
Green Architecture: UK
The Crystal
Wilkinson Eyre Architects

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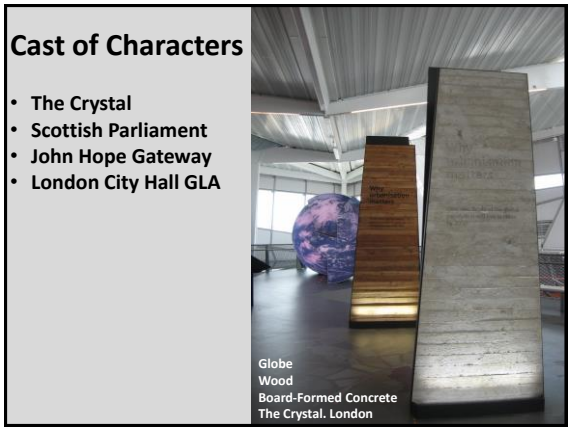
Conditions for Green Architecture
• Green Party
• Kyoto Accord
• European Union
• Paris Agreement
Green Wall/Fountain
North Greenwich

2


Cast of Characters
• The Crystal
• Scottish Parliament
• John Hope Gateway
• London City Hall GLA
Globe
Wood
Board-Formed Concrete
The Crystal. London

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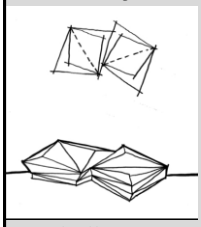
The Crystal



Half Office - Half Exposition

Siemens Urban Sustainability Centre - The Crystal
The Urban Sustainability Centre sits at the heart of London's Green Enterprise District on the western edge of the Royal Victoria Dock. The architectural concept for the building is based on two interlocking parallelogram forms with multiple triangular facets. Its crystalline geometry responds to its special location and contrasts with the curve of the O2 Arena beyond. A palette of reflective and transparent materials catches the light in different ways to create a dynamic composition on the waterfront.

Together with the exhibition hall which will host public events, the centre also includes an auditorium, conference and meeting facilities and office space. As a showcase for sustainable design and construction, the building incorporates high performance materials and building systems. The centre opened to the public in September 2012

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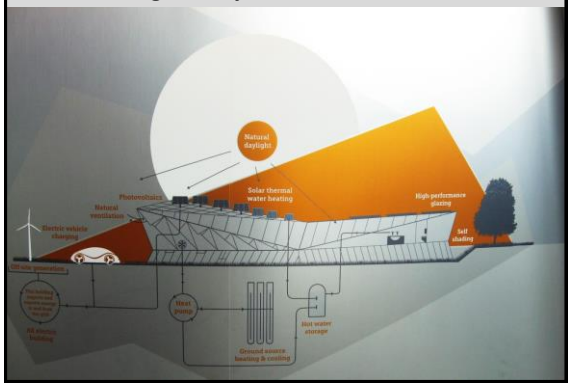
Cast of integrated systems



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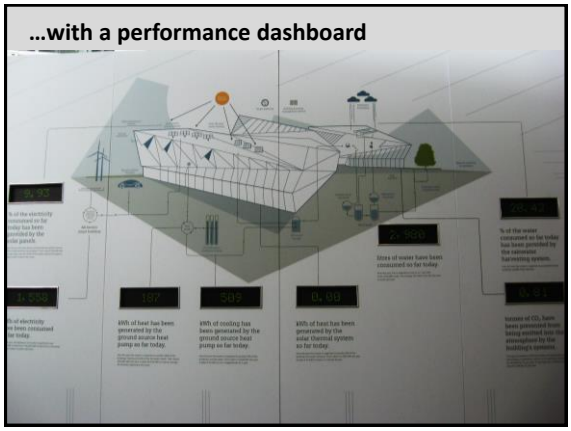

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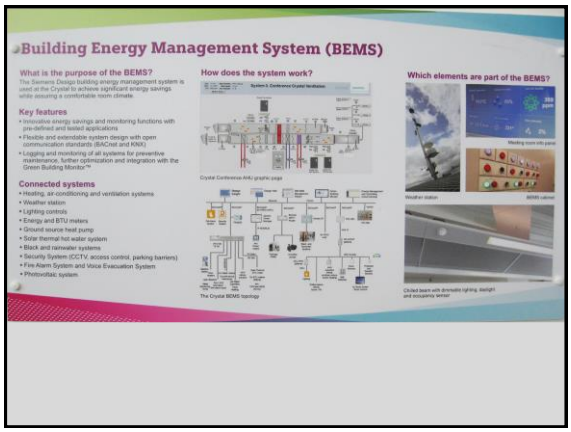

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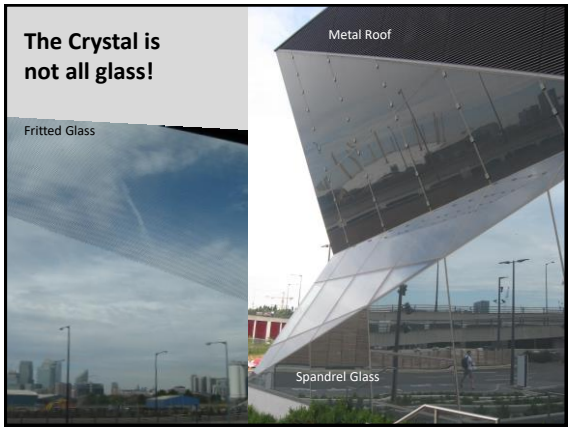
Complex mechanical room, home of the ground source heat pump, among other equipment.

9


The Crystal is not all glass!
Fritted Glass
Metal Roof
Spandrel Glass

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Spandrel Glass with Vents
Fresh Air Intake

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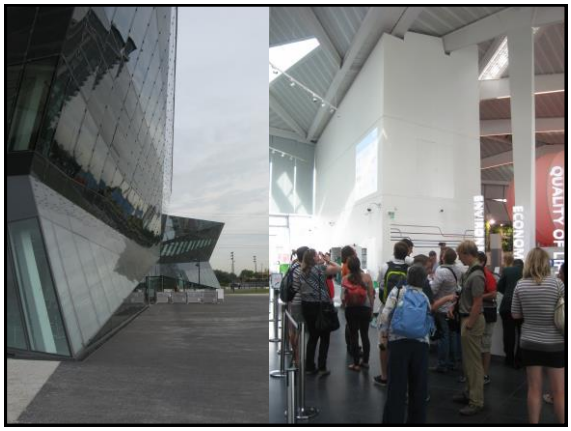

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Our future is built on sustainable cities
GREEN LIVING
Water is essential to life, our future on this planet depends on it.

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Roof hatch view of PVs and weather station

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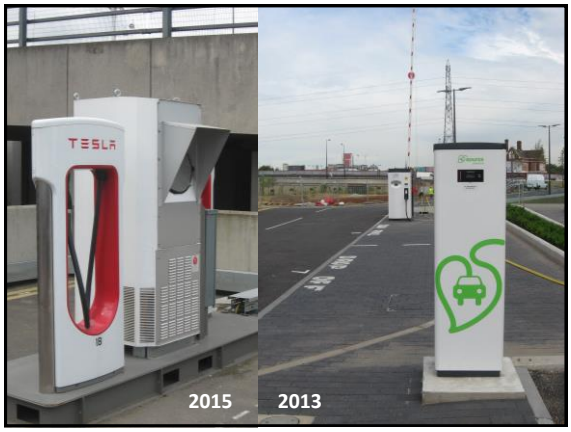

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NLA looks to a bit of empire building

Breaking News fall 2019…NLA will move in
Breaking News fall 2020…GLA will move in

New London Architecture looks set to launch a satellite centre – dubbed NLA East – in the former Siemens Crystal building (*above*) at the Royal Docks.

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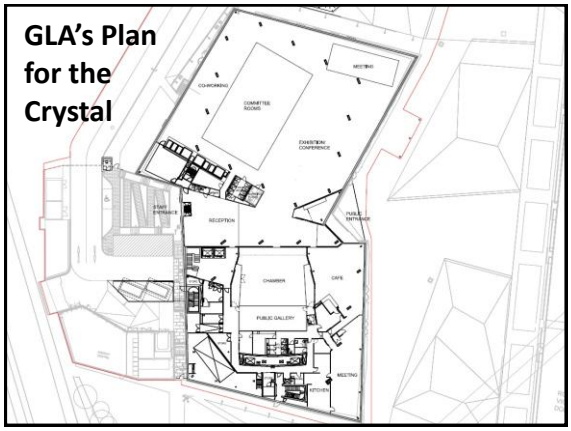
GLA's Plan for the Crystal



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Scottish Parliament

Enric Miralles

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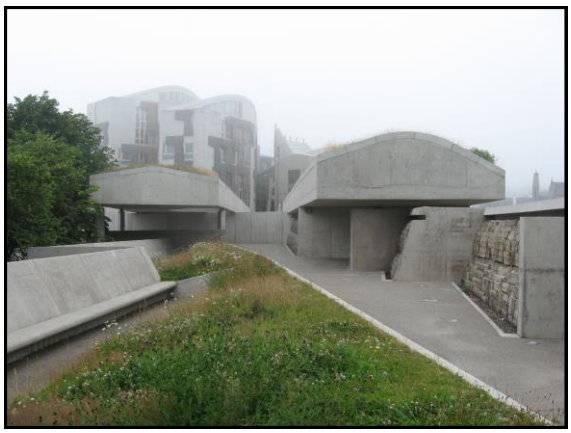

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Scottish Parliament
Public Entrance
Pàrlamaid na h-Alba
Doras a' Phobaill

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Environmental Performance
Excellent progress was made in 2013/14 to reduce the Parliament's carbon emissions with emissions reduced to 3023* tonnes of CO2e. This is a reduction of 30% on our baseline year of 2005/06 and a reduction of 6% on 2012/2013.
This reduction ensures that the Parliament is on course to achieve its ambitious target to reduce emissions by 42% by 2020.
The majority of the reduction was due to the installation more efficient technologies in the areas of lighting, air conditioning and pump controls and improved control of the buildings heating and ventilation systems.
Carbon Footprint
Reduce the Carbon Footprint by 32% from the 2005/2006 total by March 2015.
Progress by March 2014 - 32% reduction, by March 2017 – 36% (actual 31%)
Electricity
Reduce incoming electricity use by 32% from the 2005/2006 total by March 2015.
Progress by March 2014 – 30% reduction, by March 2017 – 36% (actual 30%)
Waste
Reduce landfill waste by 72% from the 2005/2006 total by March 2015.
Progress by March 2014 – 68% reduction. Recycling rates are approximately 80% By March 2017 – 72% reduction. Recycling rate 89%

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Scottish Parliament Performance overview From the annual report (financial year 2017/18)

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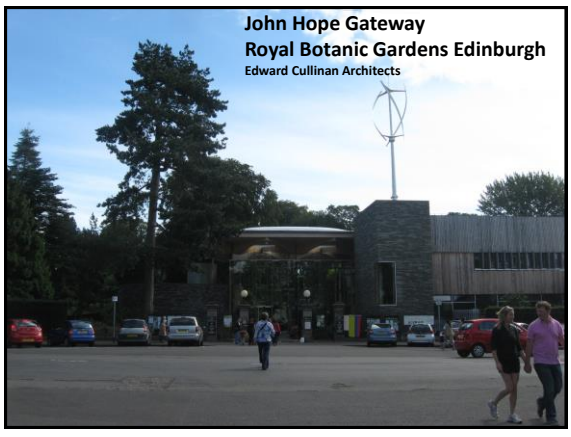

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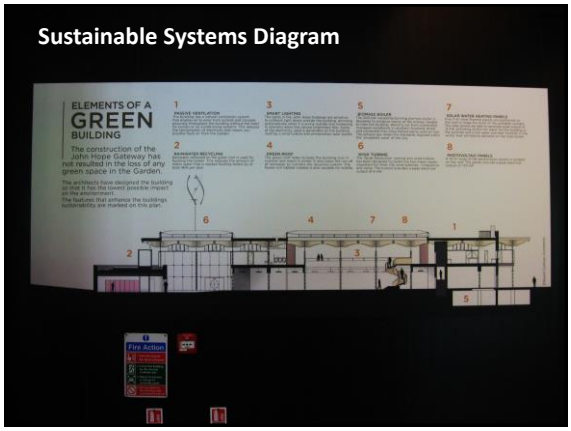
Sustainable Systems Diagram
ELEMENTS OF A
GREEN
BUILDING
The construction of the John Hope Gateway has not resulted in the loss of any green space in the Garden.

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Water catchment for the loo

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Beautiful carbon-positive wood construction

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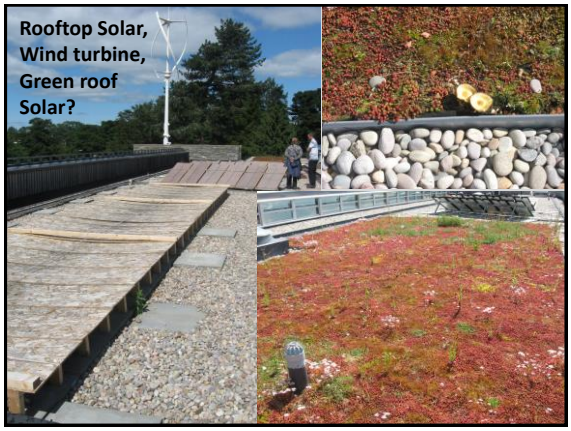
Rooftop Solar,
Wind turbine,
Green roof
Solar?

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Landscape integration

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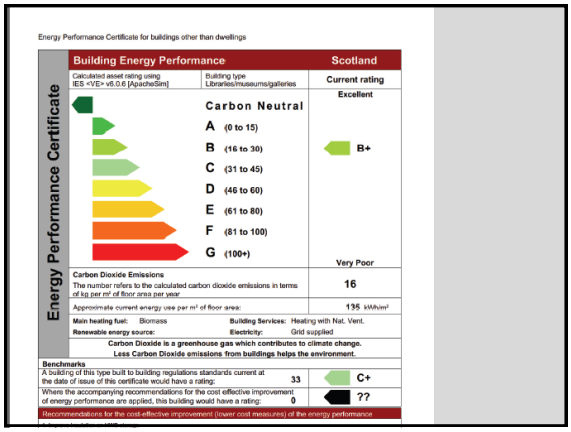

Energy Performance Certificate for buildings other than dwellings

Building Energy Performance — **Scotland**

Energy Performance Certificate

Calculated asset rating using IES <VE> v6.0.6 [ApacheSim]	Building type Libraries/museums/galleries	Current rating
		Excellent
Carbon Neutral		
A (0 to 15)		
B (16 to 30)		B+
C (31 to 45)		
D (46 to 60)		
E (61 to 80)		
F (81 to 100)		
G (100+)		Very Poor
Carbon Dioxide Emissions The number refers to the calculated carbon dioxide emissions in terms of kg per m² of floor area per year		16
Approximate current energy use per m² of floor area:		135 kWh/m²
Main heating fuel: Biomass	**Building Services:** Heating with Nat. Vent.	
Renewable energy source:	**Electricity:** Grid supplied	
Carbon Dioxide is a greenhouse gas which contributes to climate change. Less Carbon Dioxide emissions from buildings helps the environment.		
Benchmarks A building of this type built to building regulations standards current at the date of issue of this certificate would have a rating:	33	C+
Where the accompanying recommendations for the cost effective improvement of energy performance are applied, this building would have a rating:	0	??
Recommendations for the cost-effective improvement (lower cost measures) of the energy performance		

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London City Hall

aka Greater London Authority Building (GLA)

Sir Norman Foster with Arup

The mayor's vision is for London to become an exemplary sustainable world city, based on the three balanced and interlocking elements—strong and diverse economic growth; social inclusivity, allowing all Londoners to share in London's future success; and fundamental improvements in environmental management and use of resources.

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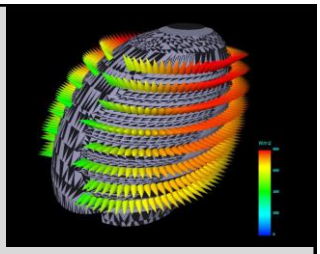
DESIGN CONCEPT

The design was revised from the architect's original all glass concept, dubbed the fencing mask, in response to sophisticated computer modeling by consulting engineer Arup who produced a "thermal map" to show how the heat from the sun would travel over the building's surface throughout the course of a year.



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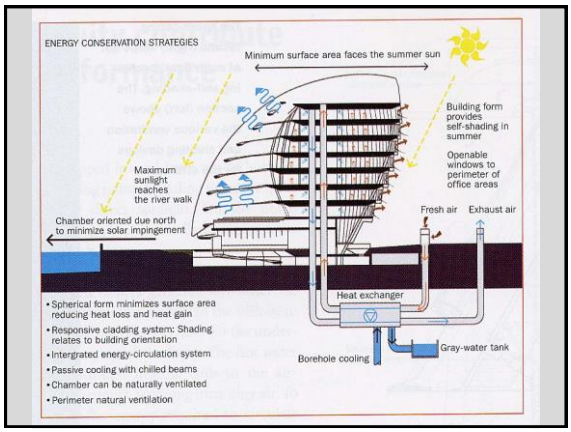

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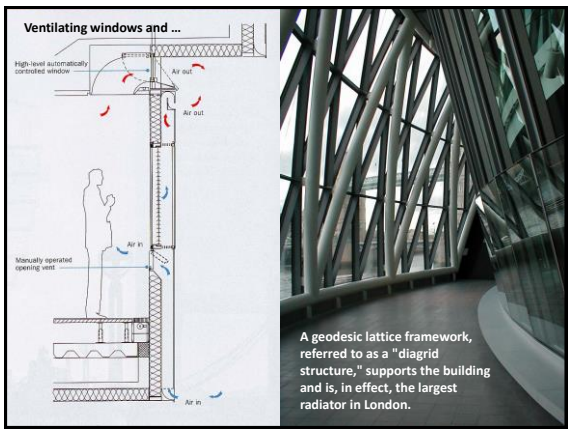

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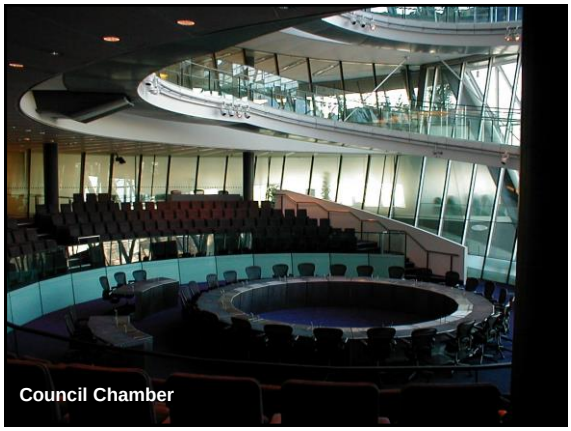
Council Chamber

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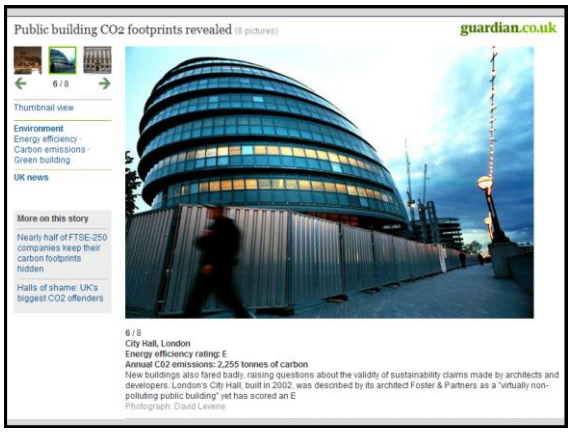
Public building CO2 footprints revealed (8 pictures)
guardian.co.uk
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Thumbnail view
Environment
Energy efficiency · Carbon emissions · Green building
UK news
More on this story
Nearly half of FTSE-250 companies keep their carbon footprints hidden
Halls of shame: UK's biggest CO2 offenders
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City Hall, London
Energy efficiency rating: E
Annual C02 emissions: 2,255 tonnes of carbon
New buildings also fared badly, raising questions about the validity of sustainability claims made by architects and developers. London's City Hall, built in 2002, was described by its architect Foster & Partners as a "virtually non-polluting public building" yet has scored an E
Photograph: David Levene

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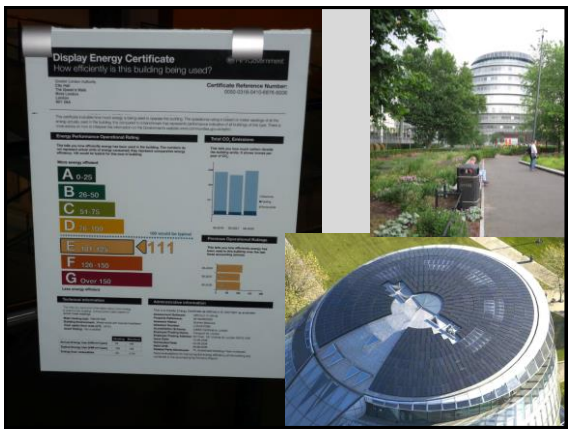
Display Energy Certificate
How efficiently is this building being used?
A 0-25
B 26-50
C 51-75
D 76-100
E 101-125
111
F 126-150
G Over 150

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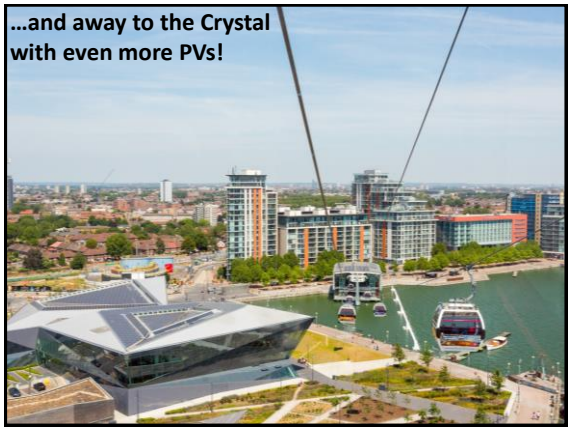
…and away to the Crystal
with even more PVs!

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…and there's more green architecture coming!
Gasholders retrofit
Wilkinson Eyre

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LONDON PROGRAM 2019
Summer Research Studio/Elective (6cr)
Study-English Green Architecture
Mid-June thru Mid-July 2019
Next in 2022
Appropriate for Seniors
and Grad Students
Information Meetings (choose one)
Wednesday Apr 11, 2018
Shop Crit
1:30 - 2:00
Thursday Apr 12, 2018
Shop Crit
1:30 - 2:00
Or contact Bruce Haglund <bhaglund@uidaho.edu> or in AAS306
Maths Display
Science Museum
London
Zaha Hadid

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Have a great break. Stay safe and well!!!

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