing action plans which links to str
verification statement which has been published in full by	CWBarticularly with regard to the audit processes that are	
CWG has provided access to sites, records and data requir	in place;	and timescales, facilitate forward planning and track da
to undertake a comprehensive verification process and the		Etrends(Recommendation made in 2002/03)
verifier is confident that no material has been withheld.	employment, education and training, which promote s	ocial Observation : Casella Stanger was pleased to observe
	and economic regeneration in the London Borough of Tower Hamlets:	number of environmental training targets that are in pl
Casella Stanger has been involved in developing CWG's	Tower Hamiets; noContinued implementation of waste management initia	CWG. However, it was noted that due to staff reorganis
Sustainability Strategy and developing this report but has	hot-oncluded implementation of waste management initia both during construction and through subsequent	many of the staff that had previously received environr
been involved in CWG target setting or achievement.	engagement with tenants. CWG operates a number of	awareness training had left.
	biobly successful waste management schemes and has	Recommendation 6 : CWG should review and upda
This verification exercise has covered all 29 environmental	andworked proactively with tenants to increase the patron	Recommendation 6 : Cwd should review and upda
	theof such schemes;	to reflect recent staff changes. An updated training nee
analysis, as a lack of construction projects made it	CWG's performance in the Considerate Contractors	analysis should be undertaken and a training program
unachieveable. The targets reflect CWG's most significant	Scheme;	should be developed to ensure that existing staff have
aspects and covered the following areas:	<ul> <li>CWG's continued approach to biodiversity and habitat</li> </ul>	received appropriate training.
<ul> <li>Policies and Management Systems</li> </ul>	planning issues; and	
Community	CWG's approach to minimising environmental impact w	engen recommendations and actions are provided in the
Employees	possible through design and commitment to achieving Good' or 'Excellent' BREEAM ratings.	
Building Design		Ben Shuster Consultent
Site Construction	PRIORITY RECOMMENDATIONS	Consultant Environmental Management and Sustainability and Risk
Waste Management     Estate Management	Where the recommendation also applied in 2002/03 it is	
Estate Management     Environmental Stewardship.	indicated in italics	Tracy Oates
	Observation : There is no formalised process to impleme	Principal Consultant
This verification exercise has NOT covered:	recommendations from last year's verification process.	Environmental Management and Sustainability and Risk
<ul> <li>Text and statements in the report</li> </ul>	Recommendation 1 : A formalised process should be	Reviewed by:
<ul> <li>Report structure, balance or materiality.</li> </ul>	put in place to ensure recommendations from previous	Emma Griffiths
	verification processes and audit reports are implemented	Environmental Management and Sustainability and Risk
METHODOLOGY The 2003/04 targets were verified through independent a	auditedRecommendation made in 2002/03)	,
at CWG. This involved interviews with those responsible for	fitheervation - A number of tarnets were affected by staff	December 2004
targets, inspection of internal and external records, docum	Sence or reorganisation.	Casella Stanger
review and interrogation of in-house databases/Intranet w	here Recommendation 2 : CWG should develop processes	Great Guildford House 30 Great Guildford Street
appropriate. This information was used by the verifier to	to ensure that succession plans are in place to deliver fully	Apendon SE1 OES
determine the level of target achievement using the follow classifications:	aspects of target achievement and that these are fully	www.casellastanger.co.uk
classifications:	communicated to appropriate personnel.	
<ul> <li>Wholly achieved (100%),</li> </ul>		
<ul> <li>Substantially achieved (75–100%),</li> </ul>	Observation : The scope of some of the targets changed	
<ul> <li>Partially achieved (&lt;75%), or</li> </ul>	throughout the target year and it is not clear if on-going performance is tracked.	CACELLAT
<ul> <li>Not achieved (0%).</li> </ul>		CASELLAT
In addition to this verification statement, an internal audit	Recommendation 3 : CWG should improve	STANGER
report was produced for CWG. This provides further detail	communication to ensure that all target owners are aware	of .
of progress against specific targets and a number of	the specific requirements of each target at the beginning	Of Casella Stanger is an UK-based environmental consultancy that
recommendations and actions, which are summarised in		
this statement.	tracked throughout the target year to allow remedial activ be put in place if required. This process could be facilitate	Andpornibility, EMS, risk, air quality, noise, water quality and
	be put in place if required. This process could be facilitate the formation of action plans (or audit trails) for each targ	provide the second seco
	the termation of action plans (or audit trails) for each targ the beginning of the target-setting pressummendation	range of sectors. Several staff are registered with the institute of Environmental Management and Assessment (EMA) as

give sector wide results based on numerous models. In 2005 CWG ranked 3<sup>rd</sup> in the sector of Real Estate: Financials. (BiC, 2006). Specific areas include: Environmental Performance and Impact, Environmental Management, Waste and Resource Management, Climate Change, Biodiversity, Employee Environmental Programme.

Canary Wharf Management Limited studies and reports on waste management and recycling issues.

#### 6. Further Information www.canarywharf.com



(www.canarywharf.com)

## 7. References

Business in the Community. Environmental Index 2005 - Confidential Feedback Report London, 2006. Canary Wharf Group plc. Environmental and Social Report 2003-2004. London, 2004. Canary Wharf Group Website. Canary Wharf Group plc Feb 2006 http://www.canarywharf.com Canary Wharf Group Environmental Website. Canary Wharf Group April 2006 http://www.canarywharfenvironmentalandsocialreport.com Canary Wharf Group plc. Significant Environmental Aspects 2004-2005. London 2005. "Canary Wharf Estate - Assets and Liabilities" Eqi.com Estate Gazette Group March 2006 http://www.estatesgazettegroup.com/pdfs/Canary\_Wharf\_Topic\_Paper250504.df "Canary Wharf" Emporis.com Emporis Corporation. London March2006 http://www.emporis.com/en/wm/zo/?id=100059 "Canary Wharf" Engineering.com ENGINEERING.com Incorporated. 2006 Feb 2006 http://www.engineering.com/content/ContentDisplay?contentId=41010002 Canary Wharf Group plc. Biodiversity Action Plan 2004. Paul Stevenson, London. 2004. Chapman Taylor Architects Website. Chapman Taylor Feb 2006 http://www.chapmantaylor.com Foster and Partners Website. Foster and Parners. March 2006 http://www.fosterandpartners.com HOK International Website. Hellmuth. Obata + Kassabaum. Inc. March 2006. http://www.hok.com "Journey Planner" Journeyplanner.tfl.gov.uk Feb 2006 http://www.journeyplanner.tfl.gov.uk Kohn Pedersen Fox Website. Kohn Pedersen Fox Architects. March 2006 http://www.kpf.com Lawson, David. "Switching on to high-tech sustainability" Facilities Management 2004 1-4 Mornement, Adam. "Will Alsop designs a light rail station for Canary Wharf in London's Docklands" Architectural Record. V189 Issue 10. October 2001 pg. 48 "Nature's Way: a green roof forms a fifth elevation at Canary Wharf" Architecture Today. N 108. May 2000. Pg 99. Pei Cobb Freed & Partners Website. Pei Cobb Freed and Partners Architects LLP Feb 2006 http://www.pcfandp.com

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April 2006 http://www.greenroofs.com/archives/sg\_jan-apr04.htm

Young, Eleanor. "Corporate culture change: head offices" <u>RIBA Journal</u>. V110, n. 6. June 2003. Pg 58-63.

# Getting There and Back Again

## Journey Planner All

#### 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 st ↔ 10:04	Great Portland Street Take the Hammersmith & City Line towards Hammersmith (H&C Line) or Circle Line towards Baker Street	start map end map area map
10:07 ↔ 10:27	Baker Street Take the Jubilee Line towards Stratford or Jubilee Line towards West Ham	start map Av 20 mins journey end map time: area map Zone(s): 1, 2
*	<b>Canary Wharf</b> Walk to Canary Wharf (E14 5AB)	start map Transfer 7 time: mins end map 決決
10:34 e	nd Canary Wharf (E14 5AB)	
Interchai Not what	n journey time: 00:32 nges: 1 you expected? Click here for info isruptions	ormation on planned