

Environmental Design Guide



CHAPMAN TAYLOR
GLOBAL ARCHITECTS & MASTERPLANNERS

2019

OUR PHILOSOPHY

Making buildings environmentally sustainable and economically viable has always been a challenge for designers. However, client and public perception of the value of effective sustainable design has changed dramatically. Technological innovations and wider understanding of efficient systems have meant that this challenge has become considerably more achievable.

A fundamental approach at Chapman Taylor has always been about creating the right urban framework and mix of uses that are the foundation of economically, environmentally and socially sustainable places for living. As creative and sustainability-conscious designers, we have an underlying objective to maximise the potential of any scheme, whilst striving to minimise its environmental impact. Understanding the guiding principles of good design is at the heart of our approach. This booklet sets out some of these principles as a starting point and can be used as a catalyst for further research.



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Registered office 10 Eastbourne Terrace, London, W2 6LG.

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1 Urban Design

With global populations growing, creating sustainable towns and cities is key to the future success of our communities. The principles of sustainable design can apply to any environment and the following key factors should be considered:



2

Retail

The way we buy things is changing, our retail environments are no longer just about shopping. The following principles should be considered in order to create the successful, sustainable retail developments of the future, and can be applied across any scheme.

Daylight
High Street
Mall vs Street
Comfort
Retailers
Solar Gain
Enclosed Space
Social Opportunities
Life Cycle Cost
Access
Scale
Developer
Transportation
Covered Street
Energy Consumption
Target Reductions
Convenience
Townscape
Commercial

RESPONSIBLE
REDEVELOPMENT

COMMUNITY
INTEGRATION

MIX OF USES

OPEN VS ENCLOSED
ENVIRONMENTS

COMMUNITY COHESION

PROACTIVE

POSSIBILITIES

EXPERIENTIAL

OF THE UK'S TOTAL CO2
EMISSIONS COME FROM THE
RETAIL SECTOR

(Green Construction Board)

4.2%

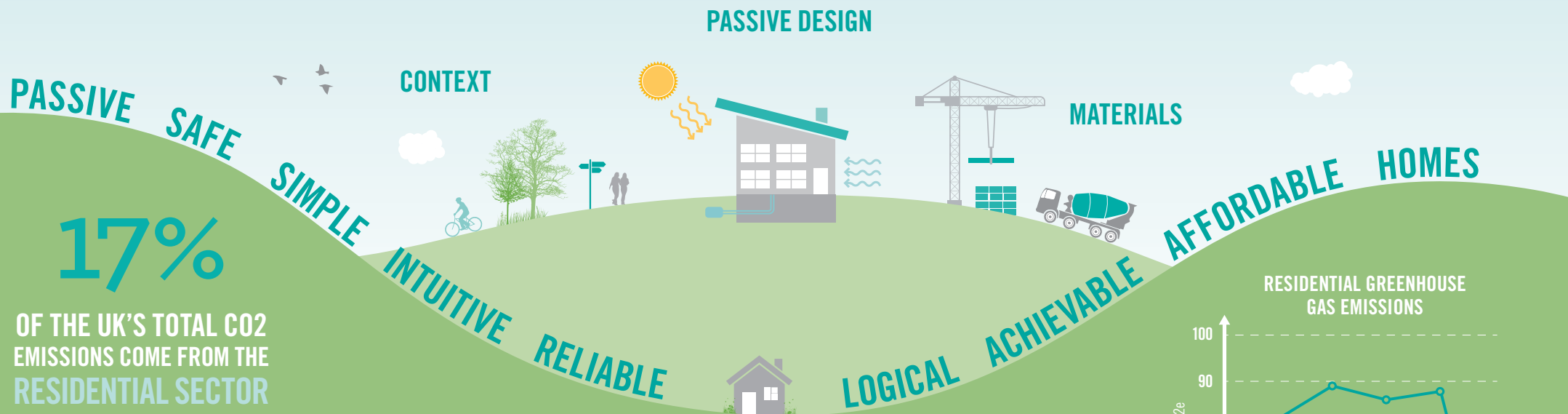
£40 MILLION
OF ENERGY IS CONSUMED
PER YEAR BY THE UK'S 40 LARGEST
SHOPPING CENTRES

(Building.co.uk)
Most recent figures 2013

MIXED USES

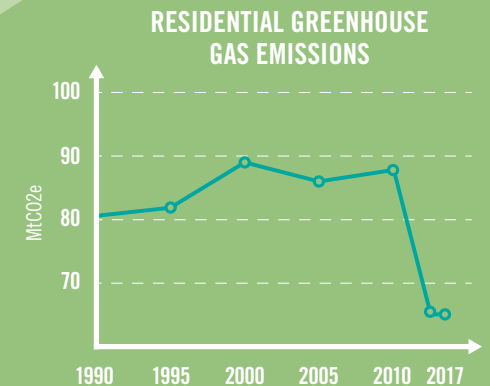
3 Residential

Providing enough housing for those who need it is already a significant challenge, but creating sustainable developments helps to future-proof our homes and protect our planet. These key factors should be considered when designing residential schemes and can be applied to any context:



(Department for Business, Energy & Industrial Strategy 2016–2017)

QUALITY OF LIFE



(Department for Business, Energy & Industrial Strategy 2016–2017)

4

Offices

Changes in technology have transformed the way we work. Designing sustainable workplaces can help to ensure our office environments accommodate how we will work in the future. The following points are instrumental when developing workplace schemes and can apply to any context:

Structure
Occupancy
Shallow
Site Analysis
User Control
Daylight
Window to Window
Performance Targets
Ventilation
Atrium
Ratios
BMS
Refurbishment
Commercial
Water
Viability
Net to Gross
Workplace Density
Brief
BCO
Deep
Intelligence

NATURAL LIGHT

ATRIA

TRANSPORT LINKS

ORIENTATION

TECHNOLOGY
PROTOTYPE

FLEXIBILITY
BRIEF OPPORTUNITY

69%

OF ENERGY CONSUMPTION IN UK OFFICE BUILDINGS IN 2014 WAS USED FOR HEATING AND LIGHTING

(Department for Business, Energy & Industrial Strategy 2016–2017)

AVERAGE OFFICE DENSITY



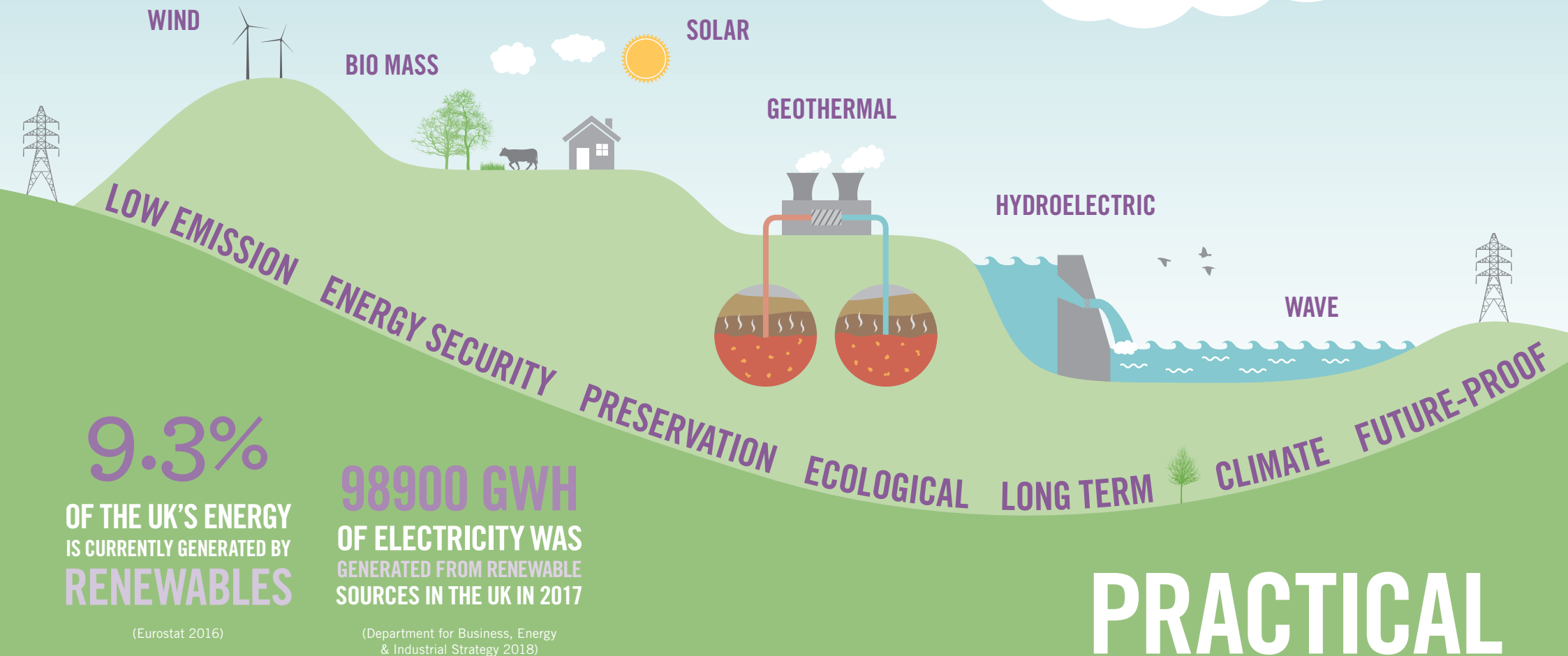
(British Council of Offices, Occupier Density Study 2013 & 2018)

EFFICIENCY

5 Renewables

Sources of renewable power will help us manage our future energy needs and can be included in many types of development. When introducing renewable energy generation into a design scheme a number of key points need to be considered:

Complexity
Technology
Location
Usability
Intelligence
Economy of Scale
Reliability
Viability
Fit for Purpose
Payback
Appropriate
Green Tariffs
Efficiency
Offset
Infrastructure
Application
Cost
Life Cycle
Local Climate



OUR PROJECTS

At Chapman Taylor we support and practise sustainable design. Our projects aim to improve the social, economic and environmental value of the built environment through a number of sustainable features, from the use of renewable energy and passive strategies to the simple reuse and repurposing of existing buildings. The following is a showcase of projects that incorporate sustainability from the outset.

PROJECT	CERTIFICATION	COMMUNITIES & SOCIAL	COOLING & VENTILATION	GREEN ROOFS / PLANTING	INNOVATION	LAND USE & ECOLOGY	LOW / ZERO CARBON	MATERIALS & WASTE	PASSIVE DESIGN	RENEWABLES	TRANSPORT	WATER
TRINITY LEEDS, UK	•		•			•	•	•	•		•	•
FLOREASCA PARK BUCHAREST, ROMANIA	•		•			•	•	•	•	•	•	•
PRINCESSHAY EXETER, UK	•		•			•		•	•		•	
AIRPORT CONNECTOR BRUSSELS, BELGIUM			•		•		•		•	•	•	•
NOI TECHPARK BOLZANO, ITALY	•		•	•	•	•	•	•	•	•	•	•
EAST KIDWAI NEW DELHI, INDIA	•		•	•	•	•	•	•	•	•	•	•
ESPACIO CORUNA A CORUNA, SPAIN	•		•	•	•		•	•	•		•	•
MEDIACITYUK MANCHESTER, UK	•		•			•	•	•	•	•	•	

FEATURES GUIDE



CERTIFICATION

Sustainability-focused accreditation, such as LEED or BREEAM ratings



COMMUNITIES & SOCIAL SUSTAINABILITY

Forward-thinking design that enhances the local community



COOLING & VENTILATION

A sustainable approach to thermal comfort requirements



GREEN ROOFS / PLANTING

Introduction of soft landscaping for numerous sustainable benefits



INNOVATION

A unique, forward-thinking approach to sustainable design



LAND USE & ECOLOGY

Measures to protect the surrounding environment and wildlife habitats



LOW / ZERO CARBON

Minimising embodied energy of building materials



MATERIALS & WASTE

Responsible specifying, resourcing and recycling of materials



PASSIVE DESIGN

HVAC strategies that take advantage of local climate conditions



RENEWABLES

The provision of energy without the exploitation of fossil fuels



TRANSPORT

Proximity to the public transport network, avoiding reliance on cars



WATER

Rainwater harvesting and re-use, and reduction in water use generally



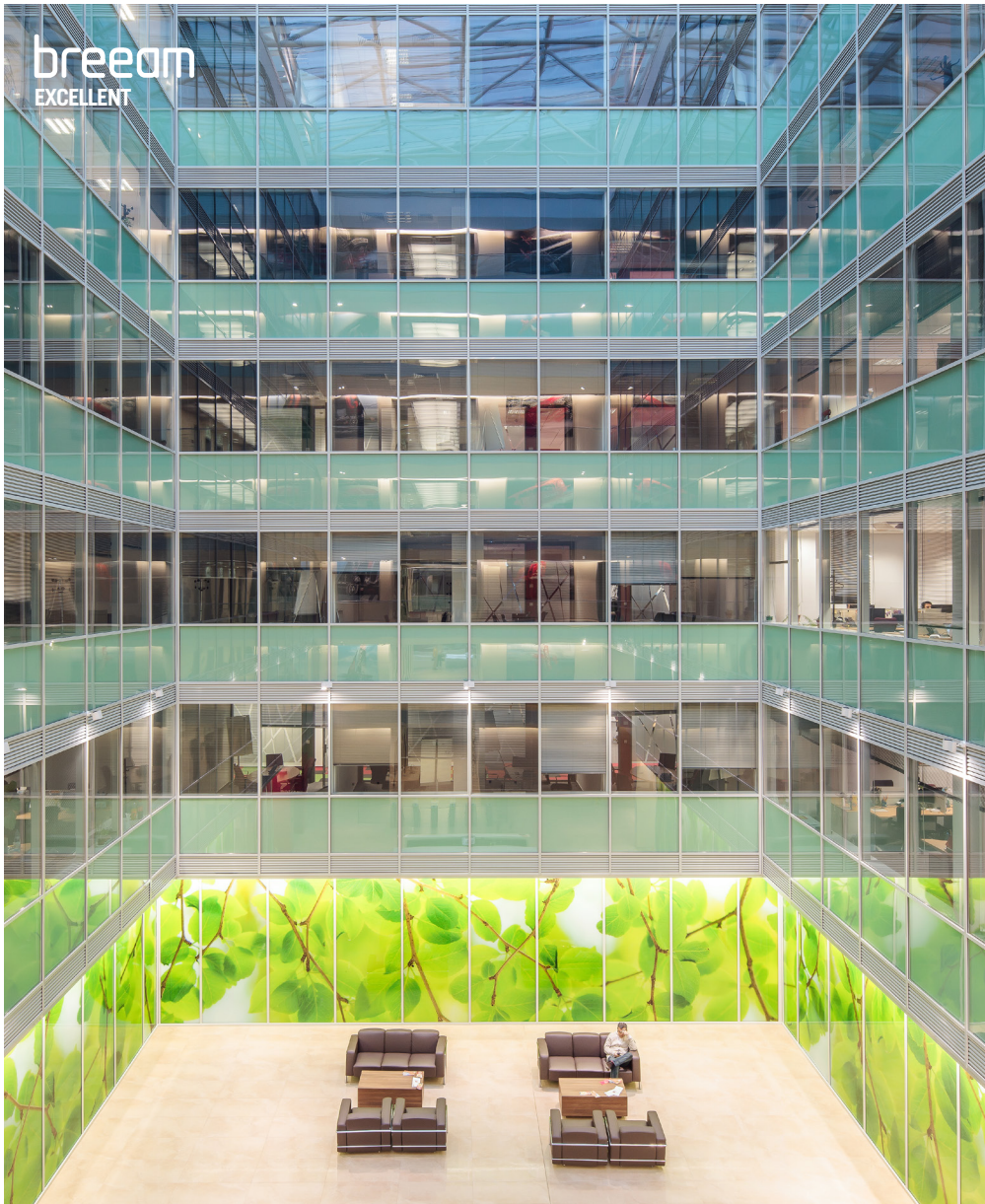
TRINITY LEEDS

Leeds, UK

Trinity Leeds is a large city centre retail scheme built on a brownfield site where demolition materials were re-used. The scheme benefits from an innovative gridshell roof which allows for daylight and natural ventilation. The envelope benefits from a substantial improvement to the thermal requirements set out in building regulations.

PROJECT FEATURES





FLOREASCA PARK

Bucharest, Romania

Floreasca Park has been designed to provide a combination of high specification, efficient office spaces with particular focus on low energy consumption. The buildings are designed in accordance with BREEAM recommendations based upon attention to: health and well-being of workers, energy efficiency, transport, use of water, waste treatment, sourcing of construction materials and pollution.

CEEQA OFFICE DEVELOPMENT
OF THE YEAR 2014

PROJECT FEATURES



PRINCESSHAY

Exeter, UK

This city centre mixed-use scheme built on a former brownfield site has achieved BREEAM Very Good. The development has carefully woven new buildings into the existing urban fabric with new residential apartments placed over the retail element. During the construction of Princesshay 90% of the demolition waste was re-used.

PROJECT FEATURES





CONNECTOR

Brussels Airport,
Belgium

The connector building at Brussels Airport links two existing terminals. The building is designed to take advantage of daylight and solar shading. Energy is taken from a ground-source heat pump and the scheme also benefits from rainwater recycling and connections to local public transport. This development is economically sustainable, refurbishing and renovating existing airport terminals rather than building a new transport hub.

PROJECT FEATURES



LEED
GOLD

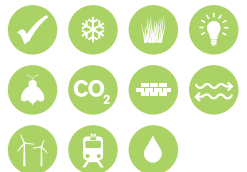


NOI TECHPARK

Bolzano, Italy

The new, contemporary design for NOI Techpark has seen the restoration of two existing buildings and the construction of a new workplace building. This additional building has a high-tech, innovative façade and sustainable energy footprint that is close to zero consumption, allowing it to exceed the criteria imposed by the new European directive on energy performance. The project has LEED v4 Neighborhood Development Gold sustainability certification.

PROJECT FEATURES

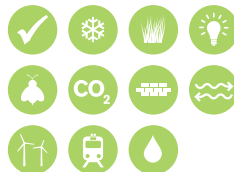




EAST KIDWAI
New Delhi, India

This large scale residential project of 4,600 units is a model government-backed zero carbon development. Sustainable measures include water recycling and re-use, solar shading and extensive soft landscaping including a water feature to create a microclimate. Local transport is connected and traffic reduction is promoted.

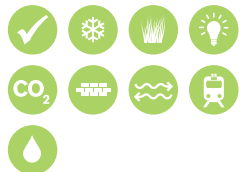
PROJECT FEATURES



ESPACIO CORUNA
A Coruna, Spain

This retail and leisure hub is built on a brownfield site and integrated into its surroundings through extensive landscaping. The scheme embraces the maritime heritage of its context and is constructed using locally sourced materials. It benefits from natural daylight and has a hydraulic ring for thermal exchange, as well as a rainwater recycling system.

PROJECT FEATURES



breem
SUSTAINABLE COMMUNITIES
EXCELLENT



MEDIACITYUK

Salford, UK

MediaCityUK is an exemplar sustainable scheme becoming the first in the world to obtain BREEAM 'sustainable Community' status. It also benefits from BREEAM Excellent and Eco homes Very Good Ratings. The Salford development is home to the BBC and Salford University and includes a mix of major new offices, production facilities and studios, a hotel, retail and catering services

and a number of residential apartments. There is an onsite energy centre that heats, powers and cools the buildings. A new Metrolink tram connects the development to the city centre and this, combined with extended cycle routes and new bus routes have helped the scheme gain innovative green credentials.

PROJECT FEATURES



OFFICES

LONDON (Head Office)

10 Eastbourne Terrace
London W2 6LG
United Kingdom

T +44 (0)20 7371 3000
E london@chapmantaylor.com

ABU DHABI (Associate Office)

Prime Engineering Consultants
Al Salmein Golden Tower
Electra Street, 3rd Floor, 303
Abu Dhabi

P.O. Box 108353
United Arab Emirates
T +971 2 679 9899
E omar@primeec.com

BANGKOK

Unit A3, 3rd Floor Goldenland Building
Soi Mahardlekluang 1, Rajdamri Road
Lumpini, Prathumwan
Bangkok 10330, Thailand

T +66 (0) 26522270
E bangkok@chapmantaylor.com

BEIJING

Room 1753, Air China Plaza
36 Xiaoyun Road
Chaoyang District
Beijing 100027
China

T +86 10 5765 4967
E jzhang@chapmantaylor.com

BRISTOL

40 Queen Square
Bristol BS1 4QP
United Kingdom

T +44 (0)117 364 3250
E bristol@chapmantaylor.com

BRUSSELS

Blvd de Waterloo
Waterloolaan 34
1000 Bruxelles – Brussel
Belgium

T +32 (0)2 513 5956
E brussels@chapmantaylor.com

DUBAI (Associate Office)

Prime Engineering Consultants
One by Omniyat Tower
Level 11, Office 1102
Business Bay
PO Box 118761
Dubai
United Arab Emirates

T +971 04 431 0661
E omar@primeec.com

DÜSSELDORF

Klaus-Bungert-Straße 3
D-40468 Düsseldorf
Germany

T +49 (0)211 88 28 69 0
E dueseldorf@chapmantaylor.com

MADRID

Paseo de Recoletos 16
7ª Planta
28001 Madrid
Spain

T +34 91 417 0925
E madrid@chapmantaylor.com

MANCHESTER

Bass Warehouse
4 Castle Street, Castlefield
Manchester M3 4LZ
United Kingdom

T +44 (0)161 828 6500
E manchester@chapmantaylor.com

MILAN

Via Pietrasanta 14
20141 Milan
Italy

T +39 02 8909 5077
E milan@chapmantaylor.com

MOSCOW

40/2 Prechistenka Street
Building 2
119034 Moscow
Russia

T +7 495 785 2717
E moscow@chapmantaylor.com

NEW DELHI

A1/54 Lower Ground Floor
Safdarjung Enclave
New Delhi 110029
India

T +91 11 4601 9668
E newdelhi@chapmantaylor.com

PARIS

6, Rue Saint-Claude
75003 Paris
France

T +33 (0)1 48 07 55 00
E paris@chapmantaylor.com

PRAGUE

Edison Building
Jeruzalémská 1321/2
Prague 1, 110 00
Czech Republic

T +420 224 214 121
E prague@chapmantaylor.com

SHANGHAI

601, The Center
989 Changle Road
Xuhui District, Shanghai 200031
China

T +86 (0) 21 6040 7277
E shanghai@chapmantaylor.com

WARSAW

ul. Nowogrodzka 47A
00-695 Warsaw
Poland

T +48 22 585 1015
E warsaw@chapmantaylor.com



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www.chapmantaylor.com